REINHARDT, JILL Y., Ed.D. Improving Classroom Practice through Collaborative Inquiry: A Case of Flipped Learning. (2014)
Directed by Dr. Carl Lashley. 136 pp.

The purpose of this study was to engage practitioners in collaborative inquiry in order to examine the concept of flipped learning. At the core of this concept is the notion of flipping or reversing traditional instructional practice with traditional homework. Nine teachers across three grade spans, K-5, 6-8, and 9-12 and three non-instructional practitioners (one media coordinator, one instructional technology facilitator, and one assistant principal), participated in this process of examining flipped learning and creating a framework for practice and implementation. These teachers engaged in this collaborative inquiry as action researchers within a professional learning community (PLC). These participants not only examined flipped learning as described by others, but also examined their current practices as they challenged themselves to develop strategies for flipped learning, and to develop a framework for practice across three grade spans in our district: K-5, 6-8, and 9-12. The framework design within this study emerged from the analysis of the data: teacher reflections, surveys, observations, and interviews. The purpose of this study was not to determine any quantifiable effects of flipped learning, but further develop an understanding of this pedagogical approach to learning and the implications for practice within our own district and for others considering implementation.

IMPROVING CLASSROOM PRACTICE THROUGH COLLABORATIVE

INQUIRY: A CASE OF FLIPPED LEARNING

by

Jill Y. Reinhardt

A Dissertation Submitted to
the Faculty of The Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Greensboro
2014

Approved by

_____
Committee Chair

I dedicate this dissertation to those in my life who have encouraged me through this journey. I make this dedication, first, to my husband, Charles C. Reinhardt, for his love, patience, and total support in all that I pursue.

I also dedicate this dissertation journey to my parents, Carl and Frances Young, for unconditional love and believing in me. You have taught me well and guided me to understand that

"I can do all things through Christ who strengthens me" Philippians 4:13.

This dissertation, written by Jill Y. Reinhardt, has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

Committee Chair _____

Committee Members _____

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Date of Acceptance by Committee

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Date of Final Oral Examination

ACKNOWLEDGMENTS

First and foremost, I thank Dr. Carl Lashley, Committee Chair, for his support, wisdom, and encouragement in my journey to dissertation. Also, I acknowledge my committee members, Dr. Ann Davis, Dr. Craig Peck, and Dr. Rick Reitzug, for your willingness to serve on my committee and to challenge me. I count it a privilege to have worked with each of you.

To my twelve research participants in this study, thank you for your time and commitment to improving our practice. Your professionalism, expertise, and knowledge make you all great educators and have challenged me to think deeply. I wish all of you continued success in your careers.

Finally, I acknowledge my colleagues and friends with whom I have shared this journey: Dr. Terri Mosley and Jennifer Scott.

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CHAPTER I

INTRODUCTION

American education is approaching a critical period in its history. Despite great advances in knowledge about student learning and the investment of tremendous amounts of time, effort, and money, our schools still have not moved very far toward the goals of increased learning for all students. Present policies and practices continue to produce the same normal achievement distribution in the learning of classroom after classroom of students that was produced in the learning of the students' parents and perhaps grandparents. (Block, 1971, p. 2)

The words of James Block, written in the early 1970s, not surprisingly still stand true today a decade into the 21st Century. American education continues to face a critical point in its history; our educational system continues to struggle with the achievement of all learners; and education in many places still looks much like the education of our ancestors. The paradigm of education as we have known it must change. We cannot operate in a business as usual mode (McNulty, 2011). Nationally, this need is acknowledged and is reflected in the development of national standards, raised achievement levels, changing assessments, and improvement of practice through evidence-based instructional models and supports (U.S. Department of Education, 2010a). Additionally, this critical need is acknowledged through professional teaching standards that direct teachers to collaborate, reflect, and develop personalized plans for individual students (North Carolina Professional Teaching Standards, 2013). Changing the educational paradigm of our ancestors requires us to modernize our thinking about education and change those memories of what it used to be (Chen, 2010). This will

require innovation, creativity, and embracing new ways of thinking. We must create learning environments where there is less teaching and more learning—less focus on whole groups of students and more focus on personalizing and individualizing learning for all students.

A recent concept—one that embraces technology and innovation, and focuses more on learning—called *flipped learning* has gained considerable attention all over the country and the globe. Teachers and practitioners are implementing the concept in their classrooms—secondary and post-secondary—and many of them reporting positive results from their implementation. At the core of this concept is the notion of flipping or reversing traditional instructional practice—shifting direct learning out of the large group learning space and moving it into the individual learning space with the help of one of several technologies (Hamdan, McKnight, McKnight, & Arfstrom, 2013).

Within this structure, a teacher would record his or her lecture—instead of delivering the lecture live in front of the students. The students would listen to the lecture portion of instruction outside of the regular class time—the time normally relegated to practicing what was previously taught in class. Instead, the student is gaining new knowledge about a particular concept or topic and is preparing himself or herself for the upcoming class time—the time in which he or she will engage in active learning structures and collaborate with peers or with the teacher to further develop or master the skills being taught (Hamdan et al., 2013; Bergmann & Sams, 2012). Additionally, as all students do not learn at the same rate and in the same way, the teacher closely monitors what individual students know and are able to do more readily while the

students are in the classroom with an expert—the teacher—rather than at home or outside the class time without assistance (Carroll, as cited in Guskey, 1985; Tomlinson, 1999).

Flipped learning supports 21st Century teaching and learning structures and practices such as personalizing and individualizing learning for all students. Our current practice must include a renewed focus on the needs of the individual student, responsibility for all students' learning, directed learning toward student interest, and differentiation of learning adapting to the strengths and weaknesses of all students (North Carolina Professional Teaching Standards, 2013).

Problem Statement

The Blueprint for Reform (U.S. Department of Education, 2010a) proposes all children receive a world-class education with a focus on teacher and school effectiveness and tailoring instruction to meet students needs. Engaging students in individualized learning paired with effective integration of technology through flipped learning, however, demands a shift from traditional instructional practices. This shift requires inclusion of technology, innovation, and sound pedagogical practice.

> The National Education Technology Plan 2010 (NETP) calls for revolutionary transformation rather than evolutionary tinkering. It calls for our education system at all levels to redesign structures—recognizing the importance of technology and leveraging it to provide engaging and powerful learning experiences and to provide an environment in which students are at the center and empower them to take control of their own learning by providing flexibility on several dimensions. (U.S. Department of Education, 2010b)

Some studies, however, indicate teachers who do integrate technology do so to support, rather than alter, their existing teacher-centered practices (Peck, Cuban, & Kirkpatrick,

2002). This is a dilemma. The research focus of this study is grounded in improving current practice using flipped learning as an innovative model that integrates technology into more student-centered practices answering the demand of educational change, embracing technological advances, and individualizing instruction for all students.

Although many are experimenting with flipped learning, there is limited substantive research on flipped learning or empirical evidence of the effects of flipped learning (Hamdan et al., 2013). However, there is substantial research supporting the foundational approaches to learning in the flipped model (McKnight, 2013). Exploring this practice provides an additional source for other educators who are examining its benefits and challenges and considering its potential as a "next practice" (McNulty, 2011)—one that has yet been fully proven through empirical means to raise achievement and change our education paradigm, but one such practice that is worth exploring.

Purpose of the Study

The focal concepts for this study are two-fold: a focus on flipped learning and its implications for practice and a focus on practitioner collaborative inquiry. Pairing the two is required of us in order for our pedagogical practices to meet the demands of our ever-changing world, to change the look of education from twentieth to twenty-first century thinking, and to empower teachers and students to work in a more student-centered, technology-enhanced environment.

I am particularly concerned as an educational administrator about the lack of meaningful professional learning in our schools. As Darling-Hammond (2010) reminds us, there is a considerable amount of time spent in our schools actually with students

engaged in instruction and much less time spent preparing for that instruction. Therefore, in order to develop an environment of collaborative inquiry, teachers must leave the comfort of their own classrooms and enter into an environment where teachers are learners who study their current practice and who reflect upon what successful practice looks like. The conditions must include opportunities for teachers to learn from each other, to learn from experts—internal and external—and to become reflective practitioners who are learning and re-learning to improve teaching and learning in their schools (Darling-Hammond, 2010; DuFour & Marzano, 2011). Ultimately, collaborative environments in our schools begin by eliminating the isolation of teaching alone (Schmoker, 2006); and secondly, by initiating an inquiry into practice—reflecting upon current practice and asking if it is working (Reeves, 2008).

Therefore, one purpose of this study was to engage practitioners in collaborative inquiry. The participants in this study were charged with examining flipped learning, creating flipped learning opportunities across an entire district, examining implications for practice, and adding to the current literature on flipped learning. Nine teachers across three grade spans, 3-5, 6-8, and 9-12 and three non-instructional practitioners (one media coordinator, one instructional technology facilitator, and one assistant principal), participated in this process of examining flipped learning and creating a framework for practice and implementation. These teachers engaged in this collaborative inquiry as action researchers within a professional learning community (PLC). These participants not only examined flipped learning as described by others but also examined their current practices as they challenged themselves to develop strategies for flipped learning, and to

develop a framework for practice across three grade spans in our district: K-5, 6-8, and 9-12.

From the collaborative inquiry of this study, a framework was designed for flipped learning that is two-fold: (a) a pedagogical framework, based on the review of literature and informed by the collaborative work of the practitioners involved in this study, and (b) a framework for implementation, additionally informed by the collaborative work of practitioners and lessons learned through their implementation and research. This study adds to the current knowledge surrounding the implementation of flipped learning and provides implications for practice for flipped learning.

The purpose of this study was not to determine any quantifiable effects of flipped learning but to further develop an understanding of flipped learning, the underlying approaches to learning it affords, and the implications for practice within our own district and for others considering implementation. Additionally, as practitioners engaged in this collaborative inquiry, they were able to examine their own practice and determine methods for improvement.

Perspectives of the Researcher

I am currently serving as a district Director of Secondary Education for grades 6-12 and work closely with the district Director of Elementary Education for grades K-5. Formerly, I have served as an instructional specialist, a high school principal, and director of technology in my school district. In my current work, I focus on curriculum and instructional needs,including instructional technology. Within my work and scope of responsibilities over the last several years, I have recognized the need for teachers to

integrate technology effectively into their instruction and to find ways to increase student ownership and engagement in their classrooms. It is my intention with this study to review the implications of an emerging model of flipped learning (as introduced by the researchers at George Mason University and Bergmann and Sams (2012) who wrote *Flip Your Classroom: Reach Every Student in Every Class Every Day*) and to engage practitioners in collaborative inquiry.

Although I am a district director, I do not serve in an evaluative role of teachers nor do I evaluate the practitioners with whom I have collaborated in this project.

Significance of the Study

This study brings attention to our classrooms through the direct work of our teachers. This study engaged practitioners—teachers and other school-based personnel— in the process of examining flipped learning and examining practice through collaborative inquiry to develop a knowledge base of flipped learning and pedagogical implications rather than theories based on what has been prescribed from the top-down (Goodnough, 2010). The key to improved learning for our students is job-embedded learning for educators (DuFour, DuFour, Eaker, & Many, as cited in Dufour, DuFour, & Eaker, 2008, p. 14). Therefore, as flipped learning has developed attention as a grass roots effort, continuing this avenue of development of practice from the work of practitioners is significant.

The study provided a close look at pedagogical practice, not only through the lens of flipped learning but also through the lens of active, individualized learning enhanced by the power of technology in blended learning environments. Many tout and

many question the acclaimed effects of flipped learning. Without rigorous data to support the claims, this study adds to the qualitative data concerning flipped learning as the pedagogical framework provided is guided by sound pedagogical practice and has the power to shift traditional practice for 21st century learners and educators. Most important to note, the framework developed suggests there is more to flipped learning than videos. Flipped learning can create environments that enable the teacher to reach all students, everyday—through active, engaging learning environments for all students.

Definitions of Key Terms

1:1—One-to-one access to wireless, Internet-enabled devices.

Action Research—**"**Inquiry that is done by or with insiders to an organization or community, but never to or on them. It is a reflective process, but is different from isolated, spontaneous reflection in that it is deliberately and systematically undertaken and generally requires that some form of evidence be presented to support assertions" (Herr & Anderson, 2005, p. 3).

Collaborative Inquiry—Inquiry by teachers acting in a collective way to examine their practice and examine methods to improve their practice.

Flipped Learning—A method of inverting or reversing typical "homework" assignments with "in-class" work.

Learning Management System—A software system used to deliver and support course content, track and assess student progress. (Haiku, provided by haikulearning is the LMS mentioned by the participants in this study.)

Pedagogy—The method and practice of teaching, especially as an academic subject or theoretical concept (http://www.oxforddictionaries.com/us/definition/american_english/pedagogy).

Professional Learning Community—Educators committed to working collaboratively in ongoing process of collective inquiry and action research to achieve better results for the students they serve. Professional learning communities operate under the assumption that the key to improved learning for students is continuous, job-embedded learning for educators (DuFour, DuFour, Eaker, & Many, as cited in Dufour et al., 2008, p. 14).

Technology—As referenced in this study, technology includes any web-enabled device used by a student and/or teacher: laptops, tablets, iPads, iPods, Smartboards, projects, calculators, etc.; additionally, technology also includes the use of the Internet and software.

Research Questions

The major questions guiding this study were about what the practitioners did as they worked collaboratively to examine flipped learning, to implement flipped learning in their classrooms, and to develop a framework for implementation for others. These questions guided this study:

1. What do teachers (elementary, middle, and high) change about presentation of curriculum and content to prepare for flipping the classroom?

2. What are the steps teachers take in the process of developing and implementing flipped classrooms?

3. How does a group of teachers within and across grade spans collaborate as a PLC to prepare themselves for flipping the classroom?

4. What results do teachers report as the flipped classroom project develops?

Limitations

Several limitations to this study include factors that may only be relevant to this school district participating in this study. Because Progress County Schools standardizes practice across the entire district, it was a relatively simple task to engage participants across the district—knowing implementation from school to school and across grade spans could be a little different. There was never any "we don't do things that way at my school" mentality. Therefore, the generalizability of the findings from this study may be limited for whole school districts. However, the overall lessons learned and the frameworks for practice and implementation of flipped learning are relevant anywhere there is a desire to improve pedagogical practice through flipped learning—whether in one school or across a district.

Another limitation of this study is that none of the participants were asked to completely flip their entire classrooms in this study; however, participants were asked to complete three separate trial flipped lessons and to continue flipping lessons as they saw fit once the trials were complete. To-date, no teacher participant has completely flipped the entire classroom; however, one teacher did decide to flip most lessons and tried a "flipped mastery model" of her classroom during our trial period. Therefore, this study provides in no way a full view of flipped learning in its entirety, but it does provide a

pedagogical framework for flipped learning, a framework for implementation, and model of how teachers can work collaboratively to develop what works for them.

Another limitation in this study is that there were only twelve active participants in the process of the collaborative inquiry. This sample size may limit the study. Additionally, two participants changed professional positions during the study: one participant retired (after the trial implementation) and one participant was promoted to an assistant principal. The retiree was longer a part of the study; however, the assistant principal continued as an active non-instructional participant within her new role.

A final limitation of this study may be background knowledge and the context in which each of the participants work. As this project is grounded in collaborative inquiry with teachers, the participants bring their own experiences and their own prior knowledge to the table. Each of the participants has been employed in Progress County Schools for at least six years. Therefore, they contribute what they know and what they have learned through lens of the district vision and mission for technology integration and instructional practices that are emphasized across the district. They also had limited prior knowledge of flipped learning; therefore, their lens of flipped learning is limited to what they have read and researched since the study began. They collectively engaged in one book study using the text from Bergmann & Sams (2012), *Flip Your Classroom Reach Every Student in Every Class Every Day*. The remainder of what they learned was from their personal investigations and what they shared with each other.

Organization of the Study

I present this study in five chapters. Chapter I includes the introduction to the study, the problem statement, the purpose of the study, the perspectives of the researcher, the significance of the study, the definitions of key terms, the research questions, and the limitations of the study.

Chapter II presents a review of the literature, which includes a current view of flipped learning and themes that emerged from the review of literature and the study. These themes are presented in a conceptual framework including shifts in pedagogical practice. Additionally, Chapter II includes a view of collaborative inquiry and action research.

Chapter III describes the methodology used in this study. This includes the methodological design of the study, the research setting, the research participants, the researcher, the data collection process, and trustworthiness.

Chapters IV includes the findings from the study. Chapter V provides what others can learn, the implications for practice (culminating in a framework for implementation), recommendations, thoughts for further inquiry, and conclusions.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

A comprehensive review of the existing literature pertaining to the flipped learning model provided a current picture of what this model looks like and what current practitioners are saying about this relatively new technology. This literature review provides a current view of the flipped learning model, provides a current view of this model in relation to educational reform, provides a review of pedagogical practices grounded in theory and research supported by this model, constructs a framework of the flipped learning model to include shifts in pedagogical practices necessitated by the flipped learning model, and provides an overview of the collaborative inquiry approach of this study.

Beginning the search for literature on the flipped learning model was not difficult. A simple search through the public search engine, Google, resulted in a variety of resources produced by practitioners across the country and the globe that are practicing flipped learning. Searches in current educational and technology resources such as Edutopia and the Flipped Learning Network also produced many results of what others are doing with flipped learning. However, many of these results are practitioners' anecdotal reports of what they are experiencing rather than any quantifiable data to support their claims. This can possibly be attributed to the fact that flipped learning is

such a grassroots effort from teachers—non-researchers—(Hamdan et al., 2013; LaFee, 2013) striving to improve their practice. Such reports include improved student-teacher interaction, improved student engagement and ownership of their learning, increased student learning based on individualized instruction and individualized pacing of content, and increased student learning based on the simple fact that students are no longer assigned traditional homework to complete on their own at home; instead, the more difficult assignments are completed in class with the teacher on hand to assist and work individually with students (Bergmann & Sams, 2012; Finkel, 2012; Goodwin & Miller, 2013). Also, flipped learning is increasing among teachers. Finkel measures this increase by recent upsurge of users—from 2,500 to 9,000 between January 2012 and November 2012—on the Ning social media site of the Flipped Learning Network—a national clearinghouse on the teaching methodology (Finkel, 2012, p. 29).

In my quest for more rigorous data other than what teachers were reporting, I completed a search through online databases such as EBSCO Academic, Worldcat, and ProQuest Direct. I searched for results on "flipped learning" and "flipped learning + student achievement." The results were limited in the search for rigorous, quantifiable data to determine effects on student achievement; however, there were some reports from institutions of higher education. These results claim flipped learning is effective and worthy of further inquiry (Lage, Platt, & Treglia, 2000; Love, Hodge, Grandgenett, & Swift, 2013; McGivney-Burelle & Xue, 2013). These results come directly from professors of higher education experimenting with flipped learning. Similarly, the professors report an increase in student engagement and an increase in student

achievement when comparing the traditional classroom structure to the flipped classroom structure (McGivney-Burelle & Xue, 2013; Love et al., 2013). Lage et al. (2000) also report students find the method favorable and liked taking classes that were structured in this manner.

Although many are experimenting with flipped learning, and there is limited substantial research on flipped learning or empirical evidence of the effects of flipped learning, many years of research support the pedagogical approach of this model (Hamdan et al., 2013) and 21st Century teaching and learning structures (North Carolina Professional Teaching Standards, 2013). In "A Review of Flipped Learning," researchers from George Mason University with support from Pearson Education and leaders at the Flipped Learning Network define and describe the Flipped Learning Model, briefly note its historical foundations, and address common misconceptions. They discuss learning theories that underlie the model and describe current, although limited, empirical research findings (Hamdan et al., 2013). Additionally, Pearson and The Flipped Learning Network report promising results from several case studies. These case studies report implementation of the flipped learning model for various reasons and report positive results ranging from increases in test data to graduation rates to increases in student participation and satisfaction (Hamdan et al., 2013).

The practitioner experiences, the claims of positive effects, educational reform, and the learning theories research that undergird this model are the basis for this literature review. I have organized this chapter into four major sections. The first section is a review of what flipped learning looks like based on what current practitioners describe.

The second section is a look at a pedagogical framework of flipped learning including shifts in current practice, blended and student-centric environments, and the learning theories that undergird this concept based on years of research of improving pedagogical practice. The third section is dedicated to flipped learning and its place within educational reform. The fourth section is a review of action teacher research situated in this study within professional learning communities and collaborative inquiry. In the final section, I summarize the framework for flipped learning as described in this chapter.

Flipped Learning

Flipped learning is actually not a new concept; instead, the concept has evolved over time. The concept has most recently gained popularity through the work of Salman Khan (founder of the Khan Academy—a non-profit organization developed by Khan to provide video-based instruction), Jonathan Bergmann and Aaron Sams, co-authors of *Flip Your Classroom, Reach Every Student in Every Class Every Day*, Eric Mazur of Harvard University, researchers at George Mason University and Pearson, and many other practitioners who are integrating this concept into classrooms every day all over the country.

Historically coined as inverting the classroom, this concept has varied in use, and most recently is widely known as flipped learning or flipping the classroom. Institutions of higher education have documented the inversion of the classroom in an attempt to increase achievement (when comparing a traditional course to a flipped learning course) and student engagement in courses taught (McGivney-Burelle & Xue, 2013; Love et al., 2013; Lage et al., 2000). Much of their attention has focused on providing choice for

students in how they approach course content through individual learning styles and preferences (Lage et al., 2000). Additionally, a higher education professor at Harvard University, Eric Mazur, coined the term "peer instruction" and developed his version of the flipped classroom by asking his students to read their textbooks before class and structuring his class sessions around small-group discussions of interesting and important physics questions (Bruff, 2013).

Attention to the flipped classroom in secondary education has risen, however, due to the rise in access to technology in America's schools and through the work of many who are experimenting with the concept. Many are turning learning into an interactive process using video with generations of students who have been learning all their lives from computer screens and other visual media (Lambert, 2012). Many are experimenting with flipped learning using videos that teachers have created—as two high school chemistry teachers, Bergmann and Sams (2012), have done. Others are experimenting using videos created by others such as the Khan Academy, a non-profit organization that hosts a library of thousands of videos based on everything from physics to finance to history (www.khanacademy.org).

At the core of this concept is the notion of flipping or reversing traditional instructional practice—what happens inside the classroom—with what students have been traditionally assigned to do outside the classroom—from whole group setting to individual setting (Ash, 2012; Bergmann & Sams, 2012; Hamdan et al., 2013; Tucker, 2012). Simply put, there is a reversal of homework assigned as practice with classroom lecture or delivery of content. For example, lecture is typically assigned to the students

for their homework, freeing up more time in class for activities and application of new

knowledge (Ash, 2012). The flipped classroom changes this typical homework model:

> A 12-year-old sits at the kitchen table with a paper filled with numbers, letters, and shapes in front of him. He sort of remembers what his teacher said earlier that day about the Pythagorean Theorem, but not exactly. His parents are of no help, having learned this stuff 30 years ago. He's alone, and pretty much stuck. (Pelham, 2012, p. 1)

The concept of flipping allows this student to learn the Pythagorean Theorem at

home before class by watching a video produced by his teacher. He can watch the video

straight through, pause it, or rewind it, dependent upon his needs. The next day in class,

he can then practice working the theorem in collaboration with other students and his

teacher. He would have the expert right there with him to answer the questions he

possibly could not answer on his own at home (Bergmann & Sams, 2012; Pelham, 2012).

In a recent TED talk, Khan says

> the use of video for instruction allows students to pause and rewind the teacher/lecture, it removes the one-size fits all premise for our classrooms, and technology can humanize education as teachers begin to interact more with their students rather than lecture only. (Khan, 2011)

Further, central to the concept of flipped learning is maximization of more in-

class time. This time is utilized for hands-on, collaborative activities; more time for

teacher assistance while the students are in class; more time for the teacher to act as

instructional coach; and more time for differentiation of instruction—one-on-one

between student and teacher (Ash, 2012; Bergmann & Sams, 2012; Finkel, 2012;

Hamdan et al., 2013). Flipped learning also provides more in-class time for students to

work collaboratively with classmates and teachers and creates an environment that allows

for students to take responsibility for their own learning. The teacher is no longer the

"sage on the stage," but the "guide on the side"; the flipped classroom allows for blended

instruction with constructivist learning; and videos are archived for review and/or

remediation (Bergmann, Overmyer, & Wilie, 2012; Hamdan et al., 2013). Bergmann and

Sams (2012) contend time can be completely restructured in the flipped classroom also.

> The time spent in a traditional classroom with guided and independent practice is
> reduced to 20-35 minutes after the review of the previous night's homework and
> the lecture of the new content. However, in the flipped classroom the time for
> guided and independent practice is increased to 75 minutes due to the structure of
> listening to the lecture portion of class to learn new content the night before.
> (Bergmann & Sams, 2012)

Flipped Learning and Educational Reform

The steps teachers are taking to flip content out of their classrooms and to shift

instruction within their classrooms are indicative of the changing landscape of

educational structures through national and statewide reform efforts. The instructional

shifts are direct correlates to changes in standards and assessments. The creation of

higher standards through the Common Core State Standards and the creation of new

assessments that measure college- and career-readiness (U.S. Department of Education,

2010a) require substantial improvements to teaching and learning. These improvements

will come through a more student-centered approach to teaching and learning. This

approach focuses directly on the needs of diverse learners, differentiates instruction, and

adapts resources to address the strengths and weaknesses of all learners (NC Professional

Teaching Standards, 2013).

The first and foremost change is in the development of common standards across multiple states. These standards are the Common Core State Standards (CCSS). More than 40 states have adopted the Common Core State Standards that serve as the foundation of an education system that demands excellent teaching, high-quality professional development, rigorous curricula, and dynamic assessments (U.S. Department of Education, n.d.). The standards provide a clear set of goals and expectations for the knowledge and the skills students need in order to be successful and prepared for college and careers (U.S. Department of Education, n.d.). Additionally, the standards are just that—standards. The standards are not the curriculum—curriculum development is left up to the expertise of teachers and other leaders. Teachers must continue to plan and tailor instruction to meet the needs of students in their classrooms (U.S. Department of Education, n.d.).

The second change is the development of new assessments. In conjunction with the release of the new standards, the Smarter Balanced Assessment Consortium (SBAC) and the Partnership for Assessment of Readiness for College and Careers (PARCC) are in the process of developing assessments built around the new standards (Daggett & Gendron, 2010). The assessment development is to be two-fold: (a) formative and summative measures to inform instruction throughout the school year and to modify instruction where needed; and (b) more rigorous and relevant measures including performance tasks to measure critical thinking, analysis, and problem-solving (Daggett & Gendron, 2012; U.S. Department of Education, 2010a).

The third change is in the development of new professional teaching standards directed toward what teachers should know and be able to do. The Blueprint for Reform emphasizes improved professional development and evidence-based instructional models and supports (U.S. Department of Education , 2010a). This emphasis becomes a reality within professional teaching standards. Teacher responsibility includes

> embracing diversity, individualizing instruction to include differentiating instruction based on student interest, learning styles, and social and emotional development of their students; collaborating with their colleagues; and, utilizing technology to help students access content, to learn how to think critically, solve problems, communicate, and collaborate. (NC Professional Teaching Standards, 2013).

These requirements, coupled with changing standards and assessment, require a new way of thinking. According to Kathy McKnight (2013), Director of Research at the Pearson Research & Innovation Network, flipped learning provides this focus on students' learning needs.

> In the Flipped Learning Model, time in class becomes time for students to collaborate with peers on projects, engage more deeply with content, practice skills, and receive feedback on their progress. Teachers devote more time to coaching their students, helping them and assisting them, and giving them greater control over their learning. (McKnight, 2013, para. 2)

Therefore, with the call for significant change, flipped learning, coupled with sound pedagogical practice, models such a shift to an individualized, personalized structure that is flexible and strategic in preparing students to be college- and career-ready.

Pedagogical Framework for Flipped Learning

As I reviewed the literature, explored what others are doing with flipped learning, explored what our own practitioners are doing with flipped learning, and considered implications of reform, several themes have emerged. The themes focus on shifting practice within our classrooms to meet the demands of educational reform and 21st Century teaching and learning. The themes are (a) flipped learning requires a shift from a teacher-centric to a student-centric learning environment; (b) flipped learning requires a shift to a blended environment where technology is in use; and (c) flipped learning requires a shift in pedagogical practices that focuses on individualized learning structures (differentiated and mastery learning) and active learning structures (cooperative and collaborative learning) where students are engaged in their learning. Figure 1: Pedagogical Framework for Flipped Learning conceptualizes flipped learning and the emerging themes: the student is central to the learning, supported by an active, blended learning environment with the ultimate outcome of an individualized, mastery learning environment for all students. Moreover, through this lens of flipped learning, the focus is not just on what one flips out of the classroom but what one shifts within the classroom. "The decisions you make about the 'transfer' step that happens outside of class are trivial compared to the decisions you make about the in-class 'assimilation' step" will (Bruff, 2013).

Each of the themes included here is a foundational component of the entire flipped model. To create a flipped learning environment— truly to shift the pedagogical paradigm from 20th Century thinking and practices to 21st Century teaching and learning

practices, i.e., from lecturer and giver of knowledge to facilitator and supporter—one must focus beyond traditional structures and focus more on the educational values of shifts. Next, I will explain each component of the Pedagogical Framework for Flipped Learning and discuss the connections to the pedagogical foundations of flipped learning.
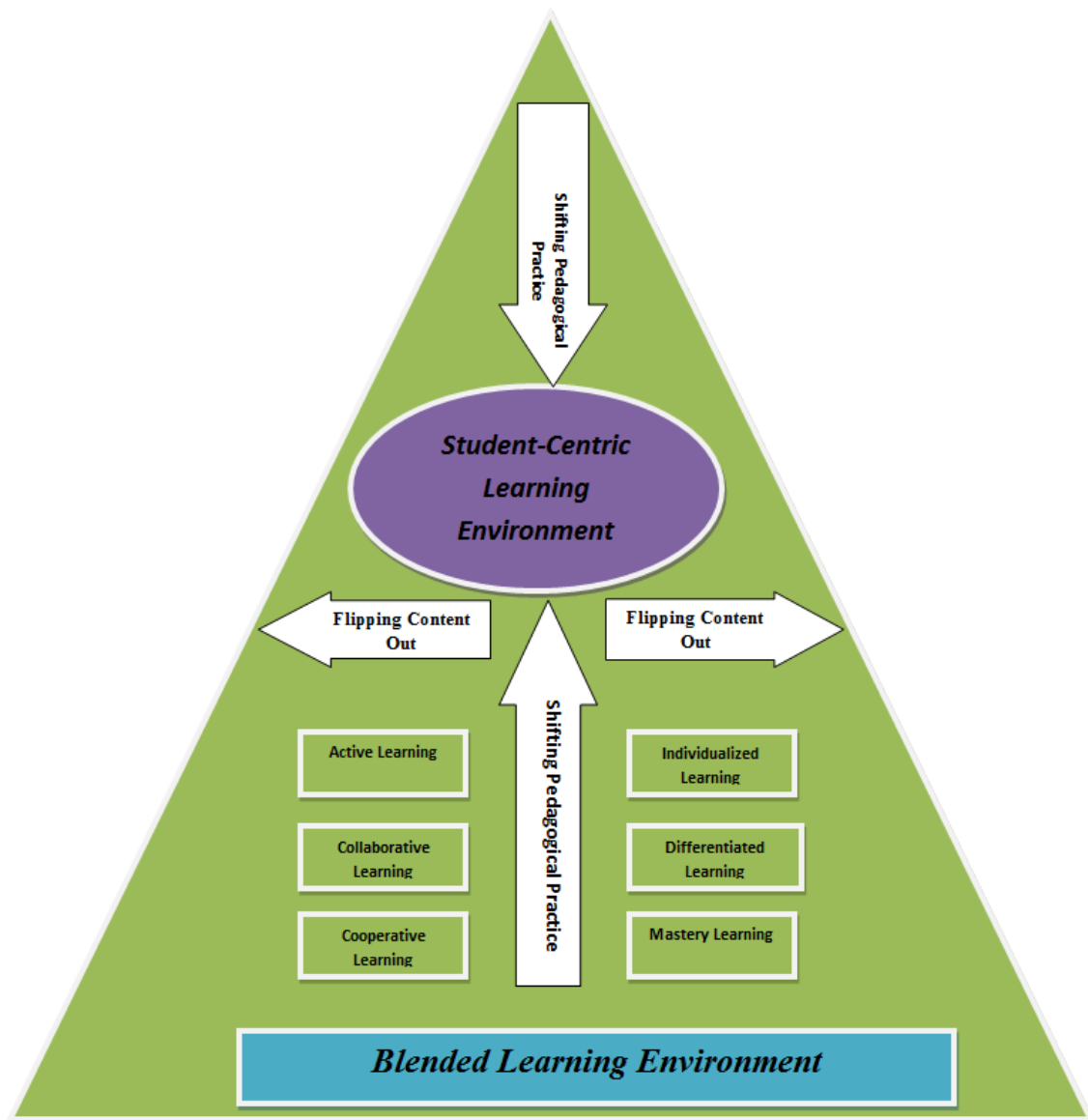
Figure 1. Pedagogical Framework for Flipped Learning.

Blended Learning Environment

One such shift from traditional practices includes the integration of technology and harnessing the power of technology into instructional practices into what is coined as blended learning environments. Blended learning environments include at least in part some online delivery of content and instruction and the ability for students to have some control over time, place, path, and/or pace of their own learning away from the brick and mortar of the school (Staker & Horn, 2012).

According to Staker and Horn (2012), one example of this blended environment is the flipped classroom. The control over time, place, path, and/or pace with digital technologies creates opportunities for students to learn and to take responsibility for their own learning (Hamdan et al., 2013; Hattie, 2009). Others agree with students taking ownership of their own learning through the blended learning environments. Miller (2012) states students can become agents of their learning rather than passive learners in this type of environment. Additionally, in a blended environment, he shares there are opportunities for collaborative work, engagement in authentic projects, differentiation and the enhanced use of mobile tools.

Student-centric Environment

Creating a flipped learning environment requires a shift from a teacher-centric environment to a student-centric learning environment. The flipped learning model is based less on teaching and more on learning (Hamdan et al., 2013). This environment is a busy environment—an environment in which the teacher is hard to find and busy, engaged students are readily available (Hamdan et al., 2013). This environment might be

noisy, but if structured correctly, students are engaging with content, engaging with each other, and taking ownership of their own learning (Hamdan et al., 2013; Tomlinson, 2008). In these classrooms, students are working to master content through varied instructional strategies based on their own interests and readiness levels (Hamdan et al., 2013; Tomlinson, 1999). This shift requires a renewed mindset—one in which teachers understand that all learners do not learn the same amount at the same rate and instruction must be based on individual learner needs (Carroll, as cited in Guskey, 1985; Tomlinson, 1999).

Shifts in Pedagogical Practice

Such a shift to student-centric learning environments requires an understanding of student-centric pedagogies that include individualized learning, mastery learning, active learning, cooperative learning, and differentiated learning (Bloom, 1968; Guskey, 1990; Marzano, 2007; Michael, 2006; Prince, 2004; Tomlinson, 1999). Many of the acclaimed successes of flipped learning include students working at an individual pace toward mastery of content, and students working with the teacher and their peers to assimilate what they are learning (Bergmann & Sams, 2012; Goodwin & Miller, 2013).

Flipping Content Out

At the core of flipped learning is the reversal of what typically occurs in the classroom with what occurs outside the classroom. Teachers assign the "lecture" portion of their content for students to view outside of classtime. Flipping content out or reversing instruction in this way allows for more student-teacher interaction to clear up misconceptions and provide real-time feedback. It also allows for more in-class time to

incorporate student-centric pedagogies (Bergmann & Sams, 2012; Goodwin & Miller, 2013; Finkel, 2012).

Pedagogical Foundations

While reviewing the practice of flipped learning and considering the shifts in pedagogical practice required for flipped learning, I found support for foundational approaches to this practice. Each shift in pedagogical practice— student engagement in active learning strategies, individualized support for students, activities designed to help students master content, and flexible timelines for student work—is prevalent in the literature that does exist in regards to flipped learning (Hamdan et al., 2013).

As mentioned, one basic premise of flipped learning is the student is an active participant in his own learning. This is active learning (Hamdan et al., 2013; Michael, 2006), generally defined as any instructional method that engages students in the learning process forcing them to reflect upon ideas and how they are using those ideas (Michael, 2006; Prince, 2004). This process additionally involves an interaction between teacher, student, and content in this learning process (Marzano, 2007). Such active learning strategies include cooperative and collaborative learning, problem-based learning, technology-enhanced learning, inquiry-based learning, and peer instruction (Michael, 2006; Prince, 2004).

Pedagogical approaches that emerged date back to the work of Carroll and Bloom in regards to meeting the needs of individual learners and are reiterated in the more current work of Guskey and Tomlinson in regards to mastery learning and differentiated learning (Bloom, 1971, 1984; Carroll, as cited in Guskey, 1985; Guskey, 1990;

Tomlinson, 1999). Carroll and Bloom recognized the power of focusing on the individual needs of individual learners rather than the needs of the whole group. In his model of school learning in 1963, Carroll outlined five elements for learning including elements internal and external to the individual student. Internal to the student are the student's aptitude (time needed to learn), ability, and perseverance; and those external to the student are quality of instruction (what the learner should know and be able to do and to understand) and the opportunity to learn (time allowed to learn).

Additionally, Benjamin Bloom's work has focused on the needs of the individual learner. He states "individual differences" between learners exit indisputably and our fundamental task is to develop strategies to take into account those differences (Bloom, 1971, p. 49). However, conventional teaching includes only whole group instruction with tests given periodically to assign grades (Bloom, 1984). Conversely, Bloom found that a teacher could reach all learners in a classroom if the teacher employs formative assessments, feedback, corrective procedures, and if the teacher or another provides individual tutoring to the individual student (Bloom, 1984). According to Bloom (1968), this is mastery learning; "to individualize instruction within the context of ordinary group-based instruction, mastery learning strategies rely heavily on the constant flow of feedback information of both the teacher and the learner" (Bloom, 1968, as cited in Block, 1971, p. 9).

Mastery learning provides the opportunity for all students to master the content at his or her own pace, based on his or her own aptitude (Bloom, 1971; Carroll, 1963; Hattie, 2009). In a mastery-learning environment, the teacher provides feedback to the

students often and there is close interaction between the student and the teacher through corrective feedback procedures (Bloom, 1984; Guskey, 1990). This creates the student as the center of the learning environment—allowing the student to interact with other students and the teacher. Feedback, according to Hattie (2009) has great effects on learning. However, Hattie (2009) tells us "feedback must be clear, purposeful, meaningful, and compatible with students' prior knowledge. It is most powerful when combined with effective instruction—the feedback is second to the instruction" (pp. 178–179). Wiggins (2012) outlines helpful feedback as "goal-referenced; tangible and transparent; actionable; user-friendly (specific and personalized); timely, ongoing, and consistent" (p. 11). Additionally, he states, "research shows that *less* teaching plus *more* feedback is the key to achieving greater learning. And there are numerous ways— through technology, peers, and other teachers—that student can get the feedback they need" (p. 13).

Among many innovations and research-supported strategies, mastery learning is one of the most powerful (Guskey, 1990). However, Guskey (1990) blends mastery learning with other innovative strategies such as cooperative learning. Within this blend, the teacher is not only the instructional leader but also the instructional facilitator (Guskey, 1990). This blend provides the basis for students to learn from each other and from their teacher. The teacher works with individual students to accomplish learning goals, and the students are center to the learning process. "Students in cooperative learning and mastery learning classrooms thus see themselves and the teacher as a team on the same side, out to master what is to be learned" (Guskey, 1990, p. 36).

Flipped learning requires a shift in classroom environments that are more student-centric and more learning-focused. When teachers flip their instruction, they are essentially creating a new space for students to learn. This space is a shift in the time, place, and pace for learning that we see in our traditional classroom settings. The new space affords learning to be individualized and personal. This new space provides students opportunities to engage in their own learning in a more active way in and out of the classroom—collaborating with their peers and interacting with the teacher.

Undergirding the design of flipped learning is this notion of active, individualized learning in blended learning environments. Years of learning theory suggest the power in such pedagogical practice. As teachers shift content out, the shifts within the classroom are powerful: active learning, individualized learning, collaborative learning, mastery learning all yielding powerful results in student ownership of learning and student achievement.

Central to this study is not only the focus of flipped learning, but also the collaborative inquiry in which the participants of this study were engaged. The final section of this chapter includes a review of collaborative inquiry situated within professional learning communities and action teacher research.

Collaborative Inquiry

As iterated in the Blueprint for Reform (2010), support for teachers and time for teachers to collaborate and work together to improve their practice is essential to improving teaching and learning in our classrooms. Additionally, if teachers are to truly shift their pedagogical practices, this necessitates teachers become reflective practitioners

who work collaboratively with colleagues in Professional Learning Communities (PLC) to actively investigate and consider new ideas that improve teaching and learning and adapt their practice based on research and data to best meet the needs of their students (NC Professional Teaching Standards, 2013). This portion of the literature review will outline the process of collaborative inquiry through action research as teachers work within a PLC.

First of all, for teachers to engage in a collaborative inquiry process, conditions must include opportunities for teachers to learn from each other, to learn from experts— internal and external—and to become reflective practitioners who are learning and re-learning to improve teaching and learning in their schools (Darling-Hammond, 2010; DuFour & Marzano, 2011). Ultimately, collaborative environments in our schools begin by eliminating the isolation of teaching alone (Schmoker, 2006); and secondly, teachers begin to study their practice— asking if their current practice is successful (Reeves, 2008). Eliminating the teacher *as one* factor begins with teachers as learners and reflective practitioners who are not teaching or learning alone. In collaborative inquiry, the look and feel of teachers as collaborators includes job-embedded professional development (Fullan, 2005) and time to reflect and learn.

DuFour et al. (2008) focus on this work of teachers—teachers learning from each other and developing their expertise with job-embedded professional development within professional learning communities. They define a professional learning community (PLC) as

educators committed to working collaboratively in ongoing process of collective inquiry and action research to achieve better results for the students they serve. Professional learning communities operate under the assumption that the key to improved learning for students is continuous, job-embedded learning for educators. (DuFour, DuFour, Eaker, & Many, as cited by in Dufour et al., 2008, p. 14)

Within their work, they not only define PLCs, but they provide six characteristics of

PLCs:

1. Shared Mission (Purpose), Vision (Clear Direction), Values (Collective Commitments), and Goals (Indicators, Timelines, and Targets)—All focused on students learning
2. A Collaborative Culture with a Focus on Learning
3. Collective Inquiry into Best Practice and Current Reality
4. Action Orientation: Learning By Doing
5. A Commitment to Continuous Improvement
6. Results Orientation (DuFour et al, 2008, pp. 15–17)

Each characteristic plays a significant role in the PLC; however, for the purposes of this

study, the focus is collaborative inquiry. DuFour et al. (2008) refer to this as collective

inquiry and defines this characteristic as educators delving into

1) best practices about teaching and learning,
2) a candid clarification of their current practices, and
3) an honest assessment of their students' current levels of learning. (p. 16)

"Collective inquiry helps educators build shared knowledge, which, in turn, allows them

to make more informed (and therefore better) decisions, and increases the likelihood they

will arrive at consensus" (p. 16).

If teachers are to engage in this type of inquiry, schools must collectively engage

in common practices that lead to success. The PLC concept represents an ongoing

process in which educators work collaboratively in recurring cycles of collective inquiry

and action research to achieve better results for the students they serve (DuFour et al.,

2008). Building the capacity of our teachers within our school buildings is required,

according to Fullan (2005), in order to embrace leadership at every level (Reeves, 2008).

> This capacity building promotes learning in context—not just through
> workshops—but also through interactions within the culture of learning such as
> through weekly meetings, study groups, focused institutes, and walk-through site
> visits in which teams learn from and react to leadership and teaching and learning
> strategies. (Fullan, 2005, p. 69).

Professional Learning Communities provide teachers a much-needed venue for

collective inquiry—environments in which educators are committed to working

collaboratively in the process of inquiry and action research. Therefore, collaborative

inquiry is important to the professional learning of teachers. Through collaborative

action research, meaningful learning emerges that has the potential to bring about change

and development in teachers (Rock & Levin, 2002).

Summary

Although much has been reviewed concerning student-centric learning

environments, blended learning environments, active and individualized learning

strategies—there is still little empirical evidence of these configured together within the

model of flipped learning to support student achievement. However, as I have reviewed

the literature on the flipped learning model, I believe there is a significance to this

concept that is worthy of further inquiry. Most significant is this is a grassroots effort

from teacher practitioners (Hamdan et al., 2013; LaFee, 2013). I believe flipped learning

has caught the attention of many due to what teachers are saying and are implementing at the ground level in their classrooms. Therefore, collaboration through the cycle of inquiry within action research, can provide teachers the much needed time and venue for improving their practice. From this collaborative work, what these current practitioners learn and have to say about flipped learning will add to the current body of knowledge and understanding of how flipped learning impacts instruction and will provide an example of collaborative inquiry in practice.

The framework developed in this review provides the basis for the data and the analysis in the upcoming chapters of this paper. Breaking down the framework into separate components reveals a different view of flipped learning from just a "fad" of adding more gadgetry to the classroom. Instead, this model of flipped learning is a tool for shifting current pedagogy towards the learner—toward the individual needs of individual learners rather than the whole group. We cannot ignore the fact that we must continue to search for tools to assist in shifting our traditional practice into one that "reaches every student in every class every day" (Bergmann & Sams, 2012) if we are to meet the demands of new standards, new assessments, and improve teaching and learning through evidence-based instructional models (U.S. Department of Education, 2010a).

CHAPTER III

METHODOLOGY: QUALITATIVE ACTION RESEARCH

Introduction

Qualitative action research is the methodology for this study. This study is framed within collaborative inquiry (Creswell, 2007; DuFour et al., 2008) and the emergent design of action research and qualitative research (Creswell, 2007; Herr & Anderson, 2005). I chose this methodology purposefully to provide teachers an opportunity to become active participants in this study and ultimately design a framework for practice through their own experiences and inquiry. In rural communities such as ours, the direct affiliation with researchers from higher education institutions is limited and limits our opportunities to participate in any kind of educational studies. Therefore, the teacher participants and the entire district will benefit from this study. Other districts looking toward the benefits of flipped learning may also be able to gain insight.

Qualitative Action Research Design

Educational administrators face complex problems in developing sound educational practices relevant in the context of 21st century teaching and learning practices. Such complex problems include providing teachers opportunities to collaborate, reflect, and develop personalized plans for individual students (North Carolina Professional Teaching Standards, 2013) as required by their teaching standards. These complex problems provide the impetus for research inquiry that provides deeper

understanding of the problem and "complex descriptions, interpretations of the problem, and a call to action" (Creswell, 2007, p. 51).

Action research is the chosen methodology for this study and was intentionally selected to create an environment of collaboration and collective inquiry. In Progress County Schools, all schools and teachers participate in PLCs; however, teachers rarely engage in true collective inquiry (Dufour, DuFour, Eaker, & Many, as cited in DuFour et al., 2008)— inquiring into their practice—and most importantly, they rarely are given the opportunity to have voice in how to improve their practice (Herr & Anderson, 2005). Using the cycle of inquiry design from action research, the participants in this study were given an opportunity to inquire into flipped learning and their own practice through a collaborative process in which they could learn from each other, share with each other, and reflect upon their findings.

Additionally, this methodology provided the participants an opportunity to contribute to the development of a framework for flipped learning. According to Herr and Anderson (2005),

> action research dissertations contain a local perspective that few traditional researchers are able to provide. A dissertation forces action researchers to think not only about what knowledge they have generated that can be fed back into the setting (local knowledge), but also what knowledge they have generated that is transferable to other settings (public knowledge).

As a PLC within our own district, we not only wanted to add to the public knowledge, but we wanted to add to our local knowledge of flipped learning in order to better improve and inform our own practice with our own teachers.

I was included in this collaborative work. According to Creswell (2007) in qualitative research, the researcher is included as a key instrument in the process within a natural setting. Our natural setting was within our own district—Progress County Schools. Similarly, in action research methodology, the researcher may be an organizational insider who sees the research as a way to deepen the researcher's reflection of practice toward problem solving and professional development (Herr & Anderson, 2005, p. 29). The researcher may often collaborate with other insiders (or participants) to be more democratic or to de-emphasize a power relationship (Creswell, 2007; Herr & Anderson, 2005). Therefore, qualitative action research provided a structure for this study based on collaborative inquiry to improve our practice—including how flipped learning might improve current practice in our classrooms and how inquiry might improve teacher professional development within our district.

This study provided an opportunity for teachers to work collaboratively as a group and to work collaboratively with me as the researcher as we examined flipped learning and the implications for practice. Teachers involved in this research process actively participated in the iterative action research cycle that included (a) identification of the problem; (b) data gathering; (c) action planning; (d) reflecting; and (e) action planning based on evidence (Ferrance, 2000; Rock & Levin, 2002). Figure 2, the Cycle of Inquiry, provides a visual for the cyclical nature of this study. Lack of substantial knowledge of flipped learning and the desire to implement was the identified problem. Next, participants learned about flipped learning through self-study and research and a group book study using the book, *Flip Your Classroom Reach Every Student in Every Class*

Every Day by Bergmann and Sams (2012). The next step for the participants was to implement flipped learning in three separate trials. After completing each trial, participants completed a documentation and reflection protocol that included their process and procedures for implementation, documentation of lessons learned, student behaviors (reactions to implementation), and resources they found helpful. Each time the participants learned from their own trials, the trials of their colleagues, and used what they learned to inform their next trial. They based their actions and their planning on their evidence from what they were learning from other experts—internally and externally (Darling-Hammond, 2010; DuFour & Marzano, 2011).

Figure 2. Cycle of Inquiry.

As teachers engaged in this cycle of inquiry, their reflections, documentation, and interviews were based on the guiding research questions from this study:

1. What do teachers (elementary, middle, and high) change about presentation of curriculum and content to prepare for flipping the classroom?

2. What are the steps teachers take in the process of developing and implementing flipped classrooms?

3. How does a group of teachers within and across grade spans collaborate as a PLC to prepare themselves for flipping the classroom?

4. What results do teachers report as the flipped classroom project develops?

The following table further provides a view of the cyclical nature of this study, the phases of this study, and how the guiding questions were the basis for the inquiry. This table describes the phases of this inquiry as identified in Figure 2, identifies the components in each portion of the cycle, connects the phases and pilot implementations of the study, and outlines how the data were collected during this cyclical process.

Nine teachers across three grade spans, 3-5, 6-8, and 9-12, three non-instructional participants (one media coordinator, one instructional technology facilitator, and one assistant principal), one peer debriefer, and I collaborated in this inquiry process and the development of a framework for implementing flipped learning over a period of approximately sixteen months. The actual execution of the pilot phases, interviews, and classroom observations took place over one year. However, conversations and planning of the project began a few months prior to actual execution.

Table 1

Cycle of Inquiry and Data Collection

Cycle of Inquiry	Phases of Study	Guiding Research Questions	Data Collection
Identifying the Problem	Pilot Implementation: Action #1, Action #2, Action #3	What do teachers change about presentation of curriculum and content to prepare for flipping the classroom?	*Pre-implementation survey; Action Item #1, #2, #3; During- and post- interviews; Classroom Observations*
Gathering Data		What are the steps teachers take in the process of developing and implementing flipped classrooms?	
Interpreting Data			
Acting on Evidence			
Evaluation Results	Identification of common themes	What results do teachers report as the flipped classroom project develops?	*During- and post- interviews; Classroom Observations*
Next Steps	Development of Framework to further implementation of Flipped Learning	How does a group of teachers within and across grade spans collaborate as a PLC to prepare themselves for flipping the classroom?	*Action Items #1, #2, and #3; During- and post- interviews*

All participants engaged in collaborative inquiry as a Professional Learning Community and as a PLC, we identified the problem we wanted to study: we wanted to learn more about flipped learning and the implications for implementation within our own district. Our cycle of inquiry then included our data gathering (a book study on flipped learning, researching flipped learning, and answering pre-implementation survey questions). Next, participants began using what they had learning about flipped learning (interpreting the data) and implementing their own pilot implementations (acting on evidence). During this phase, the participants completed Action Items (Appendix A, Reflection and Documentation Protocol) that included reflections on planning, processes,

procedures, lessons learned, student behaviors, and resources and tools. Participants completed three separate pilots and completed a reflection on each. This was an iterative process in the inquiry cycle in which each participant gathered data, interpreted data, and acted on evidence at least three different times during the cycle. Additionally, during these phases, each participant participated in two separate interviews—one during the implementation phase and one post-implementation interview. The four guiding research questions for the study were included in the reflection and documentation protocol and during- and post-interviews.

Each teacher and non-instructional participant participated in several collaborative activities during our yearlong process. Since we were engaged in this project for a prolonged period, there were a variety of ways in which we collaborated across the grade spans and across the district to share and exchange information during this time. We met as a whole group face-to-face on four different occasions with online discussions and sharing online in between. Additionally, we met in smaller groups for different purposes (discussions for professional development for other teachers and as we reviewed the data findings and framework for implementation) three other times. The face-to-face sessions began with an introduction to flipped learning and the details of the action research project. (All meeting agendas are included in Appendix E.) Each meeting lasted approximately an hour to an hour and a half. The online collaboration conducted by participants varied throughout the execution of the project.

Our first task as a group in this inquiry was to read *Flip Your Classroom Reach Every Student in Every Class Every Day* by Bergmann and Sams (2012). All participants

read the book and returned to a face-to-face meeting to share their thoughts on what they were learning. Some of them had no prior background knowledge of flipped and learning and some had minimal knowledge. The questions discussed from the book were (a) What do you agree with? (b) What do you disagree with? (c) What questions do you have? (d) What do you question? and (e) What do you wonder about? This discussion built some of the foundational knowledge about flipped learning for participants.

In between face-to-face meetings, the project participants shared their pilot implementation flipped lessons (including the videos they created or the ones they found to use with their students in flipped lessons), with one another on their collaborative website. They posted discussions, lessons learned, lessons they were trying, ideas for others who were stuck, or posed questions to other participants. Additionally, during this time, the teacher participants reflected upon their pilot implementations and submitted those to be included in the data collection.

During this iterative process of action research, participants were learning from each other, from others in the field, and from their own implementation and practice. They used what they were learning as they moved forward in their implementation. Their reflections, surveys, and interviews provided data for this study.

Research Setting

This study took place in a rural school district in the Southeastern region of the United States. Progress County Schools (PCS) is the fictitious name given to this district. PCS is a medium-sized school district serving approximately 8400 students in nineteen schools: 11 K-5 schools, four 6-8 schools, three comprehensive high schools, and one

early college high school located on the campus of the community college. Culturally, PCS is 77.5% White, 16.6% Hispanic, .5% Asian, 2.8% Multi-Racial, 2.5% Black, and .1% American Indian. PCS employs approximately 1200 total staff members and 579 full-time teachers.

Additionally, Progress County Schools is a 1:1 district in grades 6-8—meaning all students in grades 6-12 have 1:1 access to laptop computers. In grade 6 students only have access to computers during the school day (they pick up their computers from their home base in the morning and return them in the afternoon before going home). This decision for sixth grade was to introduce them to the responsibility of having a laptop to include proper care and protocols that come with laptop ownership and an introduction to policy and procedures. Students in grades 7-12 have access to district-owned laptops for a minimal fee each year; students in grades 9-12 also have a choice of Bring Your Own Device. Additionally, there is laptop cart access for students in grades 3-5 based on a 1:2 ratio.

Teachers in Progress County Schools are required to accrue at least 1.0 renewal credit in technology integration (1.0 credit equals 10 hours to professional development) for each renewal cycle (every five years). This requirement is included in Board-approved Administrative Guidelines. Therefore, multiple professional development opportunities are provided to teachers to enable them to increase their knowledge of and ability to integrate technology effectively into their instruction. Annually, professional development includes school-level technology training sessions offered during the school year based on school and teacher needs and district-level technology training based on

district-level initiatives and teacher needs. Referenced as the Teaching and Learning Conference, PCS offers an annual conference for all teachers including topics that focus solely on effective technology integration and content-based instructional activities. The participants in this study introduced the concept of flipped learning to all instructional personnel at the annual conference mid-way through our study. School-level trainers have also introduced the concept to teachers in each respective school in the district.

Not only do teachers receive professional development on technology integration in Progress County Schools but standardized professional development in the district also emphasizes other best practices such as on-going training on differentiation, cooperative learning, and professional learning communities. Progress County Schools began its study of differentiation—based on the work of Carol Ann Tomlinson—approximately ten years ago with ongoing reminders and emphasis on the needs of all children of all ability levels in our classrooms. Cooperative learning is emphasized through training also. This training is based on the Kagan Cooperative Structures. Additionally, Progress County Schools introduced professional learning communities to all schools and all teachers approximately seven years ago with an ongoing emphasis on teachers working collaboratively as practitioners to focus on the individual needs of all children.

During the same year as this study, Progress County Schools implemented new content standards in all content areas and most specifically the Common Core State Standards. Teachers across this district also participated in professional development relevant to those new standards. This is a significant factor in this study as teachers were learning the new standards and participating in this action research.

Research Participants

Representing nine of the nineteen schools in this district, participants represented three grade spans, 3-5, 6-8, and 9-12. Each participant was invited to participate in this project based on his or her observed technology skill level, prior experience with technology, and content expertise as determined by observation and/or student growth data. Each participant was invited to join the action research project and was given opportunity to decline. Each participant received the following information: the study is voluntary; the project findings will be reported confidentially and none of the participants or his/her schools will be identified. (Pseudonyms are used for any identifiable information). Participants were given the option to choose at any time to decline the invitation to participate or continue with the project. However, each participant willingly accepted the invitation to join this study, and each actively participated throughout (one teacher did retire during the study before completing the entire project). They were all honest, forthcoming, and willing to share their ideas including their challenges during the project.

There were limited risks to any of the participants due to the qualitative nature of the study. However, some participants may have felt overwhelmed by the process at different points in the study due to the unknowns and the risks they took to learn and implement something new. Participants were not required to meet strict deadlines, however. Flexibility was a given in order to value their time and honor their commitments and other job-related responsibilities.

Further explanation regarding their involvement in the study was provided:

1. Teacher participants received CEUs/renewal credits for the training, teacher leadership documentation for their professional development plan, and a camera and a tri-pod for video creation.

2. Participants were trained as a group and provided with support from the researcher and other PLC participants.

3. No compensation was awarded for participation; however, each participant received the necessary equipment required for the project: a camera, a tri-pod, and whiteboards (as needed).

Teacher and Non-instructional Participants

The participants in this study represent three grade spans (3-5, 6-8, 9-12), represent multiple subject areas, and range from six to 29 years of experience (approximately 70% have between ten and twenty years experience). Additionally, all participants report they have never been engaged in an action research project. Table 2 further describes the participant background (pseudonyms are included here).

Although twelve practitioners actually participated in the action research study, I also surveyed other teachers in the district after they received some introduction or initial training on flipped learning. My intention for the survey was to gain additional perspective from other teachers who were thinking about flipped learning and how they felt about their skill level to proceed (technical and basic flipped knowledge). The survey for these participants is located in Appendix B. I sent this survey to all Progress County Schools principals asking them to forward to their entire faculties. The email requested

that teachers who had received any Flipped Learning training at all to respond. Eighty-six teachers responded. Of those eighty-six, approximately 50% of them reported having more than ten years of teaching experience, forty-two reported they strongly agreed they had confidence in their technology skill level, yet only twenty of them reported they planned to implement flipped learning this school year.

Table 2

Flipped Learning Project Participants

Name	Subject/s Taught or Current Role	Grade Span	Number of Years in Education	Action Research Participation
Susan	Language Arts	6-8	14	none
Julie	All subjects	3-5	6	none
Ruth	Media Coordinator	3-5	14	none
Nathan	Biology	9-12	15	none
Thomas	All subjects	3-5	13	none
Kathy	Instructional Coach	3-8	17	none
Mary Ann	Math	6-8	15	none
Rebecca	All subjects	3-5	16	none
John	English	9-12	10	none
Carla	Assistant Principal	6-8	9	none
Patrice	Math	6-8	5	none
Marie	Math	9-12	29	none

All teachers in the district were given opportunity at the district Teaching and Learning Conference to attend at least one session on Flipped Learning. With this initial

training, many of the schools in the district, based on the Teaching and Learning

Conference sessions, elected to train their staffs on flipped learning through their school-

level technology trainer. Additionally, an online module for flipped learning professional

development (developed by the study participants) was offered to all teachers in the

district. The online module was an introduction to flipped learning and an opportunity to

dialogue and collaborate online with other practitioners about how to flip their

classrooms.

Researcher Positionality

It is my responsibility as the researcher of this study to fully disclose my own

positionality and subjectivity within this study. I am the district Director of Secondary

Education in Progress County Schools; however, I do not evaluate teachers—that is the

sole responsibility of their school-based administrators. I have guided this study in that I

have coordinated the meetings, developed the agendas, and collected data including

surveys and interviews, but I have not evaluated any teacher or participant throughout

this process. I have asked guiding questions, I have encouraged, and I have acted in a

leadership and support role, but I have tried diligently not to interject my own thoughts or

opinions on what the teachers have learned other than as one who is encouraging teachers

to not give up and to strive to improve their practice through inquiry and collaboration.

My interest in this study originates from my interest in technology integration into

the classroom and my role as a Director of Secondary Education, which includes

curriculum and instructional lead. However, in the previous five years of my career, my

role in the district was that of Director of Technology. My sole responsibility was to

secure funding for technology, to develop and execute a master plan for 1:1 laptop implementation in our district, and to coordinate professional development for all teachers on instructional practices for integrating technology. Although my role has changed somewhat, one of the goals of my professional career is to strengthened teaching and learning in all classrooms for all students by fully embracing the resources we have—including technology. Flipped Learning is an intriguing, promising practice for all educators, and our teachers in Progress County Schools are open to emerging practices that will improve instruction in their classrooms.

Because of my positionality as the former Technology Director and current Secondary Education Director, the participants understood this study was facilitated with common goal in mind for Progress County Schools. They understood the purpose behind examining flipped learning was to make decisions on how or if we would incorporate flipped learning into our instructional practice in our school district. However, since another the purpose of the study was to engage practitioners in collaborative inquiry in examining their own practice and developing a framework for flipped learning, I had to be careful not to push them beyond what they were ready for and careful not to over-reach my boundaries as a research participant. The ultimate framework for flipped learning for our district was developed from the collective work of all the study participants—from the teachers, from the non-teaching participants, and from me.

Research Data Collection

Both qualitative and action research methodologies favor collecting data from multiple sources. Data include interviews, observations, surveys, and participant

documentation (Creswell, 2007; Ferrance, 2000). There were four methods used to collect data in this study: (a) pre- implementation survey questions, (b) teacher reflections and documentation, (c) during- and post-interviews, and (d) classroom observations.

First, all participants completed a pre-implementation survey that included reflections upon their own pedagogical practice and current use of technology (Appendix C). Following the pre-implementation survey, and the book study, participants began their implementation. During this phase, teacher participants actually developed flipped lessons, introduced flipped learning to their students, and engaged students in the flipped learning process. The non-teacher participants acted in a support role for the implementation by providing technical support and providing input and feedback for their colleagues as they implemented their lessons. Following each of the three pilot phases of implementation, teachers completed a reflection and documentation protocol (Action Items 1, 2, and 3, Appendix A) for each trial. This protocol included documentation of the planning, process, and procedures during each implementation trial; lessons learned from implementation; student behaviors related to implementation; and resources, tools, and guides for implementation of flipped learning.

Two interviews were conducted with all participants—teachers and non-teacher participants. The during-implementation survey was conducted between pilot implementations two and three. The intent was to learn more about the implementation while the teachers were experiencing it. Each interview lasted approximately 30-45 minutes with all twelve participants. The post-implementation survey was conducted

after all three phases of trial implementation in order to hear what participants experienced during all three phases of implementation. These interviews also lasted approximately 30-45 minutes each. Each interview included questions about pedagogical changes, implementation of flipped learning, successes and failures experienced during implementation, and influences of the action research group. (The questions were based on the guiding research questions of this study.)

These three sets of data were collected and analyzed from the study participants— surveys, reflection and documentation protocols, and interviews. I reviewed each data set in order to determine themes, lessons learned, and implementation processes and procedures. The first review of the data was just for knowledge. What were the teachers and non-teacher participants saying about flipped learning? The second time I reviewed the data, I began to look for the big ideas or common ideas participants were communicating about flipped learning and their experiences. I began coding the data by circling and underlining the common ideas. The third time I read the data, I began looking for commonalities between those big ideas. These common ideas became the themes of this study. Triangulation of the data described resulted in the themes that are reflected in the framework developed as seen in Chapter II, the findings reported in Chapter IV, and in the Implications for Practice identified in Chapter V.

The final set of data from the study participants included in this study came from the classroom observations I conducted. The Classroom Observation Protocol (Appendix F) was developed to collect the following: (a) What was happening in the classroom?; (b) Was there evidence of flipped learning?; (c) What technology equipment was available in

the classroom?; (d) Was the technology equipment being utilized for flipped learning?;

and (e) Were students engaged in the learning process? The intent for these observations

was to see first how the teacher participants conducted their classrooms, how did they

handle flipped lessons, and did they have the resources needed for implementation of

flipped learning? I observed the classrooms of all teacher participants myself. I recorded

all that I observed during the time I was in the classroom. Each observation lasted

approximately 45 minutes to an hour. Therefore, the observations are subjective to what

I saw; however, I reviewed all observation notes and looked critically at what I

documented during the observations. (In Chapter IV, I devote an entire section to

Classroom Observations and how the data informed this study.)

Further, for additional analysis and to increase the scope of participants, I

surveyed other teachers who did not participate in the study but who participated in

flipped learning training in Progress County Schools. Data analysis for this study

includes data collected from all four methods outlined above, participant input in

framework development, informal input from the peer debriefer, and input from the

participants not directly participating in the study.

The following provides further summary of the data collection in this study:

1. All teacher participants were asked to complete a pre-implementation survey (see

   Appendix C).

2. All teacher participant were interviewed during- and post- implementation (see

   Appendix D).

3. Meeting agendas and planning notes were kept on file by researcher (see Appendix E).

4. Project included pilot implementation through Action #1, Action #2, and Action #3 in which teachers developed trial flipped learning lessons. These action items were pilots (trial runs) of implementing the flipped classroom. Teachers recorded their own process, procedures, and lessons learned about the project before and after each action item. Teachers documented and reflected upon each trial and shared with the entire PLC in face-to-face meetings and through postings and shared discussions through our district learning management system (see Appendix A).

5. All teacher participants were observed in their classrooms by researcher using a Classroom Observation Protocol (see Appendix F).

6. I document further information regarding this research:

   a. An IRB application was submitted and approved.

   b. All participants completed required consent to participate in the study as required.

   c. All interviews were recorded and transcribed word-for-word and are being maintained as prescribed.

   d. All field notes were kept electronically.

   e. Documents and other artifacts used during the research have been kept on file electronically or on paper.

7. Review of all surveys, reflections, and documentation has been completed.

Trustworthiness

In order to address trustworthiness in this study, I maintained open communication with all participants—in particular, how they shared information with one another and with me. Communication was face-to-face periodically (meetings held with the entire group and the one-one-one interviews I conducted), but most communication between the participants was conducted mainly through a website (developed within our district learning management system). Participants were able to share ideas, lessons learned, and struggles with one another in our face-to-face meetings and via the website through postings and discussion boards during the implementation process. Therefore, there was an open forum for viewing what each other was doing, what they were learning in the process, and how they were solving challenges they encountered.

To include member checking in this process, I provided all participants access to their transcribed interviews for their review and verification for accuracy. Additionally, I provided the participants findings from the study, and the participants shared collectively in the development of the final Pedagogical Framework and the Implementation Framework for Flipped Learning in our district.

Also, I included a peer debriefer in the process. The peer debriefer is my counterpart in the district as the Director of Elementary Education. She was involved in the implementation process in various ways. Initially, she assisted in the planning for implementation and planning for teacher professional development sessions. She served as a historical reference on differentiation, cooperative learning, and professional learning

communities training and staff development as professional development has been one of her sole responsibilities in Progress County Schools for many years. Additionally, the peer debriefer provided direction for the framework development for our district.

Summary

This study examined flipped learning through trial implementation by a group of educators interested in how flipped learning might improve their current practices in their classrooms. All participants were involved in this collective inquiry by researching flipped learning; implementing or coaching others (non-instructional participants) in the implementation process; and sharing ideas and lessons learned during trial implementation.

The next chapter provides the findings from this study. The findings are triangulated from the data: participant's surveys, reflections, interviews, and classroom observations. The findings also correlate to the pedagogical framework presented in Chapter II. This framework was informed by the review of literature on flipped learning and from the participants' pilot implementations of flipped learning.

CHAPTER IV

DESCRIPTION OF FINDINGS: EMERGING THEMES

Introduction

As the participants in Progress County Schools engaged in this collaborative work, a framework for flipped learning emerged—informed by the practitioner pilot implementation, their reflections, and their collective inquiry. This iterative process of action research and emergent design (Herr & Anderson, 2005) allowed participants to inquire into their own practice (Creswell, 2007; DuFour et al., 2008), implement new flipped learning strategies, and inform their current and future practice (Ferrance, 2000; Rock & Levin, 2002). Additionally, through their reflections and research, their findings can inform the practice of others. This chapter describes the lived experiences of the participants in this study, describes their findings, and outlines the themes that emerged through the study.

As this study developed, themes began to emerge from all sources—the collaborative inquiry, the literature review, and the data collection (illustrated in Chapter II, Figure 1). The themes emerged through the process of reviewing data from participant surveys, participant implementation and reflection documentation, and participant interviews (Appendices A, C, and D). The documentation and reflection protocol (Appendix A) included the following: (a) planning involved in implementation, (b) process of implementation, (c) procedures followed for implementation, (d) lessons

learned from implementation, (e) student behaviors as related to implementation, and (f)

resources, tools, guides, etc. used in implementation. (Resources, tools, and guides will

not be included in the findings of this chapter; however, I will share a compilation of

these in Chapter V in the Implications for Practice.) Each teacher participant completed

the reflection protocol for three separate trials of flipped learning. From their reflections,

we hear their perspective of flipped learning.

During the review of the data, I identified concepts each participant mentioned,

and then I re-read the data multiple times to categorize their common ideas into major

concepts and themes (as outlined in Chapter II). The questions guiding this study and the

emerging concepts and themes direct the organization of this chapter and the findings. I

have organized this chapter into five sections: Section One is based on the themes that

have emerged from two of the guiding questions for this study: (a) *What do teachers*

change about the presentation of curriculum and content to prepare for flipping the

classroom, and (b) *What results do teachers report as the flipped classroom project*

develops? I have named Section One, Shifts in Pedagogical Practice.

I have based Section Two on participant involvement in the process of their

collaborative inquiry, the action research, and the actual implementation trials. The

question that guided this portion of the study is *What are the steps teachers take in the*

process of developing and implementing flipped classrooms? I have named Section Two,

Process of Developing Flipped Learning Environments.

Collaborative inquiry is the basis for Section Three. As active participants in this

study, I asked the participants the following question: *How does a group of teachers*

within and across grade spans collaborate as a PLC to prepare them themselves for

flipping the classroom? I have named Section Three, Collaborative Inquiry.

Section Four is a summary of the classroom observations I conducted. I observed

each teacher participant in his or her own classroom after the three trial implementations

using a Classroom Observation Protocol (Appendix F). I conducted the classroom

observations to see how the teacher participants in this study manage their classrooms

and to find commonalities, if any, in their classrooms since the flipped learning

implementation. I have named Section Four, Flipped Classroom Observations.

Section Five provides additional analyses from teachers, as non-participants in

this study who received some training and introduction to flipped learning in our district.

This section will highlight their responses to survey questions and their comments related

to flipped learning implementation. I have named Section Five, Additional Analyses.

The final section of this chapter is a summary of the findings.

Shifts in Pedagogical Practice

The focus of this section is on the shifts in pedagogical practice that emerged

throughout the literature review and the implementation of flipped learning in Progress

County Schools. I asked participants (a) What do teachers change about the presentation

of curriculum and content to prepare for flipping the classroom, and (b) What results do

teachers report as the flipped classroom project develops? These two questions guide this

section. From these questions, I will highlight three themes that emerged from the

participant responses: (a) student-centric learning environments, (b) blended learning

environments, and (c) individualized learning environments where students are actively engaged in their learning.

Student-centric Learning Environments

One of the themes revealed through this study of flipped classrooms is the shift from teacher-centered environments to student-centered learning environments. Multiple participants in the study reflected upon this in relation to the change in their practice through their pre-implementation surveys, their self-reflection documentation, and through the during- and post- implementation interviews. One of the pre-implementation survey questions asked participants how flipping the classroom might change teaching and learning in the 21st century classroom? At the pre-implementation stage, participants had begun reading and learning about flipped learning but had not begun implementation in their classrooms. Their knowledge of flipped learning came from what they learned during their active research and through our collaborative book study using the text, *Flip Your Classroom Reach Every Student in Every Class Every Day* (Bergmann & Sams, 2012).

Participants, even before implementing flipped learning, reported their hope for changes in the classroom. They began thinking of how teachers would become facilitators of learning instead of disseminators of knowledge resulting in a strengthened focus on students (Bergmann & Sams, 2012; Hamdan et al., 2013). Participants stated they believe flipped learning can allow teachers and students more one-on-one time and create a more student-centric, active environment; therefore, taking the focus away from

the teacher (the teacher role changes to facilitator or tutor) and placing more attention on

student engagement and learning. One non-instructional participant, Ruth, pointed out

> classrooms incorporating these ideas are student driven and the student
> engagement is high. I could go between classes in a grade level at my school and
> see this happening. It takes more planning and less teaching. The teacher
> becomes more of a facilitator.

Patrice also commented

> Flipping should increase student engagement because students are no longer
> following the role of listener. They must interact in class. They should either be
> working independently, in a pair, in a group, or with the teacher. There is no
> down time of just listening to someone speak. With this active learning, they
> should be more engaged in class. When students are more engaged, student
> achievement should increase. If they are focused and able to have time with the
> teacher as a tutor, they should be able to master more content, which should
> contribute to great student achievement.

Once teachers began the implementation trials of flipped learning in this study,

however, their reflections (and the reflections of the non-instructional support) included

what they were actually experiencing in the pilot implementations. As they responded to

the guiding question about *what teachers change concerning presentation of curriculum*

and content to prepare for flipping the classroom, several of the participants reflected

upon the shift of their position in the classroom, the shift of focus from the teacher to the

students (individually and as cooperative learners), and the shift in presentation of

content.

Participants reported how their classrooms were structured or re-structured during

this study. First, participants stated the focus was no longer on the teacher. The focus

was on the student. Non-instructional participants shared their observations of teacher

participants and reported seeing less of the teacher and more student involvement. One

of the non-instructional participants, Carla, noted

> I see a lot of things that look different in these classrooms that are very exciting to me. Students when you walk in are grouped together, they're talking, they're collaborating with each other, they are truly, it seems, engaged in the activities that they are doing. And they're different. It's sometimes hard to see differentiation but in these classrooms it's obvious. You see it because their desks are arranged differently some are sitting in rows sometimes and are taking a test some are in small groups and some are working with a teacher or a TA off to the side, so it's obvious that they're doing different things but it's not chaos either, it's structured. When you listen to conversations, kids are talking about those practices so it looks very different, but it's so much more student centered and I think that's what jumps out, too, you see that. That it's about them and you're walking in and it's not about the teacher. The teacher is not standing up on stage a lot of time I have to look for the teacher because she's in different places or doing different things. But it is it seems to be very student centered.

Further, teacher participants describe a shift in their position. They describe their

shift as "stepping away" and "letting go of control". John describes this shift in this way:

> Well, I've always been a teacher who wants to be in front of the classroom and that's been really different for me stepping away and allowing still using you know some of my activities and things through video. I'm still in those videos but allowing me to step away and let the kids in a way figure it out on their own and listen to those and coming up with their own questions not having me standing there kind of pushing them along to answer. I guess to fit the mold that I'm looking for in a way. And they're able to come up with their own questions and I think that's really key for them too in growing as students and as adults and as learners.

Rebecca states her shift this way:

> I think the main thing that has changed for me is letting go of being very teacher-centered and standing in front of the class for everything I want to teach. Giving

the children more responsibility for learning and using technology a lot more than I ever thought about. I never thought about using technology with writing or anything beyond SMART Board activities, but having the children using that technology to learn from.

Nathan even noted the arrangement of the room changed:

My kids work in groups at tables and I teach them as group by group. And, I don't specifically stand in front of the classroom very rarely anymore. That's probably the biggest change overall is my students don't see me stand in front of the room and my room is not arranged so that everybody faces the front.

These participants realize their role is changing in their classrooms from lecturer and giver of knowledge to facilitator of learning. Their responses to what teachers change about presentation of curriculum and content to prepare for flipping the classroom support the claim that flipped learning is based less on teaching and more on learning (Hamdan et al., 2013), and their responses clearly indicate a shift in the teacher's physical position in the room. These participants reflect upon removing their centeredness or control in the classroom. To these participants, this is step one—shifting position and control in the classroom from the teacher to the students and their learning.

Content Focus

Participants also report a shift in their planning and their thinking about content. Specifically in their trial implementations, participants discovered how they began to shift their thinking about content delivery. This shift for teachers first required them to focus on the heart of content and instruction—what do students need to know and be able to do? Carla described the planning of content and instruction as determining the "meat of instruction." She noted:

I think the biggest change that I have seen is that our teachers are really considering what the meat of their instruction is and so it is sort of like—what is my point about, what exactly is it that I am trying to get across and how to deliver that in the best way? They (teachers who are flipping) said that sometimes flipping is the best way to get to the point and that way they can spend time doing other things.

Patrice described how she began her planning with what exactly needs to be covered.

She put it this way:

To implement a flipped lesson, I have to consider the learning target for the lesson adecide exactly what content I needed to cover in a brief lesson. As someone who already has experience in video-making and in the flipped model, this does not take a great deal of time in planning. However, I am now beginning to change our class to a flipped mastery model rather than flipping individual lessons. This has taken many weeks of planning and creating. We have completed the learning targets with lessons for the remainder of the year, so students will be able to move through the lessons at their own pace. We have videos and games for instruction, different types of practice and activities, and three assessments per lesson to allow for retesting for mastery if failure occurs.

This was a major step— to reflect upon what content actually needs to be

covered. The next step was to consider when the content needed to be covered— what

content would be covered inside the class time, and what content would be covered

outside the class time? This shift included a change in when, where, and how students

received the content. Susan stated this meant she had to look closely and what to shift as

the homework. She said this:

In planning this lesson, I wanted to look closely at how moving the homework portion of the lesson to the classroom and an activity normally done in the classroom to the homework portion. I decided to place the first reading or our article called "Great White Shark" to the homework portion. I then created a Smart Notebook file to include the skills and questions that I wanted my students to master. I recorded each slide so my students could listen to an explanation of

the skills and the questions that I wanted them to think about, take notes on, and asnswer on their road to matering the content. I then created a record sheet for students to record their answers to the open-ended questions that I presented to them to see if they gained understanding and mastery. I loaded the material onto Haiku and posed the before reading discussion questions to build background knowledge. I then made copies of the article and worksheet for my students to complete.

Mary Ann additionally shared that she considered flipping any basic instruction

needed to build upon prior knowledge:

I think I am flipping more of what they can learn on their own before the come into the classroom. How can they be frontloaded before they get into the classroom? So, I think I am trying to build on their prior knowledge…what they may have already learned in previous years and trying to give them simple basic introduction to what we are getting ready to start before they come into the classroom.

Nathan shared a step-by-step guide he created for directing his planning of content in his

flipped environment. Here are the first essential questions he raised for himself:

- What information from the standards do students need to know?
- What additional information may need to be added based upon honors level coursework and preparation for college biology?
- What key vocabulary do students need to know?
- How does this information connect to activities in my current textbook?

Considering their flipped environments, these teachers focused more clearly on

content, what students need to know and be able to do, and they considered what they

needed to flip—what content students handle outside of the class time and what content

students will handle inside the class time. These elements were essential to beginning

their flipped learning environments. In these pilots, not everything was flipped all at

once; therefore, the teachers were able to take time to plan and execute accordingly in a methodical way in order to determine the "meat of their content" and when and where students would receive access to that content. This consideration of what students need to know and be able to do lead to a focus on not only what the whole class needed to know and be able to do but to what the individual learners needed to know and be able to do.

Individualized Learning

Another shift in consideration of *what teachers change concerning presentation of curriculum and content to prepare for flipping the classroom* included instructional focus on the individual learner. Participants reported a shift in focus to the student (as indicated previously in shifting the focus from the teacher to the student); they reported they began to work more individually with students and with small groups of students rather than whole group. They reported flipped learning allowed for individual pacing for students—students moving ahead, if needed; more interaction among classmates; and more attention to what individual students need to know and be able to do relative to course content. Patrice shared thoughts on the small group instruction and the differentiation of instruction for individual learners. She said,

> When we pushed part of the basic instruction out, we had more time to differentiate in class. Whereas before, we all did this and we all did this practice (whole class). Now, students are getting to go at their own pace and there is no point in them doing the same practice or the same amount of practice as a student who totally does not get a concept.

She continues with explaining how this creates more individual and one-on-one or small

group instruction. She reports differentiating based on the needs of learners. She in

particular mentions very high and very low students and emphasizes individual pacing:

> Well, for one it would be that we pushed part of the basic instruction out so that
> we had more time to differentiate in class. That's major because they're getting
> and at least if they don't understand it they're coming with some questions.
> They've had time to think about it ahead of time and they aren't overwhelmed
> when they get to class. So we're pushing that out. That's a major one. And then
> the second one would just be how we're able to differentiate. Were as before it
> was like I said neat and streamlined and we all did this, and we all did, and we all
> did this practice but that really didn't make sense when I had high kids especially.
> That's who I've seen the biggest difference in around my very high my very low.
> Because they were bored and they were good students so they didn't tell you they
> were bored but they were bored. So now they're getting to go at their own pace
> and there's no point in them doing the same practice or the same amount of
> practice as a student who totally doesn't get a concept.

She further reiterates assessing students to pull those kids one-on-one or in small

groups:

> We have more things that are individual one-on-one or small group. The kids are
> able to interact with each other more. Also, because they have something at
> home, they have background knowledge. So, when they come to class, we
> actually start with a type of assessment and I can use the assessment scores, or a
> writing sample or something. I can look at it and immediately pull those kids
> one-on-one or in small groups and work with them to fix things that were wrong.

Other teacher participants reported that in their flipped learning environments students

were able to work at their own pace dependent upon "an understanding of the concept"

(their own ability level). Susan reported

> This created an environment to assist individual learners more where they were.
> The freedom I gained to teach one-on-one, to re-teach if necessary, to clarify

misconceptions, to enrich students who had mastered the concepts, was amazing. I was able to correct a student during their practice time before getting too far into their work if they did not have the correct understanding.

Most all of the participants reported a difference in their one-on-one time with students and the time for students to learn at their own pace during their trial implementation. As indicated by the pedagogical framework of this study (Figure 1), this is grounded in the research (Carroll, 1963; Bloom,1971; Hattie, 2009). All students can master content when given the appropriate time according to his or her ability. However, Susan shared a concern about pacing. Her concerns centered on her students' lack of ability to pace themselves appropriately:

> I also learned that students work at a much slower pace when given freedom to pace themselves. I am going to have to get creative as to how to keep students working at a pace that is manageable and not time-consuming to complete a task.

Indicated by participants, they guided students in self-regulation and ownership of their own learning. Patrice said for implementation, she began by

> introducing our students to the idea of flipped mastery and self-regulation of learning. We explained mastery grading and self-pace as well as the benefits to differentiation using video instruction.

Students as active participants in their own learning are central to the flipped learning concept. Therefore, our participants indicate this must be modeled and taught. I will include more concerning this topic under Student Behaviors.

Blended Learning Environments

Another theme that emerged is the blended learning environment. One such shift from traditional practices includes the integration of technology to create a blended learning environment that includes some delivery of content and instruction online and the ability for students to have some control over time, place, path, and/or pace of their own learning away from the brick and mortar of the school (Staker & Horn, 2012). In this study, student work includes the use of technology at home (outside the brick and mortar) and at school—from watching videos to responding to discussion threads with classmates—yet still working with each other and the teacher face-to-face.

Participants were very forthcoming about their use of technology in this process of developing flipped lessons. Participants reported multiple uses of technology to facilitate learning—not just in the classroom, but also at home. The participants mentioned Internet usage, videos, YouTube, Google docs, discussion boards, interactive games, iPads, and iPods—just to name a few. Several participants reported varied use of technology and web tools: Patrice created a "Google form for student responses"; Nathan said, "I used a screen cast tool to record as I talked"; Susan said, "I used ATubeCatcher to record my screen, and I created a PowerPoint and ATubeCatcher to record"; and Rebecca said,"I used Smartrecorder to record my lesson as I taught it". Further, Rebecca reported the use of technology tools to create a collaborative environment:

> The discussion board helped a lot because it really seemed to spark their imagination. They responded and told each other they had good ideas and how they did not think of that.

Teachers thought of creative ways to flip their lessons and use technology. Some of the lessons were flipped using pre-created videos, some recorded lessons live as they were teaching, and some used discussion boards or drop box in the learning management system (Haiku) to share lessons and share ideas with classmates. With there being no one "right way" to create a flipped learning environment (Bergmann & Sams, 2012), these participants varied in their approach to blending their learning environment. However, each of them used the tools mentioned to integrate technology in their classrooms and through the flipped lessons outside their classrooms.

Process of Developing Flipped Learning Environments

This section of this chapter includes teacher reflection on the specific steps they took in order to create their own flipped learning environment. One question from this study, *what are the steps teachers take in the process of developing and implementing flipped classrooms,* guides this section, Process of Developing Flipped Learning Environments. The data collected throughout the study inform this section; however, most of the data comes from the trial implementations of flipped learning. This portion of the study included only the classroom teacher participants. The non-instructional participants assisted (as technical support, as a coach, or as an objective ear) during the implementation trials, but they were not asked to develop trial lessons, and they did not complete reflections of each trial. This section includes teacher steps to implementation, student behaviors, and lessons learned (all included from the teacher Reflection and Documentation protocol, Appendix A).

Teacher Steps to Implementation

The development of flipped learning environments included many steps for the
teachers. Participants reported how they started the process with their students. It is
evident through their responses each one of them did not implement in the same way;
however, many of them reported their process included an explanation of flipped learning
for their students and for their parents (Bergmann & Sams, 2012). Additionally, a few of
them surveyed their students' technology access (some did this formally to find out who
had internet access at home, some knew this information already through informally
asking students, and some discovered this along the way). Patrice was very ambitious in
her trial implementations. Therefore, she began her discussion with her students based
on the mastery model—she did not just begin with flipped lessons, she decided her
classroom would be a flipped-mastery classroom (Bergmann & Sams, 2012):

> For implementation, we began by introducing our students to the idea of flipped
> mastery and self-regulation of learning. We explained mastery grading and self-
> pacing as well as the benefits to differentiation using video instruction. We also
> created a parent video and sent home a paper requiring a signature that the parents
> had viewed the video to understand their child's expectations.

Julie (5th grade) said she surveyed her students before implementation:

> Weeks before implementation I had explained to students that I was going to
> change how I taught several objectives. I also had students complete a technology
> survey, so I would know who had Internet access and who did not.

Additionally, she reported that she created clear expectations for the process including

showing students where the videos would be housed, explaining to the students what they

were to do while watching the video, explaining to the students where to find the

discussion board and what their expectations were, explaining to the students what to do

if they did not have Internet or computer access at home, explaining how the teacher

would monitor to ensure everyone completed the assignment, and what would happen the

next day in class:

> The day I assigned the video, I pulled up the Haiku site and showed students the clip, slideshow, and discussion board. I explained to students that they were to watch the video clip and that I would ask them to do certain things during the clip (copy learning target, create a flow map with steps on how to divide fractions and solve 1problem.) I told students that what I asked them to write should be turned in as homework in the morning and that I would examine their notes. After watching the video clip students were asked to look through the slideshow and determine whether or not they know the steps for dividing. I finally showed students the discussion board and explained that after watching they needed to post any questions/comments on the discussion board. I explained to students without internet access that they needed to come to my room when they arrived at school so that they can watch the video and be ready for class. That night, I checked "statistics" on my Haiku site and examined who had really been up, how long were they on, and what they looked at. I also looked on the discussion board and wrote back to students on their questions/comments. The following morning, I had several students arrive to class early. I had computers and iPads up and ready for them. Students who watched the video turned in their notes for me to check. During math, I showed students the "statistics" page and let them know that I was always watching and that I appreciated their hard work. I then answered questions and comments about the video clip.

While Julie explained clearly for her students what would take place, other teachers

reported completing the first video in class with the students modeling the process,

procedures, and expectations: Nathan said,

> I created a keynote presentation, recorded a video, edited the video and uploaded it. I prepared students for first-time flipping and note-taking process summary. It was worth the effort to do the first video in class to show note-taking procedures and summary process.

And Patrice shared,

> My first lesson was modeled as a class to show how to use video, the importance
> of mastery and teamwork, and the uselessness of "cheating." Students were given
> the answer key if they need it during their practice portion to show that I expected
> them to master the content and not "get the right answers." The lesson began with
> a mathematical task related to decimals from the released test for the NC Ready
> EOG. They worked independently then collaborated as a small group. I
> conducted a mini-lesson on multiplying decimals along with a flow map activity.
> Next, students were shown how they would progress through class following our
> mini-lesson. On this day, they watched the video together discussing times to
> pause or rewind. Then, they practiced and finally assessed.

Implementing flipped learning was a multi-step process for all the participants.

As stated, they began implementation by choosing how they would explain the process to

students and to parents. Another step included creation of videos for the lessons or the

search of a video already created that fit the skill or lesson taught. Teachers handled this

according to their own comfort level and preference. This ranged from creation of their

own videos of themselves teaching a lesson or a concept, to recording a lesson as they

taught it to post for students to view at a later time, to finding a suitable video that

someone else had created. Two teachers reported their first video was on dividing

fractions. Julie recorded her own video:

> The first trial was a video I made on how to divide fractions (7 minutes long).
> The actual video did not take long because I used Smartrecorder.

Thomas found a video online that matched the content of the lesson:

> I chose to use the flipped model to teach my students how to divide fractions.
> This was a new concept for my students. I watched several online videos until I

found one that was suitable. Being that this was my first "flipped lesson", I felt more comfortable using someone else's video. This also saved me some time.

During the process of implementation, some also reported modeling for students—modeling how to watch a video and how to take notes. They reported creating graphic organizers and note-taking methods for the students in order to guide the student through viewing the video. Many participants also reported the need to monitor which students did and did not watch the video assigned (or complete whatever the flipped assignment was). Some reported the need to allow time during the school day for students to complete assignment; some reported the creation of graphic organizers for students to complete while watching the assignment (monitoring and accountability purposes for completing the assignment). Julie said,

> I asked my students to read the pages in their science textbook on producers, consumers, and decomposers and then watch the video. Afterwards, the students were to create a tree map (graphic organizer) classifying organisms as consumers, producers, and decomposers. I had created a sheet to prove that they watched the video (their accountability). Students viewed the video and took notes from the video on the sheet I had created.

Teachers followed much of what others report during implementation (Bergmann & Sams, 2012), but each teacher based his or her own implementation on his or her own preference, style, and students.

Student Behaviors

In the Reflection and Documentation Protocol (Appendix A), teachers also reported student behaviors (as related to the implementation). The behaviors reported were anywhere from students who did not do the assignment, to students needing

guidance in taking ownership of their learning, to students who loved the process and did their assigned work. (It became apparent throughout the trials that the process was not always smooth. As stated previously, teachers had to find ways to monitor who was and was not completing the assignment).

Teachers reported that students are accustomed to being told exactly what to do and when to do it. Patrice shared this:

> Some students wanted to resist and have me (the teacher) tell them what they needed to write down when working independently. This implementation continues to show that students need to be coached into thinking for themselves…I had to continually remind my students to think for themselves and try new ways of solving problems. They have shown great progress throughout our experiences together, but they still want me to work out problems for them and spoon feed all information. They are learning to take control of their own learning.

Thomas said some of his students were very receptive to this process while others were reluctant to complete their assignments:

> Some students were receptive and did an excellent job. I received some positive feedback on my discussion board after students had completed the work. Some students were reluctant to do the work and made excuses but realized how quickly they could have completed their work when they were then required to complete it in class.

A positive idea stands out as teachers reflect upon student behaviors, however. The teachers report when students do watch the videos or complete the assignment, they are more prepared for class the next day and are more successful. Some even report students are working more successfully as they pace themselves and work independently: Julie said,

My students did a spectacular job of getting their assignment done. Sixteen of 24 students came to class with their notes and ready to go. The other eight came to my class early and watched the video while eating their breakfast. When I asked for their feedback on the video, I received tons of positive feedback. Students mentioned that they felt like I was talking to just them. They enjoyed rewinding portions of the clip and discussing their questions on Haiku. I feel that this has aided in student ownership of learning. They have understood that they must be responsible and complete their assignment, or they will miss out in centers in class. I feel that my students mastered this objective due to this video clip and the extra practice in class they received.

Additionally, Nathan shared,

My students were better prepared, and were better able to understand materials from the day's lesson including how the structure of the molecules relates to their function in the cell membrane.

Finally, Mary Ann also reported

My students did (for the most part) study the notes and formulas the night before from the downloaded PowerPoint and came into class with basic information about area and volume and were, therefore, better prepared for the lesson on area and volume!

The reality of these flipped classrooms or any other traditional classroom is that all students are different, all students react differently to change, all students learn differently, and all students' motivational levels vary. These are not nuisances relative to flipped learning. Any teacher faces these behaviors on a daily basis. The good news as reported from these teacher participants is they did find that students who did watch their flipped assignments or complete their flipped assignments were better prepared for class. Again, the challenge here is not new to flipped learning. Creating engaging lessons that

employ student-centric pedagogies is imperative to reaching every learner (Bloom, 1968;

Tomlinson, 1999). These teacher participants experienced this fresh and anew as they

engaged in changing their pedagogical practice.

Lessons Learned

From their participation in this study, teachers also reported lessons they were

learning along the way. In each trial, the lessons learned informed the planning for the

next implementation. Teachers reported difficulties in getting students to watch the

videos and in getting students to work on their own (as previously shared); however, as

the implementation moved forward, Patrice stated powerfully that this process is more

than just watching videos.

> Throughout this process, I have learned many important things with logistics, like
> how to keep track of progress and how to make effective videos, but I have also
> learned a great deal about the importance of differentiation and student ownership
> of their own mastery. This part of my flipped journey has been much more
> powerful than just watching videos.

Patrice is learning about herself, her delivery of instruction, and her pedagogical

practices—all the while learning how to flip her classroom. As she describes, this has

been a journey for her as she shifts her practice to meet the needs of individual learners.

Susan reported a different lesson learned. She says from her perspective, students

working at their own pace is a good thing; however, not an easy thing—not easy for the

teacher or the students. She shared this:

> Students were able to work at their own pace and master the content at an
> appropriate pace for their ability. I also learned that students work at a much
> slower pace when given freedom to pace themselves. I am going to have to get

creative as to how to keep students working at a pace that is manageable and not time-consuming to complete a task. I became frustrated at times when students' pace was not as fast as I expected. Some of this frustration was due to completing this lesson during a time when so many of my students were out of my classroom for reasons out of my control. The only good thing is that students who did finish could move on and did not have to held back due to absences or slower-pace students.

As indicated from her reflection, she put the onus of student pacing back on herself as the teacher. She admitted she became frustrated, but she was honest in revealing she was the one who needed to get "creative."

Other lessons learned were from the students themselves. Marie reported what her students had to say about the process of flipped learning—both positively and negatively. On a positive note, students reported they

liked pause and rewind, they said they were more likely to watch a video than do other homework, they would watch videos so they would not be behind the next day, they felt like they knew what to expect from the day's lesson, and the examples were good and understandable.

However, they did not like the fact that they could not ask the teacher questions, they reported they were easily distracted, they did not like that they could not see the teacher (her videos did not include her visually). These reflections from the students are powerful. As flipped learning is student-focused, these comments by students should inform practice moving forward. As indicated previously, some teachers in this trial implementation chose not to record themselves (with a visual of themselves) during their initial videos. They chose not to do so based on their own comfort level. However, based upon student comments, they want to see their teacher.

Further, as participants kept track of their lessons learned throughout their trial implementations, Nathan was very deliberate with what his lessons learned were (he was creating his own videos during his trial implementations):

- You don't have to restart the video each time you make a mistake during recording!
- Doing the first video in class was worth the effort for helping students develop note-taking skills.
- Trying to get a location free for recording can be a challenge.
- You need to watch the length of videos because if too long students may grow tired of the process.
- Remember to allow for natural pauses in presentation such as the beginning or ending of a slide, these make good editing points.
- Take care not to make videos too long as they can become quite lengthy for students who stop and start often. Target a 10 to 12 minute time period.

Each lesson learned did not mean the teachers were discouraged from implementing or forging ahead; instead, they shared lessons with each other and they discussed them further to find solutions to their problems. This became a major component of the study as the participants worked collaboratively to learn, to reflect, to resolve, and implement again.

Collaborative Inquiry

As participants worked collaboratively on this action research project, I asked them to reflect upon this guiding question: *How does a group of teachers within and across grade spans collaborate as a PLC to prepare them themselves for flipping the classroom?* As mentioned in Chapter III, none of the participants in this study had worked collaboratively on an action research project before. They reported this experience was a positive one.

These teachers met with each other face-to-face on various occasions, but many of their meetings were virtual, and they shared through a collaborative online site the team developed as they worked through this study. The site provided a means for them to share their ideas, a means for them to share their challenges, a means for them to share their research, and a means for them to share what resources they were finding as they implemented flipped learning for the first time. One example is from Patrice. She shared with her colleagues along the way:

> I learned the videos should be concise. The more lessons I created in this way, the shorter the time it took to complete. I joke with the teachers on my hall that I can create a lesson on anything in math in less than five minutes. I learned exactly how to present the information and the logistics of how to do things quickly. It is different at first "teaching" this way because I do not have to repeat myself 50 times in a lesson. Instead, I give the information, and students can choose how many times they hear the information given or a specific part of the information given. They can go back to the part where they got lost and rewatch from there.

They (teachers and the non-instructional participants) report they have found the collaboration helpful. They report working together (whether face-to-face or online) was helpful to them—they report trying something like this with other colleagues was a good way to learn. They liked sharing ideas, comparing lessons learned, working on problems together, learning how others solved issues, and talking with one another. Additionally, they report the cross-curricular and cross grade span collaboration was helpful—they learned from others in other subject areas and in different grade spans.

Participants report working collaboratively to solve problems and compare notes. Patrice shared her thoughts:

It is good first of all just to be trying it with other people, and to get their feedback, and what they are doing. And our discussion boards and things--it's interesting to see what they've had happen compared to what I had when we started. You know, to see if it is about the same. And to see their problems and try to work on them together and try to you know solve some things if I've already been through it you know what you can do differently and what I have tried. So it is good just to have that support network there when you are trying something that is so different. I have stolen their ideas, too.

Thomas shared this:

I think it is the best way of learning— and I've always said this— by talking with your colleagues especially with you know the common core curriculum I think we all went from kind of being experts to novices. And then with the flip model I think we're all still kind of amateurs with that, too, but I have frequently been visiting the Haiku and reading other people's comments seeing what they're flipping and sharing.

I responded to some people like one I think was a high school teacher said she had an issue because some of her students were copying other people's notes or something. And she had posted a question about would it be appropriate for her to give them a quiz as soon as they walked into the room. My response was that we've always for years been told to do exit cards. That she should kind of coin the phrase entrance card and give her students an entrance card instead of an exit card. And I thought that would be really cool. And then if she gave it to them in the classroom—here's your entrance card you have to list three things that you learned from last night's video—how does this relate to my world just kind of tweak that exit card we had. Give it to them then they would be held accountable.

Participants also report collaboration as an important way to share ideas and learn from each other. Kathy shared her thoughts:

I think everybody will gain from it. I don't think I've ever been part of an action research group before and well I know I haven't. I think I like it because I think that you get to hear lots of different perspectives, lots of different ways teachers are interpreting the flipping. I thought it was really interesting how some people did the videos at different times which I think is a big consideration in flipping. Where exactly does that video fit in the big picture of my lesson and where is it going to benefit my students the most. Is it before, is it after, or is it in the

middle? Hearing about how people did it in their own way and just hearing all of those different viewpoints I think is an effective way to try out something in our county that we believe is the best practice.

The collaborative inquiry of this project provided opportunities for these participants to learn from each other, to share what they were researching and learning, and to improve upon their practice (Darling-Hammond, 2010; DuFour & Marzano, 2011). This inquiry eliminated their isolation of teaching and learning alone—instead, these participants collaborated in a job-embedded professional development (Fullan, 2005), like they have never known since none of them had ever been involved in a collaborative, action research project before. Their positive reports of their sharing and collaboration inform our current and future practice for professional development and inquiry in Progress County Schools.

Classroom Observations

In observing each teacher participant in this study, I found many commonalities in their classrooms and made some observations of things I had not thought about prior to this study. I used a Classroom Observation Protocol (Appendix F) that I developed. I was observing student and teacher interactions, observing what the teachers and students were doing, looking for evidence of flipped learning, and looking for use of technology equipment available in the classroom. Table 3 outlines what I observed as commonalities from the classroom observations.

Table 3

Teacher Classroom Observation Data

Grade Span	Teacher and Student Interactions	Evidence of Flipped Classroom Implementation	Equipment/ Technology Available	Purpose of Equipment/ Technology	What are students doing?
3-5	Teachers interact positively with all students; students seem aware of classroom procedures and protocols—teachers use protocols such as Thumbs Up/Thumbs Down for student response	Teachers state the lesson topic for the day and explain the plan that includes the flipped portion of the lesson; lessons vary but there is evidence the teachers are planning with flipping in mind	Interactive Whiteboards; projectors; teacher computers; document camera; TV; classroom computers (some desktops and some laptops in a cart –as available for checkout)	Teacher uses the Interactive Whiteboard; students use computers/laptops when needed and when available	Students are working collaboratively in small groups; students are talking with their peers about content the teacher has presented; students are practicing their new skill with the teacher at-hand
6-8	Teachers interact positively with all students; students seem aware of classroom procedures and protocols; very noticeable in the middle school classroom that procedures and protocols are in place and the teacher has an established rapport with students and there is a daily routine to follow; evident that flipped learning is becoming routine for the class	Students have either watched videos to prepare for class and/or they are watching new videos for the next lesson	Interactive Whiteboards; projectors; teacher computers; 1:1 laptops for all students (6th graders do not take their laptops home, but 7th and 8th graders do); Learning Management System (Haiku); iPads and headphones (in one classroom); calculators (in math classrooms)	Teacher uses the interactive whiteboard for display; Students login to their computers into the Learning Management System (Haiku) to access content; Students view videos on their laptops; students use headphones while listening (in one classroom); Teacher uses iPad (in one classroom) to look up student quiz scores as she is mobile in the classroom	Students are either working collaboratively in small groups or working individually on the task at hand

Table 3

(Cont.)

Grade Span	Teacher and Student Interactions	Evidence of Flipped Classroom Implementation	Equipment/ Technology Available	Purpose of Equipment/ Technology	What are students doing?
9-12	Teachers interact positively with all students; Students seem aware of classroom procedures and protocols; Teacher has established a strong rapport with students	Teachers are using videos for instruction of course materials—using YouTube videos and teacher-made videos	Interactive Whiteboards; projectors; teacher computers; 1:1 laptops for all students (some students have their own learning device— Smartphone or laptop; Learning Management System (Haiku); Other software (used in one classroom): YouTube, Google Documents, Google Drive, Prezi	Teacher uses the interactive whiteboard for display; students login to their computers into the Learning Management System (Haiku); Students use Google Forms (in one classroom)	Students are working collaboratively in small groups or are interacting with each their peers on the task at-hand; Student activities vary dependent upon the assignment

These teacher participants maintained well-structured classrooms and were seemingly comfortable with the shifts taking place in their classrooms. It was noticeable to me as the observer that they all effectively managed their classrooms through consistent procedures and protocols. I did not consider this before the observations; however, I have come to realize when facing shifts in practice such as flipped learning, there are two additional considerations: relationships with students and classroom procedures and protocols must be consistently a part of the daily routine. These teachers all interacted very positively with their students and students knew the procedures and protocols for the classroom. Additionally, it was obvious students were familiar with flipped lessons and were familiar with the teacher expectations.

Further, I observed that even though all of the teachers were actively participating in the flipped learning study, not all were at the same level of expertise—in either their current teaching practice or their implementation of flipped learning. Many of the classrooms incorporated small group or collaborative work, but only one classroom was truly individualizing instruction for all learners in the room. Another example was a teacher who reverted to whole-class instruction after a flipped lesson (from the night before) and did not move on to individualizing the instruction for small groups or individual students. This indicates a need for foundational pedagogical practice of individualized and active learning structures if we want to move toward an effective flipped learning environment.

A final observation was the availability of technology in all classrooms and across grade spans. Technology is an integral part of the flipped learning process—both access

to devices and to the Internet. Students need access to personal devices—any wireless, web-enable device—for viewing and accessing the flipped lesson. During this study, participants did find that ubiquitous access is best, but is not ultimately necessary. Students in grades 7-12 in Progress County Schools were more readily able to engage in flipped lessons through our 1:1 laptop access. However, even though students in grades 3-6 were more limited in their access, flipped learning is still possible. Teachers discovered they could provide access to flipped lessons while at school and could shift time during the school day to provide students time to complete.

Additional Analyses

As described in Chapter III and adding to my data collection, I surveyed other teachers in our district to determine their level of comfort with flipped learning (from their limited training) and their initial thoughts on implementation. My intention for the survey was to get an initial read on what other teachers were thinking about flipped learning and how they felt about their skill level to proceed (technical and basic flipped knowledge). The survey also included their thoughts on flipped learning, its potential to increase student engagement, and its potential to increase student mastery. These data are described in Table 4.

The data indicate teachers only 40.7% of the teachers strongly agree that flipped learning has the potential to increase student engagement and another 40.7% somewhat agree. Moreover, 38.4% believe flipped learning has the potential to increase student mastery of content and another 45.3% somewhat agree. This is promising for this pedagogical approach to engagement and mastery. However, 25% or less of the teachers

strongly agree they will flip their classrooms this year and the same report they have

received sufficient training on the concept. Perhaps this is due to the low response

concerning their limited training on flipped learning; perhaps the respondents will need

additional training and support in order to begin implementation.

Table 4

Non-Study Teacher Responses

Respondent Information	Responses			
Grade/Subject Taught	86 respondents = 22 K-5 teachers; 31 6-8 teachers; 25 9-12 teachers; 8 Other			
Years of Teaching Experience	51%- under 10 years of experience; 49%- over 10 years of experience			
I feel confident in my technology skills.	50.0% strongly agree	44.2% somewhat agree	4.7% somewhat disagree	1.2% strongly disagree
I integrate technology effectively into my instruction.	58.1% strongly agree	39.5% somewhat agree	2.3% somewhat disagree	0.0% strongly disagree
I integrate technology effectively into my instruction.	66.3% strongly agree	26.7% somewhat agree	5.8% somewhat disagree	1.2% strongly disagree
I believe the flipped classroom concept has potential for increasing student engagement.	40.7% strongly agree	40.7% somewhat agree	17.4% somewhat disagree	1.2% strongly disagree
I believe the flipped classroom concept has potential for increasing student mastery of content.	38.4% strongly agree	45.3% somewhat agree	14.0% somewhat disagree	2.3% strongly disagree
I have received sufficient training for implementing the flipped classroom concept.	25.6% strongly agree	34.9% somewhat agree	25.6% somewhat disagree	14.0% strongly disagree
I plan to flip my classroom this school year.	24.4% strongly agree	46.5% somewhat agree	18.6% somewhat disagree	10.5% strongly disagree

Additionally, these teachers were given opportunity to provide their own comments on flipped learning. They provided both negative and positive feedback. Positively, some requested additional training in order to support their implementation, one reported students seem to have a better grasp of the material and look forward to watching the videos, and one reported loving the idea of building prior knowledge at home then coming to school ready to learn and apply new content. Negatively, many of them reported concerns over lack of technology and Internet access. Additionally, there were reported concerns over students not taking ownership and responsibility for their learning and not doing their homework.

All of this data combined further informs the findings of this study. The study participants are reporting a more in-depth understanding of flipped learning and are reporting on their lessons learned that directly correlate to the concerns reported from the teachers in this survey. This information further guides the development of the framework for flipped learning in our district.

Summarizing Thoughts

This chapter has presented the data of this study on flipped learning. The data of the two focal points of this study—flipped learning and collaborative inquiry—provide the reader with a look inside teacher thought and practice, and the data from the study participants represent a picture of flipped learning from the practitioner view. These practitioners found promise in flipped learning. Through this study, they embraced the opportunity to integrate technology into their practice creating blended learning environments and to increase their focus on students through individualized instruction

for all learners. They have indicated flipped learning provides an opportunity for

students to prepare for the upcoming lesson outside of class time and to interact more

productively in class with their teacher and their peers. Additionally, they report a

heightened focus on specific content and what students must know and be able to do.

They no longer spend time on the non-essentials of learning; instead, they focus on what

they have termed the "meat of the instruction".

   As these teachers of Progress County Schools have indicated, flipped learning

provides a framework for engaging students in their learning and individualizing learning

for all. Implications for Progress County Schools are to ensure these foundational

pedagogical practices are taught and embraced by all teachers who desire to implement

flipped learning in their classrooms. Additionally, implications for our district include

collaborative inquiry as a means for improving practice. As these teachers worked

together, they found power in collegial sharing, support, and learning. As stated

previously, these teachers do participate in Professional Learning Communities in their

schools, but they have never participated in such across grade spans nor have they

engaged in action research to develop procedures and standards for practice in our school

district.

   Chapter V utilizes these findings further in Implications for Practice. This section

in Chapter V provides a Pedagogical Framework for Flipped Learning and a Framework

for Implementation of Flipped Learning in Progress County Schools. Additionally,

Chapter V summarizes this study and provides implications for further inquiry and

conclusions.

CHAPTER V

ANALYSIS AND IMPLICATIONS FOR LEARNING

Introduction

In a time when educational reform is a national and statewide focus, and in a time when educators face new curriculum standards, new assessments, and revised professional teaching standards, it is imperative educational leaders examine closely current instructional practice and current teacher development practices. The purpose of this study was to do both. Practitioners engaged in collaborative inquiry to examine an instructional concept that was new to them—flipped learning— and they engaged in this process as a collective group of action researchers. This was new to the participants in this study—including myself. We embarked upon this journey however to strengthen our practice and develop a framework for others to follow.

The outcomes of this study conclude in an analysis of this study; and to inform practice further, the major findings and themes from this study culminate in a *Framework for Flipped Learning*. The framework will serve as a guide for flipped learning implementation reflective of the literature review, practitioner input, and data collected from the study. The guiding research questions from this study serve as the basis for the analysis and the framework design:

1. What do teachers (elementary, middle, and high) change about presentation of curriculum and content to prepare for flipping the classroom?

2. What are the steps teachers take in the process of developing and
    implementing flipped classrooms?

3. How does a group of teachers within and across grade spans collaborate as a
    PLC to prepare themselves for flipping the classroom?

4. What results do teachers report as the flipped classroom project develops?

Analysis of Findings

An analysis of this study stems directly from the four guiding research questions and from the collaborative work of the practitioners—what they learned from their own experiences, what they learned from others, and what we learned from the current literature on flipped learning. Conclusions from the analysis include foundational implications of flipped learning, challenges of flipped learning, and implications for collaborative inquiry.

Foundational Implications of Flipped Learning

As participants reflected upon what teachers change about presentation of curriculum and content and on the results of their work, three foundational implications of flipped learning were determined. First, flipped learning requires a shift from a teacher-centric to a student-centric learning environment; second, flipped learning requires a shift to blended learning environments; and third, flipped learning requires a shift in pedagogical practices that focuses on individualized and active learning structures with the goal of mastery in mind. These fundamental shifts were conceptualized in the Pedagogical Framework for Flipped Learning (Figure 3) also presented in Chapter II.
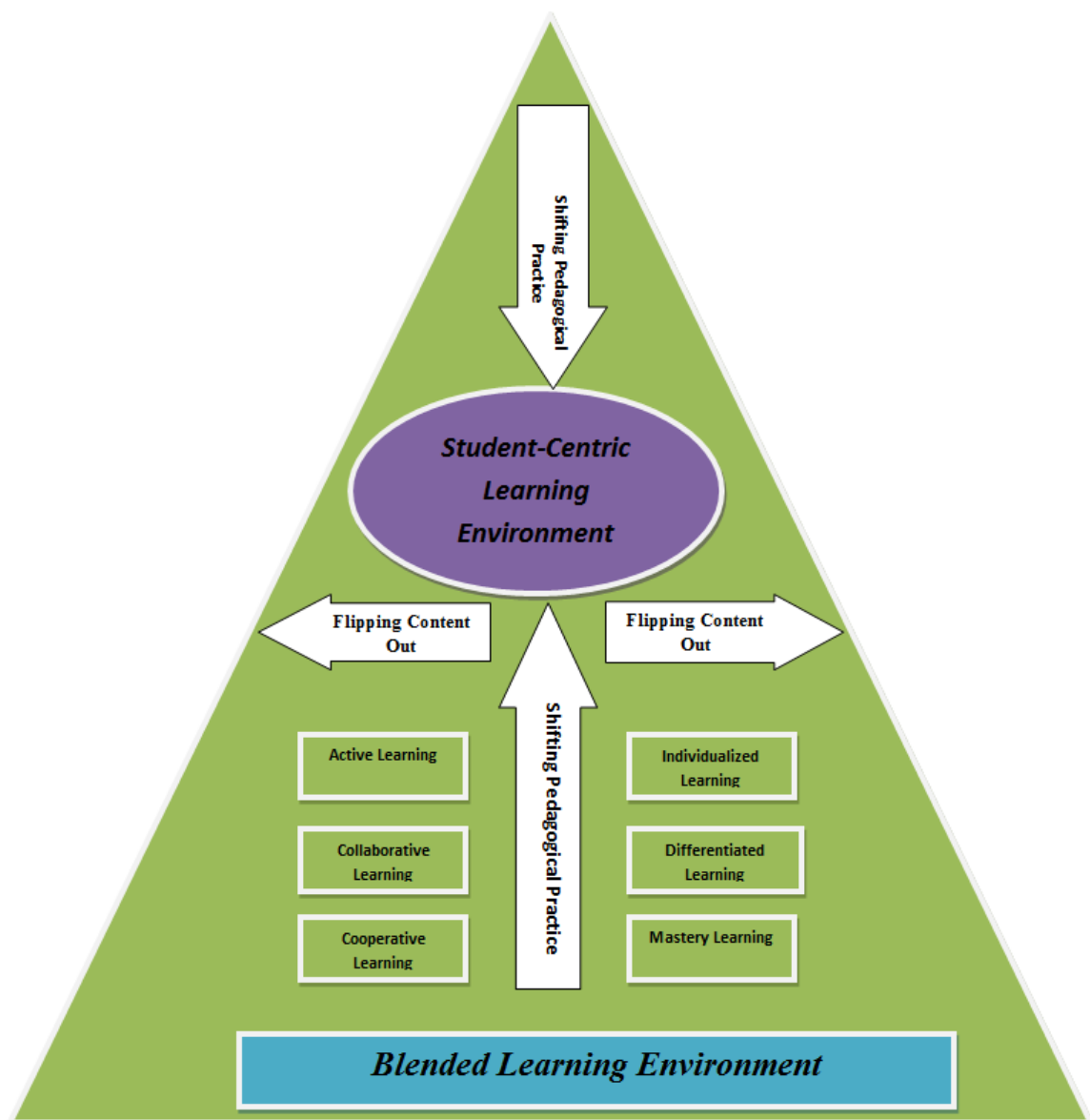
Figure 3. Pedagogical Framework.

Research supports this pedagogical shift to create student-centric, individualized

learning environments (Bloom, 1968; Guskey, 1990; Tomlinson, 1999; Marzano, 2007).

Yet, the structure of many classrooms today remains teacher-centric, designed for whole

group instruction. Flipped learning can change that paradigm. Through the combination

of technology and the underlying structure of flipped learning, educators can individualize learning based on the readiness of each student (Tomlinson, 1999). Educators can provide students a learning path that best meets their needs through active learning, differentiated learning, cooperative learning, or collaborative learning structures that allow students to become active rather than passive participants in their learning (Hamdan et al., 2013; Miller, 2012; Tomlinson, 2008). Our study participants learned that "kids were able to interact with each other more," "students were able to work at their own pace," teachers were "able to differentiate." Additionally, some students were able to "move on" and accelerate their learning while others needed more time. Participants indicated the ability to differentiate instruction for students through small group (collaborative or cooperative learning structures) or individualized instruction. Not all students have to work at the same pace on the same content at the same time. Therefore, fundamental to flipped learning is engaging students in their learning and individualizing that learning based on student needs.

Additionally, flipped learning requires another shift for the teacher. This environment requires a shift in focus from the teacher to the student. A teacher must shift his or her position in the classroom from giver of knowledge to facilitator of learning (Guskey, 1990). In this environment, there must be less of the teacher and more of the students engaging in their learning in an active way (Hamdan et al., 2013; Michael, 2006; Miller, 2012). Teachers in this study found themselves consciously aware of their physical position in the classroom. They were no longer lecturing and began letting go of the need to be physically in front of the classroom. Two practitioners in this study

described this as "letting go" and "stepping away"—indicating a shift in not only their physical position in the classroom but their mental position. This required the teachers to "work with students one-on-one," and to "work with students in small groups to fix things that were wrong" (misconceptions).

Students benefit in this environment as it not only provides opportunity for individualized learning through pacing of content, but it also provides alternatives to where learning takes place (Staker & Horn, 2012). Through the power of technology in these blended learning environments, students are able to access content outside of the classroom space and better prepare for the time in the classroom with the teacher. Teachers assign videos for viewing outside of class time and assign electronic discussion boards for student sharing and posting questions. Each of these provides greater opportunity for the student to prepare for the "in class" time with the teacher and their peers. Interesting to note, a fifth grade teacher participant in this study stated how difficult it was for her to find time for students to write during class. She used the flipped learning model to extend her class time. She accomplished this by creating an assignment that students accessed out of class, and she created a discussion board for students to share and post their ideas. She stated this "sparked their imaginations" and gave students opportunity to share ideas with each other before beginning their own writing assignment. She shared this "freed up class time" all the while preparing students for their writing.

Challenges to Flipped Learning

Flipped learning is not without its challenges. If the shift inside the classroom does not change, the effects of flipping content out may not be effective at all. As stated by Ramsey Musallam (2013), in a recent TED Talk, "Flipping a boring lecture might save instructional time, but if it is still the same lecture that is the focus of our student's experience, it is still the same dehumanizing chatter wrapped in fancy clothing." This statement supports the pedagogical framework (see Figure 1) provided for flipped learning in this study. There must be a shift in pedagogical practice inside the classroom before flipping content out will produce any substantial change in student learning or will create dynamic, student-centric learning environments. A shift in practice must include fully engaging students in active learning based on their individual needs and provide alternatives to pace and place for learning.

We also find that flipped learning works best in an environment where all students have individual access to wireless devices and wireless Internet inside and outside of school. In this study, students in grades 3-5 had limited one-to-one access to wireless devices in school and some of them did not have access to devices nor the Internet beyond the school day. The teachers had to be more creative in how to provide the videos to the students and had to make additional accommodations within the school day for students to view their assignments. A fifth grade teacher said, "I have been trying to find ways to work in doing the assignments for some of the students who don't have Internet. I have to work on that and work the kinks out". In grades 6-12, students had daily one-to-one access to wireless devices but some also did not have Internet access

beyond the school day. Teachers created opportunities for students to download videos or assignments before leaving school and allowed students an alternative means to viewing during the school day; however, this created more work and more shifts in scheduling than anticipated. Therefore, flipped learning is optimal in a one-to-one environment in which every student has a wireless device and access to wireless Internet.

Also, flipped learning does not create an environment in which all students are automatically motivated to complete every assignment. Work ethic, motivation, and understanding the benefits of flipped learning must be addressed. Teachers report more success with students who begin to understand the benefits to them in learning this way, but this takes explanation upfront and demonstration of those benefits to the students over time as the teachers continue to implement and model their expectations and the benefits to learning. Participants shared their strategies for motivation that included "students *will* watch a video" and the creation of "graphic organizers" to monitor student involvement. As students were still getting accustomed to the flipped assignments, one teacher "checked the statistics" on the learning management site (location of the assignment) to monitor students' work and the time they were actually logged on. All of the participants in this study reported the need to introduce flipped learning and its benefits to students and to parents and to model how to watch a video. Reality is students may watch videos on their own time, but they do not inherently know how to view videos for content acquisition. One teacher modeled the "first-time flipping and note-taking process," and another created "a note-taking sheet that incorporated a flow map to sequence the steps for dividing fractions." Another teacher went as far as to explain to her students the

importance of "mastery and teamwork and the uselessness of cheating." Her goal was to create independence in her learners as she expected them to "master the content" and not always work just "to get the right answers."

Collaborative Inquiry

Guiding the structure of this study was collaborative inquiry and how a group of teachers within and across grade spans collaborates as a PLC to prepare themselves for flipping the classroom. The findings included here are from the literature review and the participant engagement in collaborative inquiry. Indications from this study are before implementation, teachers need time—time to learn, time to share, time to prepare, and time to reflect.

For years, Linda Darling-Hammond has advocated that for anything we do in education, professional development is key—and the content of professional development must include active teaching practices, assessment, observation, and reflection rather than abstract discussions (Darling-Hammond & McLaughlin, 1995). Professional development must afford teachers an opportunity to get their hands on the curriculum, the content, and share strategies that work with other teachers. This study determined that teachers must be given time to learn and to apply this new idea of flipped learning, but they must also have time to ensure they know how to employ the other pedagogical practices with fidelity before implementing flipped learning. This time for learning must be with other colleagues—in a collegial environment of sharing and learning from each other.

Therefore, collaborative inquiry is also foundational to implementation of flipped learning. Eliminating the teacher *as one* means there must be time for teachers to study their practice, to learn, and to share with other colleagues. For flipped learning this includes not only learning what others are doing across our nation and across the globe, but what are others doing locally? One reason flipped learning has become so popular is it has been predominantly a grassroots effort from teachers—it is teachers who are experimenting and trying new strategies. Providing time for teachers to collaborate and share with colleagues in a school or across a district is the key to continuing the grassroots effort. Teachers can and will learn from others.

In this study, participants engaged in this inquiry as a PLC across three grade spans, 3-5, 6-8, and 9-12. This vertical inquiry has never taken place in our district nor have the participants in this study ever been involved in professional learning to the extent that they were tasked with providing input into a framework for district wide implications. Their responses to collaboration included thoughts of sharing lessons learned, encouragement, sharing new ideas, and thoughtful reflections for the framework design. They shared lessons learned—"videos should be concise" and "try an entrance card instead of an exit card after the students have watched the video." They also shared the benefits to themselves as professional learners: "It is good just to be trying it (flipped learning) with other people," "I think the best way of learning is talking with your colleagues," "This influenced me to see how others approached this," "I responded to a high school teacher about an issue she had with students copying each other's notes," and "I think everybody will gain from it . . . you get to hear lots of different perspectives, lots

of different ways teachers are interpreting the flipping." Not only did the practitioners

share ideas and encouragement, but as they became researchers, they shared what they

were learning –from what flipped learning looks like and what others are doing to tools

and resources they were finding to help them during implementation.

This entire process—from examining flipped learning to collaborative inquiry as a

district PLC—provides strong implications for our future practice. Practitioners need

time to learn from each other and time to implement new practices, to learn from their

challenges and successes, and time to implement until they get it right. The next section,

Implications for Practice, culminates this study into a framework for implementation for

Progress County Schools. This framework is intended to guide Progress County Schools

and others who desire to implement flipped learning in their classrooms, schools, or

districts.

Implications for Practice

The analysis of this study culminates into a framework for practice. This

framework is designed to serve as a guide for implementation of flipped learning

including pedagogical shifts and steps to implementation. This framework is designed to

be a how-to guide for others wanting to begin flipped learning or for districts such as

Progress County Schools who wish to continue with implementation.

Before implementation, however, teachers must know and understand the direct

correlation to improving their practice and the benefits of creating student-centric

learning environments. Therefore, the participants in this study designed a complete

framework for implementation in Progress County Schools that include a focus on

improving pedagogical practice and professional learning before implementing the

concept of flipped learning. As a direct correlate to the analysis and the literature review,

the framework is segmented into two parts: pedagogical shifts and implementation.

Additionally, both segments infuse collaborative inquiry in order to provide teachers

opportunity to collaborate, to learn from experts and from each other, and to become

reflective practitioners (Darling-Hammond, 2010; DuFour & Marzano, 2011). Each

segment is to be approached separately with collaborative inquiry among teachers at the

heart of their learning and implementation process.

Separate components of the framework reveal a complete picture of the flipped

learning design: first, as a tool for shifting traditional pedagogical practice towards the

learner (as indicated in Figure 3); second, as a guide for implementation of flipped

learning in a classroom, a school, or an entire district; and third, as a guide for

collaborative inquiry. Figure 4 outlines the separate components of the Framework for

Flipped Learning. The left side, Pedagogical Shifts, is a pre-requisite to right side,

Flipped Learning Implementation.

As indicated from the analysis and literature review of this study, flipped learning

necessitates teachers have a command of the fundamental pedagogical shifts that must

occur. At the core of flipped learning, there is a shift from the whole group setting to the

individual setting (Ash, 2012; Bergmann & Sams, 2012; Hamdan et al., 2013; Tucker,

2012). Such a shift requires an understanding of student-centric pedagogies that include

individualized learning, mastery learning, active learning, cooperative learning, and

differentiated learning (Bloom, 1968; Guskey, 1990; Tomlinson, 1999; Prince, 2004;
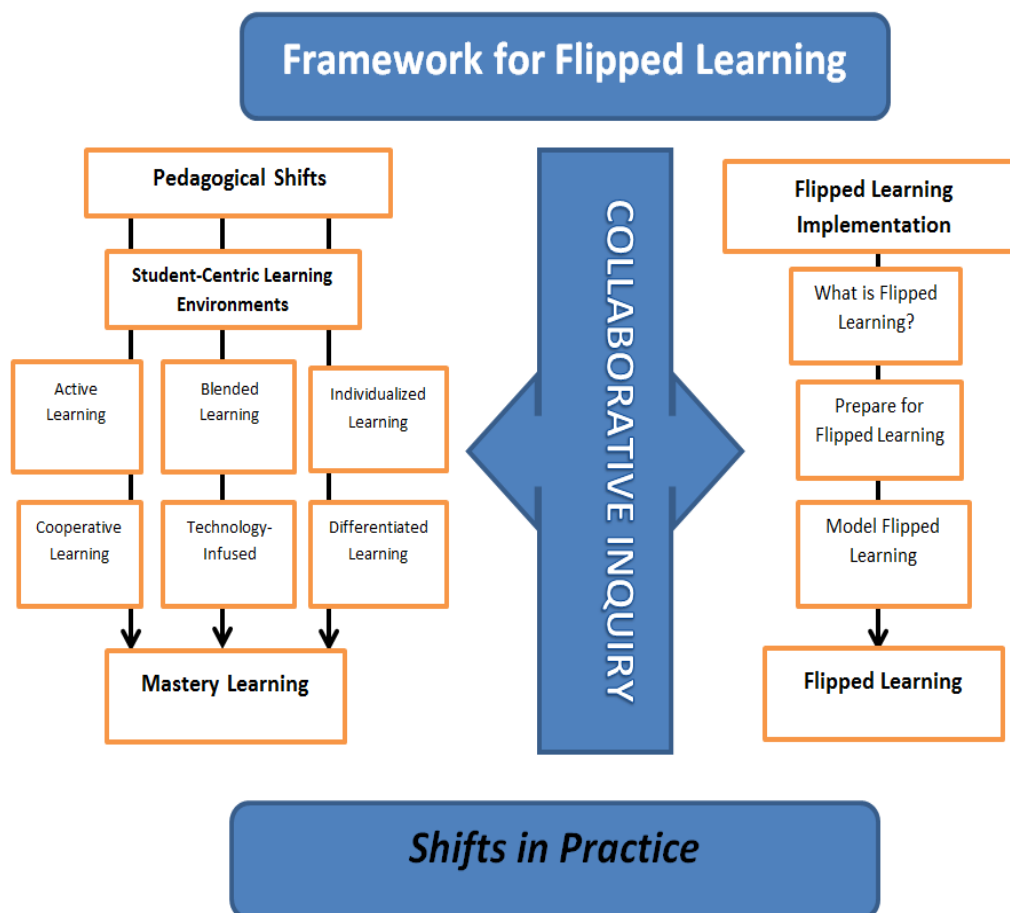
Michael, 2006; Marzano, 2007).

Figure 4. Framework for Flipped Learning.

The left side of the framework is dedicated to the fundamental pedagogical shifts

within a flipped learning environment (Figure 5). Each component comes directly from

what practitioners across the country report about flipped learning, what the literature

indicates, and what the study participants report. Table 5 further describes the

fundamental principles behind student-centric learning environments: active learning,

blended learning, and individualized learning. The table includes a summary from the

literature and summaries from the participants in the study to serve as a guide for

professional development.
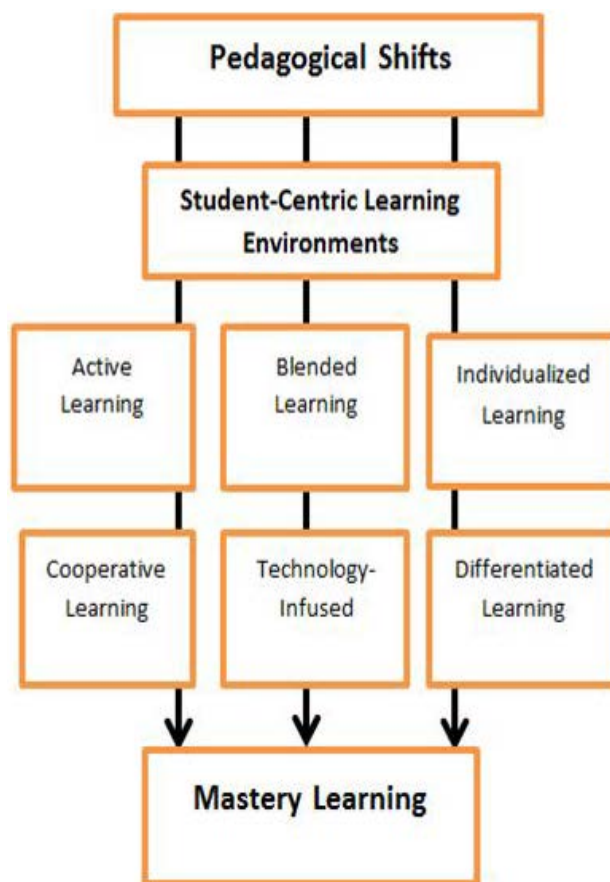
Figure 5. Pedagogical Shifts.

Second to the fundamental pedagogical shifts, is Flipped Learning

Implementation. The right side of Figure 4 outlines this process (Figure 6).

Implementation begins with the fundamental principles of flipped learning

(after the pre-requisite professional learning on the pedagogical shifts has occurred).

Teachers examine the essential components of the Flipped Learning Implementation and

collectively (within a collaborative inquiry environment) develop strategies for flipped

learning in their classrooms. Again, as designed within the framework, this is an iterative

process in which teachers learn, un-learn, and re-learn from their own experiences and

the experiences of others (Darling-Hammond, 2010; DuFour & Marzano, 2011).

Table 5

Fundamental Pedagogical Principles for Flipped Learning Environments

Student-Centric Learning Environment	Student-centric learning environments are based *less on teaching* and *more on learning* (Hamdan et al., 2013). Participants' Conclusions: • Teacher becomes a facilitator of learning. • Teacher "steps away" from the front of the classroom. • Teacher "lets go" of teacher control. • Teacher works more with small groups or individual students rather than whole group.
Active Learning	Active learning is generally defined as any instructional method that engages students in the learning process forcing them to reflect upon ideas and how they are using those ideas (Michael, 2006; Prince, 2004). This process additionally involves an interaction between teacher, student, and content in this learning process (Marzano, 2007). Such active learning strategies include cooperative and collaborative learning, problem-based learning, technology-enhanced learning, inquiry-based learning, and peer instruction (Michael, 2006; Prince, 2004). Participants' Conclusions: • Students collaborate with peers through online forums and discussions. • Students and peers share ideas and learning.
Blended Learning	Blended learning environments include at least in part some online delivery of content and instruction and the ability for students to have some control over time, place, path, and/or pace of their own learning away from the brick and mortar of the school (Staker & Horn, 2012). The control over time, place, path, and/or pace with digital technologies creates opportunities for students to learn and to take responsibility for their own learning (Tomlinson, 2008; Hamdan et al., 2013).

Table 5

(Cont.)

Blended Learning (cont.)	Participants' Conclusions: • Teacher creates videos based on content for students to view.
Individualized and Mastery Learning	Teacher creates collaborative environment through discussion boards, online forums, etc.Mastery learning provides the opportunity for all students to master the content at his or her own pace, based on his her own aptitude (Carroll, 1963; Bloom 1971; Bloom, 1984).Participants' Conclusions: • Students learn based on their readiness. • Students pace their own learning. Teacher assesses individual learners to inform further instruction and mastery through formative assessment and feedback.
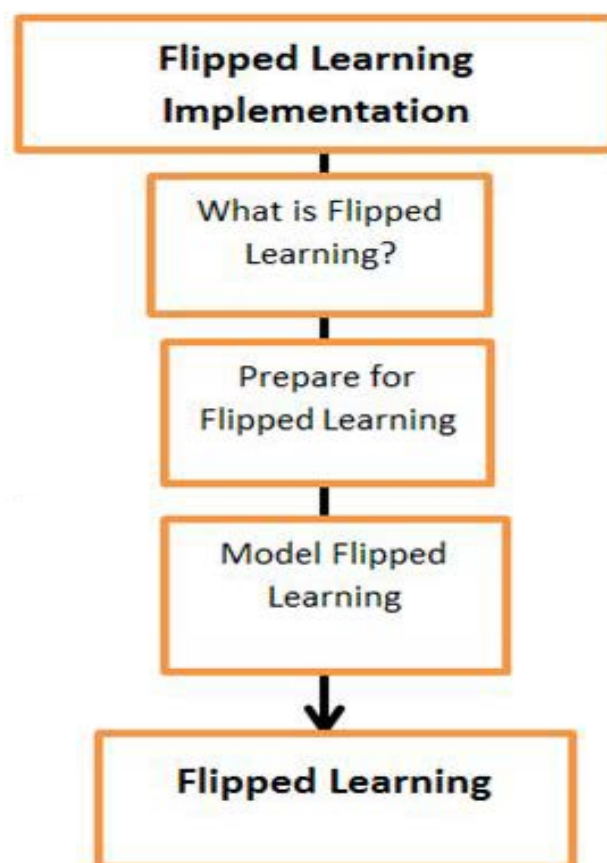
Figure 6. Flipped Learning Implementation.

This portion of the framework is informed by participant reflections and findings as they considered the steps teachers take in the process of developing and implementing flipped classrooms. Their work has determined the following questions serve as a guide for teachers in their implementation:

- What is flipped learning?
- What does a teacher change about content and current practice to implement flipped learning?
- What are the steps to implementation for flipped learning?
- What tools and resources are available for beginning flipped learning implementation?

Further, their trial implementation work and their reflections inform the development of the Process and Procedures as outlined in Table 6. Participants indicated there are three phases to flipped implementation: preparation, modeling, and then, implementation; each includes content, technical requirements, students as flipped learners, and collaboration with their colleagues.

A final contribution from the participants in this study is the Tools and Resources available for beginning flipped learning (see Table 7). The list is not all-inclusive but provides examples for initial implementation. Additionally, listed in the table is the Flipped Learning Resource site developed by the flipped learning participants in Progress County Schools. The site includes the following: flipped learning websites, flipped learning resources, flipped learning tools, participant collaboration and inquiry, sample flipped lessons, and a multitude of resources on differentiation and mastery learning.

Table 6

Process and Procedures: Preparation, Modeling, and Implementation Informed by Participants' Reflections

Process and Procedures	Content, Flipped Component/s	Technical Requirements	Students/Flipped Learners	Collaborative Inquiry
Preparation	• Choose a lesson that you want to flip. Decide what you want students to know and be able to do at the end of that lesson. • Create a video or find a video someone else has created on the concept. • Keep video limited in length (less than 15 minutes—also recommended by Bergmann & Sams) • Post the video for students to view (decide where you will house videos: YouTube, website, etc.)	• Make sure students have access to a computer and the Internet either at home or at school. • Prepare to download the video (or assignment) before student leaves the school if no internet beyond the school is available. *All of the above presume you are in a 1:1 setting. If not, prepare for viewing in class or in lab as computer access allows.	• Explain flipped learning to students. • Explain advantages of flipped learning and the individualized learning for each student. • Explain expectations of the flipped learners. • Explain flipped learning to parents share the intended outcomes for their learners.	Collaborate with colleagues: • What is flipped learning? • How will students benefit from flipped learning? • What do parents and students need to know about flipped learning?
Modeling	• View the video in class along with students and model viewing and note-taking techniques. • Encourage students to ask questions and model questioning techniques. • Devise a plan for addressing student questions.	• Check all components needed for listening and viewing on student computers while they are viewing: check sound, check headphones, ensure Java and video player are updated.	• Explain accountability to students. • Outline their accountability and responsibility for their own learning.	Collaborate with colleagues: Share Lessons learned.

Table 6

(Cont.)

Process and Procedures	Content, Flipped Component/s	Technical Requirements	Students/Flipped Learners	Collaborative Inquiry
Implement Flipped Lesson	• Develop second flipped lesson and provide students their assignment to be completed on their own time. • Develop differentiated in-class tasks that further student learning once they have completed the flipped component of the lesson.	• Prepare alternative access to computer and Internet at school if needed for students without wireless devices or Internet access outside of school. • Work with administrators to determine the best alternatives for students to complete their assignment if they do not have computer and/or Internet access outside of school (during breakfast, lunch, while waiting for the bus, etc.)	• Explain to students how you will monitor their learning. • Monitor student completion of assignment. Plan accordingly and adjust when students do not complete assignment or do not understand the assignment. • Request student input into process.	Collaborate with colleagues: Share Lessons learned.

Table 7

Tools and Resources for Flipped Learning Implementation Informed by Participants'

Reflections

Tools	Resources
Software:	Khan Academy (https://www.**khanacademy**.org)
	Friday Institute (www.fi.ncsu.edu/)
Smart Recorder	United Streaming (www.**unitedstreaming**.com/)
(smarttech.com)	Study Jams (**studyjams**.scholastic.com/)
Jing	TeacherTube (www.**teachertube**.com/(
Screencast-o-matic	Learn Zillion (**learnzillion**.com/(
ATubeCatcher	Twitter: #flippedclass, #flippedlearning
Learning	https://**kaizena.com**/
Management System	**jonbergmann.com**/
Google Documents	http://www.sophia.org/
iPad apps:	**flippedlearning1**.**wordpress.com**/
Educreations,	**flippedclassroom**.**org**/
ShowMe	**flippedlearning**.**org**/
	Flip Your Classroom Reach Every Student in Every Class
Hardware:	Every Day (Bergmann and Sams)
	www.**youtube**.com/
Laptops/Desktops	
Ipads, Ipods	In-house Professional Learning Community Resource
Flip Cameras	developed by Progress County Schools Flipped Learning
(Bloggie)	Participants:
Headphones	
	https://surry.haikulearning.com/reinhardtj/flippingtheclassroom
	/cms_page/view/4954280

The framework developed within this study includes shifting pedagogical

practice, flipped learning implementation, and collaborative inquiry. Each is a separate

part to the whole Framework for Flipped Learning. Each, however, standing alone will

not change or improve practice in our classrooms without providing time for teachers to

work together, to learn together, and reflect upon their practice together. Educational

reform calls for time for teachers to collaborate, time for professional learning, and

powerful teaching and learning that focuses on the needs of the individual learner (A Blueprint for Reform, 2010; NC Professional Teaching Standards, 2013). This framework can serve as a guide to reform with each component as a driving force to shift our current practice from a 20th century paradigm to a 21st century paradigm for learning in our classrooms.

Summary of the Study

The purpose of this study was to engage practitioners in collaborative inquiry to examine flipped learning, implement flipped learning, and provide implications for practice for other educators. The literature reviewed in Chapter II revealed common themes stemming from flipped learning: student-centric, blended learning environments grounded in individualized learning active learning strategies. The literature review and the collaborative work of the practitioners involved in this study resulted in a pedagogical framework for flipped learning based on these themes. Chapter III provided the methodology and the structure for data collection of this study. Practitioners engaged in collaborative inquiry in order to develop their own knowledge base and structure for implementing flipped learning. Chapter IV provided the findings from the data collected, and Chapter V provided the data collected, analysis, and implications for practice: a pedagogical framework for flipped learning and an implementation framework for flipped learning.

Further Inquiry

As mentioned, flipped learning is about shifts—shifts in learning and shifts in instruction. A basic premise of flipped learning is shifting the traditional lecture portion

of instruction to an assignment the student completes outside of class time as "homework". In the traditional sense of homework, students practice skills they learned in class that day or complete assignments that assess what they learned in class that day. However, the intended shift for flipped learning is to provide students the interventions they need during class time while their teacher is right there to assist versus the student completing assignments at home with little to no support from parents who may or may not have the background knowledge to assist with complex tasks.

An unintentional result of this inquiry has been parent response to flipped learning and what the students were completing as homework. Some parents embraced the concept of flipped learning for their children. They shared their thoughts with the participants about motivation for their children, and most specifically, they reported learning themselves from the videos their students are watching. One teacher-parent began experimenting with flipped learning in her classroom due to her own child's recent positive experiences with flipped learning.

It was not the intention of this study to examine the effects of homework or home-school relations; however, resulting from this inquiry, questions are raised as to whether or not flipped learning provides a new framework for traditional homework and provides an improved structure for outside of school assignments and home-school relationships and communication. Further inquiry is warranted to examine what effects flipped learning might have on changing the homework paradigm and changing home-school relationships.

Additionally, as proposed in this study, flipped learning provides another tool to meet the needs of individual learners through student-centric, blended learning environments. Much has been reviewed concerning student-centric learning structures— active learning, individualized learning, mastery learning— yet, there remains little empirical evidence of how all these configured together within the model of flipped learning support student achievement. More research should be conducted to provide evidence of the effects of a flipped learning model that incorporates these strategies and promotes student achievement.

Recommendations

This study provides a framework for flipped learning and collaborative inquiry that has strong implications for teachers, administrators, district-level leaders, policy makers, and others concerned with educational reform. Flipped learning and collaborative inquiry are not in and of themselves the answer to our educational needs. However, examining current practice and the practice of others in a collegial atmosphere of professional learners is powerful. This study provides a framework for flipped learning that is meant to guide others in their own implementation of flipped learning, along with transforming classrooms and teacher development.

First, leaders must consider the fact that this pedagogical approach to learning is more than a "fad". Flipped learning as a pedagogical tool has the potential to transform our classrooms into centers of learning focused on the student and not on the teacher. Flipped learning has the potential to harness technology in a most powerful way in order to change when and where and how students learn. The first and foremost consideration

must be given to the powerful shifts that happen within the classroom—changing the interaction between student and teacher to student and coach. The recommendation, however, is to provide significant training for teachers—new and veteran—on the pedagogical shifts outlined in this study before implementing flipped learning. Teacher training programs may want to consider a serious focus on student-centric learning. We must invest in our teachers and focus our attention on tailoring instruction to meet individual student needs (North Carolina Professional Teaching Standards, 2013). Darling-Hammond (2010) says teachers must master the skills necessary to teach individuals—as is the student-centric focus of flipped learning. She tells us teachers must learn to teach diagnostically and adapt their lessons based on students' needs.

Secondly, leaders may consider the collaborative nature of this study to guide structures within their districts or schools in order to meet the demands of high-quality professional development by providing time for teachers to collaborate with others (North Carolina Professional Teaching Standards, 2013; U.S. Department of Education, 2010a). Teachers must be afforded time to work, to share, to learn, and to collaborate. Perhaps consideration is given to the number of hours in a day, a week, a month, a year that teachers have or do not have to involve themselves in such professional learning as the participants in this study. One key component of Professional Learning Communities is missing—collective inquiry or action research—in which teachers examine their practice and learn how to improve that practice.

Comparing our current practices to those of other nations, we must improve upon the conditions for teachers to become and remain active learners and active researchers.

"Nations that have steeply improved their students' achievement, such as Finland, Korea, Singapore, and others, attribute much of their success to their focused investments in teacher preparation and development" (Darling-Hammond, 2010, p. 194). Schools must focus on teacher improvement through methods of collaborative inquiry and action or participatory research. The first investment is time. High-achieving nations spend much of their time preparing to teach, while most U.S. teachers have no time to work with other teachers during the school day (Darling-Hammond, 2010). This must change for our teachers.

With this practice in mind, our current structure of professional development for teachers must increase in intensity. Teachers must be given extensive time to inquire about their practice and work with colleagues through research and study groups (Darling-Hammond, 2010). Based on the work of Darling-Hammond (2010), DuFour and Marzano (2011), Schmoker (2006), and Reeves (2008), such inquiry into practice may look similar to the collaborative inquiry in this study.

Conclusion

A teacher stands at the front of the classroom, delivering a lecture on the Civil War and writing on a white board. Students are huddled over desks arranged in rows, quietly taking notes. At the end of the hour, they copy down the night's homework assignment, which consists of reading pages from a thick textbook and answering the questions at the end of the chapter. This dramatic, defining period in our nation's history, which left questions unanswered that are as relevant today as they were then, has been reduced to a dry, if familiar, exercise. The teacher is acutely aware that many students do not understand the day's lesson but does not have the time to meet with them individually during the 50-minute class period. The next day the teacher will collect and briefly review the homework assignment. If students have additional questions, there won't be much time to linger. The class cannot fall behind schedule. There is a lot of material to cover before the end of the unit. (Hamdan et al., 2013)

Sadly enough, this depiction of classroom instruction is current and continues to be a picture of what is happening in many schools and in many classrooms that operate under the guise of being 21st Century. These 21st Century classrooms have technology everywhere—wireless Internet access, interactive whiteboards, data projectors, tablets, iPads, iPods, laptops and other mobile devices in the hands of teachers and students, software for content management—yet students continue to passively listen to lecture and continue to be assigned mundane, somewhat less than meaningful, assignments that go with them out the door.

However, it is now time to realize that a shift in pedagogical practices, coupled with the power of technology, can help us realize a new mission and vision of what 21st Century teaching and learning can look like. Our classrooms can be active, blended learning environments engaging students in their own learning. Our classrooms can look like this:

> The teacher is hard to find in the classroom. There is an audible hum stemming from the technology in use combined with the talking, the sharing, the learning. Students are working individually, with partners, or with groups of their peers. Students are using their laptops, their iPads, and some are using their headphones to listen to the teacher explain how to solve two-step equations again (students listened to the video the night before but needed to hear it again—one student pauses and rewinds multiple times to ensure he understands). Other students are discussing in collaborative groups how to apply their newfound knowledge of solving two-step equations into their problem solving for the day. Yet others are receiving feedback from the teacher (one-on-one) based on their assessment data, are guided toward filling in the gaps in their learning, and are progressing based on their individual need and their individual pace.

Our classrooms can be student-centric environments with less teaching and more learning occurring for all students. As a 21st Century leader, I do believe there is merit in the full

utilization of technology to change school and affect the lives of our students and their families. Therefore, discovering the potential of flipped learning must continue.

As practitioners, we must continue to study our own practice and the practice of others in order to facilitate change and growth. This must occur in collegial learning environments such as indicated in this study through collaborative inquiry. There is power in learning together.

Ramsey Mullasam (2013) recently stated,

Questions are the seeds of learning--we learn through trial and error and through intense reflection to revise our work. Let us question ourselves continuously, reflect upon what is working and what is not, and move forward embracing change for the sake of more powerful learning for all students, everywhere, everyday.

The participants in this study learned through trial and error. They learned through intense reflection of their work. Moreover, they took this journey together. One participant said, "My flipped journey was so much more powerful than just assigning videos— I saw students show great progress in taking ownership of their own learning and working toward mastery, and I worked with colleagues who asked probing questions about how to work through things." This journey taught us the power of shifting our pedagogical practices toward the learner and the power of improving practice through collaborative inquiry. We embraced this journey to realize a new mission and vision of powerful 21st Century teaching and learning.

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APPENDIX A

REFLECTION AND DOCUMENTATION PROTOCOL

Action Items #1, #2, and #3

Each action item represents one trial with flipping the classroom. Participants will document the requested per each trial and share lessons learned with professional learning community:

ITEM	NOTES
Planning involved in implementation	
Process of implementation	
Procedures followed for implementation	
Lessons Learned from implementation	
Student Behaviors as related to implementation	
Resources, tools, guides, etc. used to learn about flipping and how to implement	

APPENDIX B

FLIPPED CLASSROOM SURVEY (POST-TRAINING FOR NON-STUDY PARTICIPANTS)

1. What grade/ subject do you teach?

2. How many years of teaching experience do you have?

3. I feel confident in my technology skills.

   a. Strongly Agree
   b. Somewhat Agree
   c. Somewhat Disagree
   d. Strongly Disagree

4. I integrate technology effectively into my instruction.

   a. Strongly Agree
   b. Somewhat Agree
   c. Somewhat Disagree
   d. Strongly Disagree

5. I integrate technology into my instruction often.

   a. Strongly Agree
   b. Somewhat Agree
   c. Somewhat Disagree
   d. Strongly Disagree

6. I believe the flipped classroom concept has potential for increasing student engagement.

   a. Strongly Agree
   b. Somewhat Agree
   c. Somewhat Disagree
   d. Strongly Disagree

7. I believe the flipped classroom concept has potential for increasing student mastery of content.

   a. Strongly Agree
   b. Somewhat Agree
   c. Somewhat Disagree
   d. Strongly Disagree

8. I have received sufficient training for implementing the flipped classroom concept.

   a. Strongly Agree
   b. Somewhat Agree
   c. Somewhat Disagree
   d. Strongly Disagree

9. I plan to flip my classroom this school year.

   a. Strongly Agree
   b. Somewhat Agree
   c. Somewhat Disagree
   d. Strongly Disagree

10. Comments:

APPENDIX C

PRE-IMPLEMENTATION SURVEY

Survey Questions

1. Now that we have technology in your classroom, SO WHAT?

2. How does technology affect your pedagogy (your instructional methods)?

3. What do you know about effective pedagogical practices? Student-centric classrooms? Blended learning models? Inquiry-based instruction? Problem-based learning? Constructivist classrooms?

4. How does technology (full implementation of ICT—Information, Communication, Technology) change your pedagogical practices? How? When? Where?

5. How can technology (ICT) change pedagogical practices beyond the classroom?

   a. Why might the concept of flipping the classroom be significant?

6. How might flipping the classroom change teaching and learning in the 21st Century classroom?

7. How might flipping the classroom influence student engagement and student achievement?

8. How might flipping the classroom provide differentiated instruction for diverse learners?

9. How might flipping the classroom create shared resources for teachers based on Common Core and Essential Standards?

10. Have you ever participated in teacher action research within a professional

learning community? Please explain.

APPENDIX D

DURING- AND POST-INTERVIEW QUESTIONS

During-Implementation Interview Questions (teacher participants)

1. How are you changing your pedagogical practices to implement a flipped classroom?

2. How have you begun the flipped model in your classroom?

3. What successes and failures can you report after your initial implementation of the flipped model?

4. Has the action research group influenced your decisions for implementation? How?

During-Implementation Interview Questions (non-teacher participants)

1. What changes to pedagogical practices are you observing in the implementation of flipped classrooms?

2. How have assisted with the flipped classroom trials in your current role?

3. What successes and failures can you report after initial trials/implementation of the flipped model?

4. Has the action research group influenced your decisions for implementation? How?

Post-Implementation Survey Questions (teacher participants):

1. What have you changed about your pedagogical practices to implement a flipped

   classroom? What changed about the presentation of curriculum?

2. What are the steps you took in the process of developing and implementing a flipped classroom? Why?

3. How did your action research group of educators within and across grade spans collaborate to prepare for flipping the classroom? What lessons did you learn from each other?

4. What results have you reported as the flipped classroom project developed? Sucesses? Failures?

5. What would you have changed about the process and what advice would you offer to another educator beginning this same implementation?

Post-Implementation Interview Questions: (non- teacher participants)

1. What changes in pedagogical practices have you observed in the implementation of flipped classrooms? What changed about the presentation of curriculum?

2. How did you in your role assist in the process of developing and implementing flipped classrooms?

3. How did the action research group of educators within and across grade spans collaborate to prepare for flipping the classroom? Were there lessons learned? Were ideas shared?

4. What results have you observed as the flipped classroom project developed? Sucesses? Failures?

5. What would you have changed about the process and what advice would you offer to another educator beginning this same implementation?

APPENDIX E

MEETING AGENDAS AND PLANNING NOTES

Flipping the Classroom Project
Face-to-Face Meeting 1

Welcome and Introductions	Jill Reinhardt
	Jennifer Scott

What do we know about flipping the classroom?
Project Overview
Project Timeline (See below)
Project Details (See below)
Discussions
MC Grammar   Jennifer Scott
(Example of Flipping the Classroom)
Questions
Next meeting date: TBD

_____
_____
_____
_____
_____
_____

Teacher commitment:	Teacher Incentives:
• Agree to read required texts	• Bloggie (camera) for classroom use
• Agree to meet, collaborate, share	• Texts
• Agree to develop examples	• CEUs
• Agree to reflection	• Involvement in teacher leadership development
• Agree to observations, interviews	

Flipping the Classroom Project
Face-to-Face Meeting 2

Welcome and Overview (5 min)

Register on STAR for CEUs

Action Research/Collaborative Inquiry—(page 2) (15 min)

Book Review (30 min)
- What do you agree with?
- What do you disagree with?
- What do you question?
- What do you wonder?

Next Steps: (30 min)
- Complete pre-pilot survey (see attachment—complete and return to me by March 28)
- Implement Pilot #1 and complete reflection by April 8
- Collaborate with group between April 8 and April 22. 1)Haiku site for housing reflections. PLC members will be added to review; 2) Discussions?)
- Implement Pilot #2 and complete reflection by April 22
- Interview during the week of April 22 (sign up for time and date-60 minutes)
- Implement Pilot #3 and complete reflection by April 29
- Meet as a group April 29 in the Apple Center from 3:45-5:00
- Complete post-pilot survey and return to me by May 25
- Planning time for framework (May?)
- Framework sharing (Teaching and Learning Conference—August 2013)
- Implementation (Fall 2013)

Flipping the Classroom Project
Face-to-Face Meeting 3

PLC Sharing Session (notes added below)

Reminders: Action #2 (should be complete)
Action #3 (complete after sharing session)

Next Meeting: May 6 3:45 Apple Center
Topic: Framework Design
What do teachers need to know? How do they begin?
Ideas to share?

What is Flipping the Classroom?	Step 1, Step 2	Lessons Learned	Ideas

Flipping the Classroom Project
Professional Learning Community
Sharing Session

Great Ideas	Lessons Learned	Questions for PLC	Problems/ Solutions
Flipped mastery: created lessons ahead of time with assessments and videos (divided the curriculum into segments). Students then work through the skills as needed. Mastery is 80%. Activegrade.com (piloting this year) Google Form (assessment): tied to the lesson/video Asked students to reflect…students like to know they would have teacher available in class. Students complete graphic organizers. Tied to video. The homework was needed to complete assignment in class. Reading: add video with language component Use videos for pull-outs and ESL support staff/remediation/tutoring Flip science labs: hands-on —students are working on the lab in class and	Make videos concise, short . . . if it's too much, the video just discourages. The video was being watched by the class and the teacher was monitoring the class. Record lesson and post in Haiku for absentees and for ISS students. Students learned that they could pause the teacher on the video. Teacher saw good notes and the parents saw students participating. Allowed students to use their notes in class the next day. Hidden secret questions in the video so students HAD to listen. Hold students accountable for their watching: Cornell notes are the bell ringer . . . students share their summaries. Helps the students get the content. Uses Google Form to assess who listened or not. Haiku quiz online at home with the video	Question: Since flipping frees time in class, what do you do with the extra time? Answers: *math and science centers—assess where the students are *scavenger hunt with QR codes *differentiating progress *teacher workshops (uses the data/analyzes and designs based on needs) —conferencing with students about their writing (time to sit down and conference) —others worked on videos —videoed the actual teacher's talking to student about writing (workshop) —identify the student needs and allow students to watch videos Question: Is the video tied to class? Engaging assignment? Necessary to complete the assignment?	No Internet access? Day users with the computers Open classroom earlier, time during flex? Use time during the school day to listen to videos and lessons Use breakfast time for opening the room Start class with a task—let the students listen in class and do the task at home . . . flipped this also Use YouTube Teacher Channels aTubeCatcher: free resource (catch vidoes and download and embed in Haiku) Screencasting Option through aTube Catcher…save to DVD or CD

Great Ideas	Lessons Learned	Questions for PLC	Problems/ Solutions
teacher video tapes it . . . they watch it at home and then respond to the questions the teacher asked. Students get the science this way. Record what you are teaching while you are teaching . . . Give students the task of recording the video (artifact for demonstrating mastery) Other video resources: Khan Academy Learn Zillion United Streaming Bright Storm Grade 2-12 (Manga High—challenge lessons for math) AIG students to create files for lessons (finding videos and linking the standards) slide show to use later Reading the assignment at home instead of reading in class with a graphic organizer Flip the assignment/lesson: take the quiz at home and remediated the commonly missed questions Use an entrance card in the classroom	and a discussion board (text-dependent questions): teacher checks at home at night to see who did the homework Students with no access: learn from others? Use date immediately	Question: Embedding directly from the Bloggie? Using Smart recorder . . . those videos have to be added in Haiku and add as a file Copy to desktop?	

Benefits to flipping:

- Teach a lesson that some students need to watch for the entire content and some students only need a refresher.
- Differentiation for readiness level.
- One-on-one: time in the classroom with measuring student progress…using data continuously to find out where students are.
- Pairing flip with technology.
- Give students ownership of their learning. Students need to know how to learn in the world we live in. Go beyond a multiple choice test. Learn how to study. Make them responsible.
- Models for learning.
- Chance to hear students' conversations about the lesson. Opportunity for the teacher to hear small groups listening to each other. Small groups talking and learning. Learning where kids are faster.
- Rewind/pause the teacher.
- Kids say they are more likely to watch a video at home rather than doing traditional homework.

Concerns:
- Loading files
- Accessibility and easily managed for other teachers. How do we sell the benefits? (Can we relay this in a way that gets them on board.) Tie to the curriculum lessons . . . video library ready to go. I have a picture in my mind of what to do.
- Letting go of control of the classroom. Student-centered. How do you manage your classroom?
- Teachers need to know their content well to manage students and where they are.
- Nice benefit to have modules set up ahead of time.
- In ELA curriculum, how do I know they know? The specific goals of ELA are spiraling. Should we focus on one thing at a time?
- Present as a way to help. Present the possibilities. Allow them see the benefits.
- Be careful to not present as a fix all. Not going to fix everything. Some kids are really hard to reach.

Differentiation:
- Mastery model: kids work at their own pace
- Quiz as homework: analyze the data and give enrichment or remediation activities
- Immediate feedback . . . for students who get it when they need it. Challenge activities. Assignments based on weaknesses.
- Addressing learning styles.
- Choices and interests available.
- Ability to do application projects. Tie across curriculum.

Flipping the Classroom Project
May 6, 2013

Topics:
- What do we share with our teachers concerning flipped learning at the Teaching and Learning Conference?
- Who will lead what sessions?

Decisions:
- All teachers will share flipped lessons for their content area in the teaching and modeling portion of the conference.
- Two elementary teachers will share flipped lesson ideas for grades 3-5
- Middle school teachers will develop a student panel to share how they felt about flipped learning. Why should other teachers consider flipping?

APPENDIX F

CLASSROOM OBSERVATION PROTOCOL

School: **Subject:**
Date/Visit: **Grade Level:**
Teacher/s: **Period:**
Principal: **Observer:**

Purpose: To observe classroom teachers implementing the flipped classroom.
Length:

Descriptive Notes	Reflective Notes
What do you see? (Describe teacher and student interactions…)	
Is there evidence of flipped classroom implementation?	
What equipment/technology is in the classroom? What equipment/technology is in use?	
For what purpose is the equipment/ technology being used? Is technology in use for flipping the classroom?	
What are the students doing? Are they engaged in the learning process?	

Observer Reflections: