2019

Implementing Proficiency-Based Learning In Vermont High Schools: How Administrators Support Teacher Sensemaking Of Education Reform

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IMPLEMENTING PROFICIENCY-BASED LEARNING IN VERMONT HIGH SCHOOLS: HOW ADMINISTRATORS SUPPORT TEACHER SENSEMAKING OF EDUCATION REFORM

A Dissertation Presented

by

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to

The Faculty of the Graduate College

of

The University of Vermont

In Partial Fulfillment of the Requirements
For the Degree of Doctor of Education
Specializing in Educational Leadership and Policy Studies

May, 2019

Defense Date: February 5th, 2019
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ABSTRACT

The Vermont Educational Quality Standards, passed in 2014, require students to graduate high school based on proficiency not merely by the accrual of course credits. The deadline to implement this policy is 2020, and thus, high schools across Vermont are feverishly revamping their systems and structures to support this change. Like many reforms, teachers are at the forefront of putting this policy into practice. The purpose of this study is to understand how teachers experience the shift to implement proficiency-based learning practices in their classrooms and how administrators support teachers in making this transition.

Two Vermont high schools were selected for this study. Both were well underway with formal implementation efforts. An online questionnaire was provided to all teachers at both schools. The district curriculum coordinators and all school administrators, in addition to any instructional coaches, were interviewed on a one-on-one basis. Four teachers from each site, representing a variety of subject areas (math, science, ELA, and social studies) were also interviewed on an individual basis. Furthermore, a variety of documents were analyzed from each site, including grading policies, teacher handbooks, and other artifacts related to the implementation of proficiency-based learning.

Findings suggest that teachers were actively engaged in implementation efforts within their classrooms but found the process challenging. Certain aspects of proficiency-based learning prove to be more difficult than other elements to put into practice. Engaging in a "pedagogical triage", teachers were selective with regard to which aspects of proficiency-based learning they attempted to implement. Given a lack of time and resources and the complex nature of the reform, teachers generally implemented those elements that were easier to put into practice. Furthermore, school and district administrators provided a variety of supports and resources to assist teachers' sensemaking of proficiency-based learning practices. Intentional educational infrastructure that included instructional coaches, assessment cycles, professional learning communities, and curriculum materials, were evident at both the high schools in this study. Overall, the changes teachers discussed were more evolutionary than revolutionary.

This study illuminates the specific challenges with implementing proficiency-based learning in a high school setting and how teachers experience putting proficiency-based learning into practice in the classroom. Additionally, the role of instructional coaches emerged as a key element of a coherent educational infrastructure in supporting teacher sensemaking of policy messages. Proficiency-based learning holds promise as an education reform but will only work with a coordinated educational infrastructure and a timeline that allows teachers to full comprehend all aspects of the policy.

DEDICATION

To my mother and father. Thank you both for instilling in me a passion for learning.

ACKNOWLEDGEMENTS

I would first like to thank Tammy Kolbe for encouraging me to apply to the Ed.D. program and for acting as my dissertation advisor. I would also like to thank Kieran Killeen and Penny Bishop for serving on my dissertation committee, along with Asim Zia as the dissertation committee chair.

I am grateful for the friendship and colleagueship of Gabe Hamilton with whom I spent the last several years making sense of proficiency-based learning. I am also indebted to Mike Martin for his ongoing support with the dissertation process.

Most of all, I would like to thank my loving wife Krista who supported me throughout my doctoral studies. I also want to thank my children, Eammon and Lena, for giving me the time and space to complete this dissertation. Finally, I want to thank my mother-in-law, Lorraine, and father-in-law, Bob, for all of their support.

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CHAPTER 1: INTRODUCTION

As a growing number of schools and districts, both in Vermont and throughout the United States, attempt to implement proficiency-based learning practices, there exists a need to provide education leaders with information regarding how best to support teachers in making the transition to a new paradigm of teaching (Sturgis, 2014; Sturgis, 2015). Proficiency-based learning, sometimes referred to as standards-based learning or competency-based education, aims to make the teaching and learning process more transparent and equitable while ensuring student achievement information, namely grades, are more valid and reliable (Colby, 2017; Schimmer, 2016). More specifically, a system of proficiency-based learning includes multiple components such as: grading, assessment, curriculum, instruction, student supports, graduation requirements, and reporting mechanisms (Schimmer, 2016; Sturgis, 2014; Westerberg, 2016). Increasingly, proficiency-based learning has been advocated for as a fundamental reform initiative in secondary schools (Pollio & Hochbein, 2015), but despite a groundswell of interest, and an ever-increasing accumulation of literature on the topic, high school teaching practices have not vastly changed over the last century (Sturgis, 2015; Westerberg, 2016). Furthermore, little empirical evidence exists to provide insight into the implementation process of putting proficiency-based learning into practice (Pollio & Hochbein, 2015; Sturgis, 2015; Welsh, D'Agostino, & Kaniskan, 2013). Even with a sound philosophy and theory of change, poor implementation could torpedo the long-term success of a proficiency-based system of learning in the schools (Patrick & Sturgis, 2013; Shakman, et al, 2018).

With a dearth of studies that focus on the implementation of this complex reform initiative, especially in high school settings (Pollio & Hochbein, 2015; Reeves, 2016; Sturgis, 2014; Sturgis, 2015; Westerberg, 2016),schools and districts are attempting to build the plane while in mid-air, and with impartial directions. Understanding how teachers make sense of proficiency-based learning practices is an ever-growing field that can be better served with more research studies on this topic. Prior research on teachers illuminates their role as de-facto policy makers and "vital agents" of policy implementation (Cuban, 2018; Spillane, 2004). Therefore, a central focus of this study is on how teachers respond to proficiency-based learning policy messages.

At the most basic level, proficiency-based learning focuses on measuring student achievement against clearly defined standards and basing promotion on mastery of skills and content knowledge, not merely seat time or credit accrual (Spencer, 2012; Sturgis, 2014). Understanding how teachers make sense of this new paradigm, identifying the most effective resources that assist in this process, and learning about challenges encountered will likely help district and school leaders better support teachers with applying new classroom practices.

The purpose of this comparative case study is to understand the sensemaking process that high school teachers experience as they implement proficiency-based learning practices in their classrooms. Furthermore, this study aims to understand the role of school and district leaders in supporting this reform and the difficulties encountered along the way.

Background

Consistency of classroom practices, especially grading and assessment practices, varies considerably between teachers, even within the same building (Iamarino, 2014; O'Connor, 2011; Sturgis, 2014). This variability is of concern to administrators, educators, parents, and students (Nagel, 2015). Historically, teachers have had considerable autonomy with how they assess students (Guskey, 2015; Schimmer, 2016). There are concerns that this autonomy leads to grading and assessment practices that are inconsistent and thus, unfair to students (Reeves, 2006). As a result, current grading and assessment practices are criticized as an unreliable indicator of student achievement (Sturgis, 2014). Due to a growing awareness around the unreliability of grades and other classroom assessment practices, increasing numbers of high schools throughout the United States are shifting to a new paradigm of assessment and grading, namely proficiency-based learning (Guskey & Jung, 2013).

Defining proficiency-based learning is not entirely simple. A plethora of terms are used in the research and literature on this topic. Common terms include: competency-based education, standards-based learning, proficiency-based learning and mastery-based education (Sturgis, 2014; Torres, Brett, & Cox, 2015). Ultimately, proficiency-based learning aims to make classroom grades more valid, reliable and transparent, providing a more accurate reflection of what skills and knowledge students have mastered (Miller, 2013). The foundation of a proficiency-based system is that grades and promotion are based on demonstrated mastery of specific standards, or learning objectives, instead of just seat time (Sturgis, 2014). More specificity around expected outcomes allows

students to know the purpose of the learning process with the goal of demystifying assessment and grading. The premise of proficiency-based learning centers on learning targets or objectives which are clearly articulated academic goals. Instead of a "hodgepodge" grade broken down by assignments, tests, and a variety of other factors, teachers report out on specific learning targets (Guskey, 2015). Classroom behaviors such as effort, attendance, and timeliness are reported out separately as learning habits or habits of work and are usually not included in the overall grade. This provides a more meaningful grade with increased transparency around what a student can and cannot do. A growing foundation of literature expounds on the benefits of proficiency-based learning practices, but given that this reform initiative is a second-order change that requires a cultural transformation and not just mere tweaking, it is not an easy task to implement (Marzano & Waters, 2009).

Policy Trends

Nationally, proficiency-based learning practices are catching on, particularly in the greater New England region (Sturgis, 2015). Approximately 36 states have implemented some form of proficiency-based policy, many with a focus on high school graduation requirements (Patrick & Sturgis, 2013; Sturgis, 2015). As the literature base on proficiency-based learning grows, so too have implementation efforts. There are pockets of innovation across the United States with several "exemplar" schools that model these practices (Sornson, 2016). Despite similarities, there are also discrepancies in definitions, practices, and outcomes in each state (Patrick & Sturgis, 2013; Sturgis, 2016).

Though many elementary schools across the country have incorporated aspects of proficiency-based learning for some time, high schools have struggled to transition away from the "traditional" model of schooling. Historically, high school grades were used to sort and rank students with little emphasis on providing meaningful feedback for improvement (Guskey, 2015). Grades in high schools carry more weight than scores handed out in elementary or even middle schools (Guskey, 2015). High school grades act as gatekeepers to extracurricular participation, employment, college admissions, and other higher education opportunities such as scholarships (Pollio & Hochbein, 2015). Students vie for high GPAs so as to achieve the highest-class rank and become the valedictorian or salutatorian, highly valued positions for many high school seniors (Guskey, 2015). Students and parents alike agonize over course grades and GPAs because they hold so much potential power (Pollio & Hochbein, 2015; Sturgis, 2014).

For many students, grades are a game, with points and percentages as currency as they work their way through school, but not necessarily mastering content and skills (Feldman, 2018; Fleenor, Lamb, Anton, Stinson, & Donen, 2011; Silva, White, & Toch, 2016). Many classroom assessment practices are inherently subjective from one classroom to the next within the same school, again undermining the validity and reliability of grades (Guskey & Link, 2018). Despite an entrenched attachment to traditional models of grading and ranking, evidence suggests that this system is not serving students effectively (Sorenson, 2016; Sturgis, 2014). The benefits of a proficiency-based system of learning are vast and target the underlying issues of the current instructional paradigm (Pollio & Hochbein, 2015; Muñoz & Guskey, 2015).

Vermont Context

Though some schools in Vermont have been tinkering with proficiency-based learning for several years, Vermont law currently requires all high schools to implement some form of revised assessment and grading systems to support the implementation of proficiency-based graduation requirements (PBGRs). In 2014, the Vermont Educational Quality Standards (EQS) put in place requirements for the high school graduating class of 2020, indicating they must earn their diploma by demonstrating proficiency and not just by the accrual of Carnegie units or credits (Vermont State Board of Education, 2014). As defined by the EQS, "'Proficiency-based learning' and 'proficiency-based graduation' refers to systems of instruction, assessment, grading and academic reporting that are based on students demonstrating mastery of the knowledge and skills they are expected to learn before they progress to the next lesson, get promoted to the next grade level, or receive a diploma" (Vermont State Board of Education, 2014, p. 3). Equity is another important reason behind the state push for proficiency-based learning. By illuminating gaps in achievement, supports can then be targeted more efficiently to improve student access and outcomes (Vermont Agency of Education, 2016).

As a component of PBGRs, middle and high schools across Vermont are actively implementing proficiency-based learning and ramping up efforts each year. Another complementary policy enacted in the state of Vermont is Act 77 which requires schools in Vermont to create personalized learning plans (PLPs) for students. PLPs connect with the implementation of proficiency-based learning in that they help identify strengths and weaknesses of students that can then be remedied through a system of proficiency-based

learning. Though the Vermont EQS and Act 77 are complementary, this research study is focused specifically on proficiency-based learning.

Implementing Proficiency-based Learning

Despite ample research on instructional best practices and models of proficiency-based learning in action, many schools still struggle to bring proficiency to scale and to sustain the reform effort (Sturgis, 2015). Adopting a proficiency-based system requires teachers, parents, and students to completely revamp their thinking and beliefs about grading, assessment, and teaching in general (Heflebower, Hoegh, & Warrick, 2014; Schimmer, 2016). Grading practices, in particular, are well-entrenched in many schools and are effectively part of the "grammar of schooling" in the United States (Tyack & Cuban, 1995). Teachers operate with principles of practice and established beliefs which can constrain attempts to assimilate new information (Kennedy, 2005). The scope of reframing long-held traditions of teaching is immense. Educators must develop new mindsets around assessment and grading, thus shedding old schemas or frameworks and beliefs (Schimmer, 2016; Vatterott, 2015; Weick, 1995). Furthermore, changing grading practices requires stakeholders to accept that many existing classroom practices are inherently "broken" (O'Connor, 2011).

Through my personal experience and discussions with educators across the United States, it is clear that school leaders and teachers are struggling to adopt and implement proficiency-based learning practices, mainly due to the lack of supporting research and overall complexity of the reform. Successful implementation requires more than simply understanding or interpreting the initiative; teachers and school leaders must "make

sense" of what is being asked which is a complicated cognitive process (Spillane, 2004). Adopting new ideas and strategies goes beyond merely absorbing knowledge. Each stakeholder must reconstruct existing knowledge and accommodate the new ideas embodied in the reform. Among the issues inherent are that educators can interpret a reform differently, especially in the absence of any guiding policy, and ideas within the philosophy can be understood only at a superficial level (Spillane, Reiser, & Gomez, 2006).

There is little information available identifying the supports and resources that assist teachers in the sensemaking process as it applies to implementing proficiency-based learning. Much of the current literature focuses on the "why", but little attention has been paid to the implementation process, specifically the supports and structures necessary to bring this philosophy to scale (Sturgis, 2015). Understanding how teachers and school leaders make sense of this reform will hopefully provide insights and strategies that could further guide the implementation efforts of this second-order change (Marzano & Waters, 2009).

Study Overview

The purpose of this comparative case study is to understand how Vermont teachers make sense of proficiency-based learning and the role of school and district administrators in supporting teachers in the sensemaking process as they move to adopt and ultimately implement these practices in their classrooms. To better understand the inherent issues associated with putting proficiency-based learning into practice, the following research questions were used to frame the study:

1. How do Vermont teachers experience the shift to adopt and implement proficiency-based learning practices?
2. In what ways do district and school leaders support Vermont teachers with making sense of proficiency-based learning?
3. What similarities and differences exist between teachers within the same school and between schools in regard to their experiences implementing proficiency-based learning?

These questions aim to understand the implementation process teachers and administrators experience, in addition to identifying what can be done to support the application of proficiency-based learning practices.

Three distinct "lenses" were utilized to help disentangle the implementation process involved with proficiency-based learning. The frameworks that were leveraged include: 1) teacher discretion in policy implementation (Kennedy, 2005; Weatherly & Lipsky, 1977); 2) sensemaking & cognition (Coburn, 2005; Spillane, 2004; Spillane, et al, 2006); and 3) educational infrastructure (Cohen & Moffitt, 2009; Shirrell, Hopkins, & Spillane, 2018). Each framework is described in detail within chapter two. Figure 1.1 provides a visual for the conceptual framework underpinning this study. This visual attempts to show how educational infrastructure can support changes in teacher schema through the process of sensemaking within the atmosphere of autonomy and discretion.

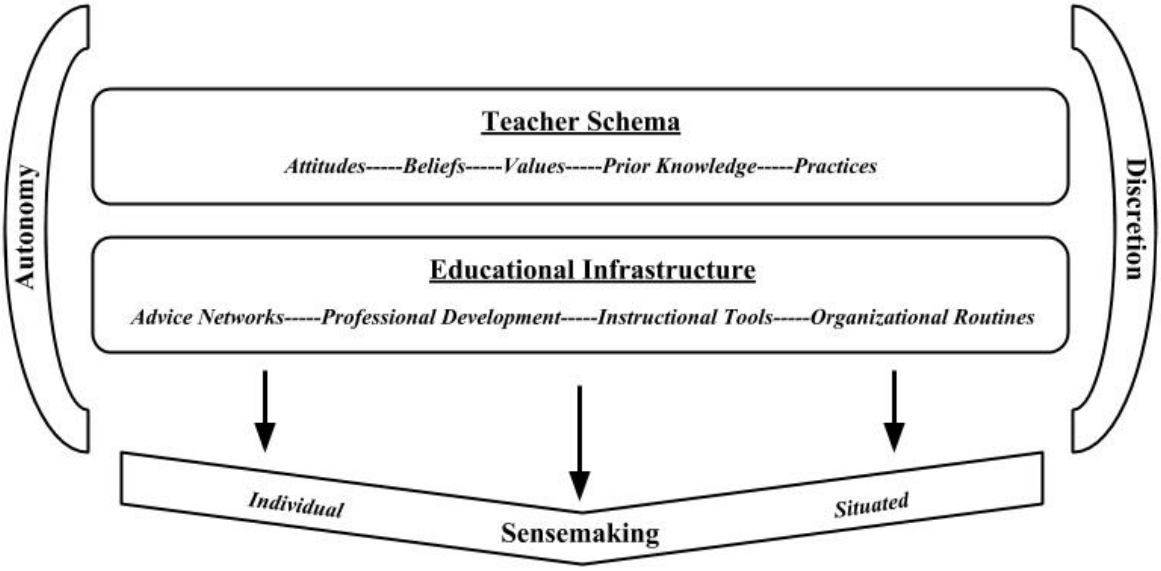

Figure 1.1. Conceptual Framework

This project investigates two distinct cases with each case representing an individual high school situated within different school districts in Vermont (Yin, 2014. At the core, this research study focuses on the experiences of individuals as they attempt to make meaning of a reform initiative (Creswell, 2013). At the center of this research are teachers. Classroom teachers are the actors that ultimately put a policy into practice (Weatherly & Lipsky, 1977). Thus, most data collection methods focus on teacher knowledge, understanding, and experiences. Several data collection methods were utilized to gain sufficient information and to allow for triangulation. In-depth interviews, an online questionnaire, and document analysis were the primary data collection methods. Initially, teachers at each site were provided a brief online questionnaire that focused on demographic data and teacher attitudes and beliefs

regarding the implementation of proficiency-based learning at their school. District administrators, principals, and teachers were interviewed on a one-to-one basis to garner perceptual information (Merriam & Tisdell, 2016). I analyzed a broad range of documents including grading policies, school profiles, professional development plans, implementation timelines, course syllabi, brochures, program of studies, graduation requirements, report cards, and other salient supporting documents (Sturgis, 2016). Documents are an important tool in the sensemaking process as they communicate reform ideas and can help with or hinder implementation efforts (Spillane, et al, 2006). Comparisons across sites were made during the data analysis stage. Similarities and differences across schools were targeted, in addition to discrepancies within sites. Cross-case analysis assisted with improving generalizability and with identifying themes (Miles, Huberman, & Saldaña, 2014).

I acknowledge that my own experiences, biases, and beliefs may have influenced this research study (Creswell, 2013). Over the last several years I have been engaged with applying proficiency-based learning practices in my own classroom. Recently, my position focused on moving all teachers at the high school I worked at towards utilizing these practices and helping the school leadership team to create a system that supports the Vermont law around proficiency-based graduation requirements. Though I do have previous connections with some of the participants at the selected sites, I do not believe my relationships impacted the data collected for this study. I made sure to remain objective and ensure a high level of confidentiality so participants felt comfortable sharing information.

Chapter Summary

In answering the above questions, this study aims to make several conceptual and empirical contributions. Conceptually, this study provides an understanding of how district and school administrators can support teachers in making sense of proficiency-based learning reform and how to minimize implementation challenges. Empirically, this study identifies patterns in resources and strategies employed by school leaders to effectively implement proficiency-based learning in high schools. This research adds to the literature on proficiency-based learning practices and implementation providing further guidance for education leaders and teachers. As more schools switch to proficiency and standards-based systems of education, this research can benefit a variety of stakeholders at multiple levels in the education system as they attempt to implement reforms that seek to change teachers' grading and assessment practices.

CHAPTER 2: LITERATURE REVIEW

This chapter reviews existing literature that informed this study. Several major areas of literature were reviewed, including a) traditional grading and assessment practices; b) proficiency-based learning practices; c) proficiency-based learning implementation; d) teacher discretion & autonomy; e) education reform & policy implementation; f) sensemaking theory; and g) educational infrastructure. Proficiency-based learning is a major paradigm shift that requires substantial pedagogical modifications by stakeholders at all levels, particularly classroom teachers. The role of teachers in implementing educational reforms impacting central practice is a central component of this review.

Traditional Grading and Assessment Practices

Grading practices have remained generally immune to change for nearly a century (Nagel, 2015). The widely accepted grading practices currently in use across the United States are roughly based on the Prussian model dating back to the 18th century (Sturgis, 2014). The original intent of this system was to sort and rank students (Vatterott, 2015). Traditional grading and assessment practices are well entrenched and deeply rooted in the "grammar of schooling" (Schimmer, 2016; Tyack & Cuban, 1995). Westerberg (2016) points out, "Classroom assessment and grading practices in the United States are buttressed by fervently held, time-honored practices and beliefs" (p. 7). More than just a set of practices, grading is a schema informed by past experiences and values (Vatterott, 2015). Despite remaining relatively stable for decades, a growing body of research has exposed numerous flaws in certain grading and assessment practices particularly evident

in today's educational climate (Schimmer, 2016). There is inherent validity, reliability, and thus equity issues with the traditional model of grading and assessment which ultimately calls into question the integrity of classroom grades (Guskey, 2015; O'Connor, 2011; Schimmer, 2016).

Numerous grading and assessment practices are readily accepted as what defines "real school" in the United States (Tyack & Cuban, 1995). Percentages, letter grades, zeros, extra credit, group grades, behavior scores, "semester-killer" exams, and grading on the curve are some of the more prevalent grading and assessment practices that remain institutionalized (Guskey, 2015; O'Connor, 2011; Westerberg, 2016). Though many of these practices may have worked in the past, many do not support a personalized and proficiency-based system of teaching and learning that dominates the current educational landscape. Over time, many of the practices listed above have come under scrutiny and their flaws exposed. Grades should be valid, reliable, and meaningful so as to accurately report student achievement (Guskey, 2015; Schimmer, 2016).

Classroom assessment experts, such as Guskey (2015), O'Connor (2011), and Marzano (2000), have placed attention on the problems surrounding traditional grading practices for decades. Marzano (2000) exclaims bluntly, "Grades are so imprecise they are almost meaningless" (p.1). Similarly, Wormeli (2006) states, "We've aggregated so much into one little symbol, it is no longer useful." (p. 90). Traditional grading practices have also been labeled as "idiosyncratic," "toxic," and "hodgepodge" (Guskey, 2015; Reeves, 2016). The "ingredients of grades" vary considerably from school to school and even between teachers within the same building (O'Connor, 2018). Even in the presence

of district or school policies, the actual practices that teachers utilize vary considerably, with many undermining a grade's validity.

One of the most common validity issues is the blending of student behavior scores with academic achievement grades. When behavior scores are mixed with achievement scores, the resulting grade becomes a potpourri of factors that can mask a student's actual proficiency (Guskey, 2015; Westerberg, 2016). The inclusion of behavior scores in academic achievement grades stems from a culture of accountability and control in the classroom (Schimmer, 2016). Teachers use behavior grades, such as timeliness and participation, to hold students accountable. However, no research supports the notion that giving low grades for behavior will motivate students or otherwise help them improve their behavior (Feldman, 2018). The blending of behavior with academic scores is yet another validity issue that remains common in classrooms.

Another element of the traditional grading and assessment culture is the use of points and percentages. Grades tend to be more about compliance than about actual learning (Wormeli, 2006). Many teachers believe that grades are meant to control students and that getting rid of certain customs goes against decades of school tradition (Vatterott, 2015). Points and percentages are a sort of "currency" that perpetuates the "game of school" where students vie for extra credit and the accrual of points over actual proficiency (Feldman, 2018). Associated with points is the 100-point percentage grading scale, which on its face seems highly accurate. However, Guskey (2015) argues that the 100-point scale only offers the "illusion of precision". Despite the appearance of accuracy, it is actually incredibly difficult to distinguish differences in proficiency within

the fine-grained nature of the 100-point scale (Feldman, 2018). Furthermore, the scale is skewed towards the failing end, meaning when a zero is given, it can unfairly impact a student's overall grade (Feldman, 2018; Guskey, 2015; Westerberg, 2016).

Simply put, grades are often unreliable and invalid indicators of student academic achievement but remain difficult to modify. At many schools the grading system exists solely because "that's what they have always done" (Guskey, 2015). This phrase is no longer defensible. Traditional grading and assessment practices are deeply embedded but do not mesh with the current context of learning (Schimmer, 2016). The traditional model of grading and assessment is inherently inequitable, inaccurate, and incoherent, thus not serving students appropriately (O'Connor, 2011).

Proficiency-based Learning Practices

Several catalysts are responsible for the current transition towards a reform of grading and assessment practices. Like many reforms, proficiency-based learning can be traced to the report *A Nation at Risk* which placed a sense of urgency around the need for standards (Schimmer, 2016). Research on grading reform began to emerge in earnest around the start of the 21st century (Sturgis, 2015). Over the last two decades, the literature base on grading and assessment has grown exponentially, along with implementation efforts (Sturgis, 2015). Standards-based learning is now one of the most commonly used phrases in much of the literature that describes this new paradigm of assessment, but it is by no means the only term utilized. As previously mentioned, other common terms include mastery-based learning, proficiency-based learning, competency-based education, and similar variants (Sturgis, 2014).

Proficiency-based learning is more than just a new grading & reporting system; it is major paradigm shift around classroom learning and assessment (Schimmer, 2016; Sornson, 2016). The philosophy of proficiency-based learning is predicated on a growth mindset around student learning (Vatterott, 2015; Schimmer, 2016). Time is no longer the factor controlling student progression; rather, achievement is measured by meeting proficiency for specific learning outcomes (Sturgis, 2015). Students can retake assessments, and homework may not even count in the overall grade. Formative assessment and rapid feedback become the means for supporting student growth. Like many complex reforms of the past, proficiency-based learning poses serious challenges for effective policy-practice translation. Figure 2.1 below displays the major differences between traditional assessment and grading and a proficiency-based system.

At the most basic level, proficiency-based learning aims to provide more meaningful, accurate, and consistent information regarding student achievement (O'Connor, 2011). The philosophy and practices of a proficiency-based system of learning are geared to honor student learning and bring validity to student grades (Allen, 2005; Sornson, 2016). The premise of proficiency-based learning centers on learning targets or objectives that are clearly articulated academic goals (Berger, Rugen, & Woodfin, 2014). More specificity around expected outcomes allows students to actually know the goal of the learning process, and the mystery of grading and learning disappears. Classroom behaviors such as effort, attendance, and timeliness are reported out separately as learning habits or habits of work and are usually not included in the overall grade (Berger, et al, 2014). Counterproductive and inequitable practices are

avoided in a proficiency-based system. For instance, zeros, percentages, extra credit, group scores, the bell curve, averaging, and the overemphasis of homework are not used (Guskey, 2015; Schimmer, 2016; Westerberg, 2016). Instead of a letter grade, with a mixture of factors, teachers report out on specific learning targets (Guskey, 2015). Gradebooks reflect this change as well and are organized around standards or learning targets and not just the assessment task (Westerberg, 2016). This provides a more meaningful grade with increased transparency around what a student can and cannot do. With a focus on specific standards, individual growth and progress can be more easily monitored (Marzano, 2010).

Formative assessment is another hallmark of proficiency-based learning (Vatterott, 2015; Schimmer, 2016). Assessment cycles that provide multiple opportunities to demonstrate proficiency and plenty of feedback allow students to improve without being punished for varied learning progressions (Wormeli, 2006). Students are provided the chance to reassess learning objectives and are provided remediation support when they do not meet proficiency (Dueck, 2014; Schimmer, 2016). Additionally, formative assessments "don't count" in a student's grade. This deviates significantly from the traditional system where everything a student did tends to aggregate into their overall grade (Feldman, 2018).

Though similar to other conceptualizations of proficiency-based learning, the Vermont system is defined by the Educational Quality Standards (EQS) and the interpretations of the Vermont Agency of Education (AOE). According to the AOE, "Proficiency-based learning is designed to identify and address gaps in order to provide

equitable learning opportunities for each and every student" (Vermont Agency of Education, 2017). The Vermont AOE identifies three main components of a proficiency-based system: 1) there are clear expectations for learning; 2) student progress is measured and supported; and 3) personalized learning opportunities include flexible pathways to proficiency-based graduation (Vermont Agency of Education, 2017). The Vermont AOE culls out the issue of grading, emphasizing that though it is an important part of a system of proficiency-based learning, it is only one element and should not be focused on until other aspects of the system have been implemented (Vermont Agency of Education, 2018). Another aspect of the Vermont EQS that relates to proficiency-based learning is the requirement that all high school students graduate high school based on the demonstration of proficiency and not on the accrual of credits though seat time (Vermont State Board of Education, 2014). These proficiency-based graduation requirements (PBGRs) essentially require a new system of curriculum, instruction, assessment, and grading to accurately report student progress on proficiencies. A parallel policy to the proficiency elements laid out in the EQS is the personalization and flexible pathways policy set forth in Act 77. This policy essentially requires schools to offer additional avenues for students to demonstrate proficiency outside of normal high school courses, and all students must have a personalized learning plan (PLP) (Vermont Agency of Education, 2016). Though connected in many ways, this study focuses specifically on the proficiency-based learning aspect of the EQS.

Proficiency-based learning holds the potential to be a high-leverage reform that could impact multiple aspects of classroom practice, while also supporting the

implementation of national standards (Feldman, 2014). Reforming grading practices forces teachers to reconsider other aspects of their practice as well, including curriculum, instruction, and assessment (Schimmer, 2016). The limited empirical research supports the notion that proficiency-based learning holds the potential to better support student learning (Muñoz & Guskey, 2015). Despite a growing body of literature purporting various benefits, implementation varies wildly in schools across the United States (Sturgis, 2015).

Proficiency-based Learning Implementation

Though many elementary schools across the country are transforming their grading and assessment practices, high schools have struggled to transition away from traditional grading practices (Sturgis, 2015). Despite ample research supporting the philosophy, few schools have actually adopted it (Colby, 2017; Stack & Vander Els, 2018). Though individual teachers in schools may move to a proficiency system, the issue of scalability and transportability is daunting (Elmore, 1996; Datnow, 2002). Shifting to a proficiency-based paradigm requires significant change of the instructional core and can only happen with the support of teachers (Elmore, 2004. Colby (2017) explains, "Of any area of school transformation, grading reform presents itself as the most problematic" (p. 109).

Dozens of books and a growing library of articles are available on the philosophy and practices of proficiency-based learning, but little information exists on how to actually implement this reform (Westerberg, 2016). While schools across the United States have implemented proficiency-based learning, not much is known about how they

did so and to what effect. Studies are emerging that investigate the work being done in Vermont, Maine, New Hampshire, Rhode Island, and Connecticut, but only at a nascent level (Sturgis, 2015). The Maine Education Policy Research Institute, in conjunction with the University of Southern Maine, conducted a preliminary investigation of the state policy of proficiency-based diplomas. In short, they found that overall schools lacked the necessary systems and structures to support implementation efforts. This study, rather than identify what it takes for teachers to switch their classroom practices, looked more broadly at what schools and districts were doing in regard to grading (2013). The Northeast and Islands Regional Educational Laboratory, part of the Education Development Center, has also conducted a recent investigation of proficiency-based practices in New England states. The focus of this study was to understand how states and districts define competency-based education and the struggles experienced implementing this type of reform (Evans & DeMitchell, 2015). Again, this study did not look into the "black box" of the classroom to understand how teachers translate this initiative. Sturgis (2015) states, "The field is currently challenged by not having enough research and evaluation to determine the quality indicators that will lead to a high-quality model or effective implementation" (p. 46). Presently, much of the guidance and advice on transitioning away from traditional practices resides in books targeted at school leaders and teachers (Heflebower, Hoegh, & Warrick, 2014; Westerberg, 2016).

Several common themes exist in the current literature on the subject of implementing proficiency-based learning. Much of the guidance is not necessarily specific to the reform but more broadly focused on school change in general. Some of

the commonalities identified include: 1) a need for clear communication; 2) use of strategic action plans; 3) engagement from a variety of stakeholders; and 4) a general focus on improving instructional capacity (Sturgis, 2015; Schimmer, 2016; Westerberg, 2016). These implementation strategies are more focused on education leaders and not necessarily on classroom actions by teachers.

Westerberg (2016) identifies several categories of support that should be considered when implementing proficiency-based system including: 1) training; 2) technical assistance; 3) grading software compatible with proficiencies and standards; 4) community outreach assistance; 5) input from teachers; 6) individual hand holding; and 7) accountability. Other suggestions for moving forward include assembling a guiding team, uncovering current beliefs and attitudes about grading, enlisting consultants and educating the school board (Heflebower, et al, 2014). Berger, Rugen, & Woodfin (2014) recommend building teacher capacity, creating systems and structures for student supports, increased teacher collaboration, and a defined timeline for implementation.

Implementation plans are another common guidance strategy in the current implementation literature on proficiency-based learning reforms (Berger, et al, 2014; Heflebower, et al, 2014; Westerberg, 2016). One approach is to use a timeframe similar to the one shown in Table 2.1 below.

Year 1	Year 2	Year 3	Year 4
Research & Communication	Capacity Building	Implementation	Revisions & Continued Implementation

Table 2.1. Exemplar Implementation Schedule. Adapted from *Charting a course to standards-based grading: What to stop, what to start, and why it matters*, T.R. Westerberg, (2016). Alexandria, VA: ASCD.

The issue with multi-year implementation plans, like the one above, is that implementing reforms such as proficiency-based learning is not an entirely linear process and is likened to more of a journey (Stack & Vander Els, 2018).

Schimmer (2016) sees implementation as starting with educator beliefs about teaching and learning. The premise of his work is on how teachers can change their thinking around grading and how that should be the first step towards changing classroom practices. Since changing long-held systems and structures is difficult, Schimmer (2016) recommends that teachers start with their beliefs and attitudes regarding teaching first, and then start modifying actual practice. This method also ensures that changes can be made within a system that is not actively proficiency-based. Schimmer (2016) goes on to say that creating a hybrid grading system allows teachers to "bridge the gap" from old to new. Thus, in order to change grading practices requires disrupting teacher belief systems (Smith, et al, 2018).

Many teachers' beliefs and practices around grading stem from their own experiences in school and the systems that exist when they enter the classroom as new teachers (Cornue, 2018). Few university programs focus on grading and assessment

issues (Smith, et al, 2017). Furthermore, once in the profession, most teachers receive little professional development on the topic of classroom assessment (Stiggins, 2017). This situation has led to a severe lack of "assessment literacy" in the teaching ranks (O'Connor, 2018). Erkens, Schimmer, and Vagle (2017) argue, "The lack of assessment literacy is crippling well-intentioned teachers and schools in efforts to improve student achievement" (p. 82). Though grading and assessment is a central feature of the teaching profession, training in this area remains minimal (Stronge, Grant, & Xu, 2017).

Grading practices remain the "third-rail" of education reforms (Erickson, 2010). Classroom grading is a politically charged topic that can spark contentious arguments (Colby, 2017; Guskey, 2015; Reeves, 2016a). A culture of teacher isolation and autonomy has cultivated a sense of teacher ownership over grading practices (Nagel, 2015; Westerberg, 2016). O'Connor (2018) explains, "For the most part, grading has been the preserve of individual teachers operating in the isolation of their own classrooms, with minimal direction from school or district policies and minimal guidance from administrators" (p. 306). Schimmer (2016) extends this situation stating, "Balancing the individual autonomy of the classroom teacher with the known benefits of grading consistency is difficult" (p. 22). Operating on "islands of autonomy", teachers can close their doors and effectively do what they want (Feldman, 2018).

A central aim of proficiency-based learning is to increase consistency of practice between classrooms and to bring more transparency to the instructional core (Schimmer, Hillman, & Stalets, 2018). The standardization of grading and assessment practices is

sometimes perceived as an attack on teacher autonomy and professional judgment (Guskey, 2015; Nagel, 2015; Stack & Vander Els, 2018; Vatterott, 2015). As Bryk, Sebring, Allensworth, Luppescu, & Easton, (2010)) indicate, efforts to improve instruction often "...requires teachers to relinquish some of the privacy of their individual classrooms…" (p. 55). Attempting to change what teachers do in the confines of their classrooms is a perennial challenge for policymakers (Diamond, 2015; Elmore, 2004.

In sum, implementing proficiency-based learning is a complex endeavor that currently has little empirical research to provide any guidance. More than just grading, this reform involves redefining one's pedagogy. The traditional system cannot be discarded all at once; a transition from the old to the new is necessary. Schimmer, Hillman, and Stalets (2018) state, "When changing to a standards-based learning classroom, teachers must do the heavy lifting where it matters - in classroom instruction, instructional alignment, to the standards and assessment practices" (p. 12).

Teacher Discretion and Autonomy

Implementing meaningful reform in schools is no easy task. Decades of research and numerous failed attempts at trying to change the structure of schools and teaching abound (Cohen & Moffitt, 2009; Elmore, 2004). Despite policymakers' endeavors to implement various programs and policies, classroom-teaching practice has remained durable to most outside reforms (Cuban, 2013), and many instructional technologies have been assimilated into past teaching practice with minimal structural changes (Cuban, 2013).

Several barriers exist that make changing the instructional core inherently difficult

(Elmore, 2004). First and foremost, teachers have historically worked in isolation with minimal collaboration between colleagues (Reeves, 2006). Furthermore, the nature of teaching is overwhelming and complex (Kennedy, 2005). To gain traction, education reforms must possess certain attributes that can be adopted by teachers including perceived significance, philosophical compatibility, occupational realism, and transportability (Schneider, 2014). In short, making a reform stick has proven to be challenging in many schools.

Operating with discretion, high school teachers "personalize" their own grading practices without contest because of what Reeves (2006) describes as a "...pervasive belief that teaching is a private endeavor and grading policies are the exclusive domain of those private practitioners" (p. 113). Consistency of grading practices, particularly among teachers in the same school can vary considerably (Guskey, 2015). This variability is of concern to administrators, educators, parents, and students. Teachers have considerable autonomy with how they grade students, and this often leads to grades that can be inconsistent and unfair (Sturgis, 2015).

Due to the nature of teaching, most educators work in their own "silos" with minimal exposure to collaboration with colleagues (Rothman, 2009). Furthermore, teachers operate with a significant degree of discretion, and thus, classroom-grading practices remain insulated from modification. Elmore (2004) states that, "Privacy of practice produces isolation; isolation is the enemy of improvement" (p. 67). Marzano (2000) further explains, "It is true that this practice provides individual teachers with a great deal of latitude and freedom. It is also true, however, that American education pays

a great price for this latitude and freedom" (p. 8). Though most schools and districts have an official grading policy, they are often vague and leave a lot of room for interpretation. The "black box" of the classroom is a bastion to any sort of reform and remains one of greatest challenges in affecting classroom level change (Cuban, 2013).

Ultimately, teachers decide what counts when it comes to policy implementation, therefore it is important to understand how they make sense of demands placed on them (Spillane, 2004). Cuban (2016) identifies teachers as "covert policymakers", critical in any attempt at translating policy to practice (p. 163). Teachers actively modify and adapt policies as "street level bureaucrats" operating in the trenches of the classroom (Weatherly & Lipsky, 1977). Furthermore, the practice of teaching is remarkably complex and fraught with issues both from inside the classroom and from external forces (Kennedy, 2005).

Policy Implementation & Education Reform

Shifting high school teachers' orientations in grading requires more than a revised policy or a new grade scale. As Nagel (2015) succinctly acknowledges, "Grading scales are not grading policies" (pp. 65). The philosophy of proficiency-based learning assumes a mindset shift around classroom instruction and assessment (Schimmer, 2016). Teachers must modify their beliefs and schemas about grading (Spillane, 2004). Significant behaviors must change among a wide spectrum of stakeholders, including teachers, students, and school leaders. Faculty and administrators must agree to a common purpose for grading and focus on providing students with meaningful feedback through grades (Sturgis, 2014).

Any change that attempts to alter the core of teaching practice has proven difficult, as many failed reforms have proven (Elmore, 1996). The regularities of school, or as Tyack & Cuban (1995) call it, the "grammar of schooling", has remained relatively unchanged for well over a century allowing for only peripheral change. Modifications hat confront a general understanding of the "real school", such as grading practices, attract attention and often quell any reform effort (Tyack & Cuban, 1995). If change is to be brought to scale and sustained, top-down mandates will not suffice; sensitivity to local context and educator needs is a prerequisite for successful translation of policy to practice. The faithful and successful implementation of a standards-based grading policy requires the consideration of context.

Many school districts actively implement multiple initiatives at once all of which compete for attention and resources (Hatch, 2002). With limited capacity, district and school leaders are constrained to assist teachers, and this can prevent certain ideas or practices from ever reaching the classroom (Spillane, 2004).

Though teachers are central to implementing many policies, district and school leaders also play an important role. Honig and Hatch (2004) found that principals "bridge and buffer" the demands of policies by accommodating and resisting certain aspects of a mandate (Rutledge, Harris, & Ingle, 2009). In essence, a negotiation, "bridging and buffering", allows administrators to respond to policy mandates that align with their organization's goals and preferences (Rutledge, et al, 2009). Motivations vary, but Hatch (2002) found that given the plethora of demands placed on schools, the "bridging and buffering" strategy could be a way to achieve coherence without

experiencing overload. Administrators are "policy mediators" which allows them to modify messages from state policymakers to better meet their own contextual demands (Louis, Febey, & Schroeder, 2005). Finally, school and district leaders can support teachers by providing the conditions or environment that allow for teachers to make the necessary changes (Spillane, 1998).

Some education change is structural some cultural. Proficiency-based learning involves both, but with an emphasis on the cultural. DuFour and Fullan (2013) acknowledge, "Unlike structural change that can be mandated, cultural change requires altering long-held assumptions, beliefs, expectations, and habits that represent the norm for people in the organization" (p. 2). Changing attitudes and values means changing behaviors (Cole & Weinbaum, 2010). Applying a cognitive approach to understanding policy implementation, especially as it relates to changing classroom practice is an important lens for fully understanding how best to support teachers with making sense of change.

Sensemaking Theory

Successful policy implementation requires more than simply understanding or interpreting policy; teachers and school leaders must "make sense" of what is being asked, which is a complicated cognitive process (Spillane, 2004; Weick, 1995). Adopting new ideas and strategies goes beyond merely absorbing knowledge; it also involves the shifting of cognitive frameworks and the "filtering" of new information (Weick, 1995). Each stakeholder must reconstruct existing knowledge and accommodate the new ideas presented in the proposed policy or initiative (Spillane, 2004). Through the process

of sensemaking, teachers reconstruct and reinterpret policy messages, which may undercut reform efforts (Coburn, 2001).

Top-down policies, particularly when they are broad, remain open to a variety of interpretations that are often beneficial, and can sometimes even bolster policy implementation efforts, although this is not always the case. Actors at all levels must make sense of the policy or initiative and then subsequently transfer that understanding to others. In the end though, it is teachers who enact policy on the ground level. As Louis, Febey, and Schroeder (2005) indicate, "Schoolteachers are the vital agents of implementation" (p. 114). District and school leaders are sense-makers as well, and they have greater access to policy messages and the ability to amplify certain aspects of an initiative (Spillane, 2004; Coburn, 2005). This "game of telephone" can lead to misunderstandings from the original intent of the policy or initiative (Spillane, 2004). Educators from the district to the classroom essentially become policymakers in that they modify policy messages based on their own interpretations through the sensemaking process (Spillane, 2004). Districts, schools, and teachers must all make sense of top-down policies and ultimately implement them in their given context.

Through the sensemaking process, individuals move towards changing behavior, which entails modifying beliefs, attitudes, and deeply held assumptions; all individuals (i.e., administrators, instructional coaches, teachers, etc.) in an organization must redefine their schemas (Spillane, 2004; Coburn, 2005). New information is understood against prior knowledge and experiences with preference given to ideas that seem familiar (Spillane, 2004). Two cognitive processes occur within sensemaking: assimilation and

accommodation. Assimilation assumes that teachers take new ideas and make them familiar; accommodation is often eclipsed by assimilation but provides individuals with deeper insight and an increased likelihood of change (Spillane, 2004). Actors use their "lens of preexisting knowledge" to adapt and interpret policy messages (Coburn, 2005, p. 477). Further adding to the challenges of sensemaking is the often-present anxiety around the complexity of teaching (Cuban, 2013; Kennedy, 2005; Louis, Febey, & Schroeder, 2005). Instruction is not monolithic but composed of myriad elements that must be negotiated against any reform efforts (Cuban, 2018; Diamond, 2015).

Advice and guidance on how to move forward with education initiatives comes from multiple sources that are certainly not limited to state agencies (Spillane, 2004). Professional associations, networks, and technical assistance providers all deliver materials and ideas to help move policy forward (Spillane, 2004). One of the most influential sources of information for Vermont schools around grading practices is the Great Schools Partnership based out of Portland, Maine. This nonprofit provides not only paid services but also a wealth of free documents on their website. Within schools, instructional coaches and other specialists act as "professional sense-makers" helping translate reforms for teachers (Domina, Lewis, Agarwal, & Hanselman, 2015). Through sharing resources and information, instructional coaches act as "brokers" to help nudge teachers toward more reform-oriented practices (Jaquith, 2017). Professional development providers afford another source of information that can help with cultivating new practices and communicating reform ideas (Kisa & Correnti, 2015).

Though sensemaking is often an individual endeavor, it is also a social process

and is more effective when experienced collaboratively (Spillane, 2004; Louis, et al, 2005). Group interactions, such as in professional learning communities (PLCs), can provide essential opportunities to learn about reforms. As Coburn (2005) indicates, "Opportunities for teachers to interact around policy ideas mattered because when teachers made sense in social interaction, they had access to a range of interpretations that went beyond their own experiences and beliefs" (p. 497). The attitudes of colleagues can also significantly influence whether or not other teachers change their beliefs around a reform (Cole & Weinbaum, 2010). "Popular" teachers, or those that hold sway, can greatly influence efforts to change classroom practice through their social networks (Cole & Weinbaum, 2010).

District and school leaders hold important roles for supporting teacher sensemaking. District administrator and building principals frame policy messages and often privilege certain aspects of a policy or initiative (Coburn, 2005). Conversely, messages can be mixed and conflicting if actors at different levels talk about them differently (Spillane, 1998). Vaughn (1996) refers to this as "haphazard information flows" and emphasizes how information that is sent and received is critical to how those lower down ultimately interpret messages (p. 11). One way to minimize message splintering and create coherence is to have a shared mission or vision, yet this component is often absent (Spillane, 1998). Accordingly, constant support for a reform and encouragement from principals has been shown to help move initiatives forward (Spillane, 1998). Finally, district and school officials determine to some extent the conditions that teachers operate in (Louis, et.al, 2005). At the end of the day, teachers are

left to grapple with and figure out what a policy or initiative means for classroom practice (Spillane, 2004; Coburn, 2005).

For teachers implementing proficiency-based learning reform, a "standards-based mindset" is necessary to fully transition away from a convention model of grading (Schimmer, 2016). Schimmer (2016) explains that "when teachers think and feel differently about grading it changes how they grade" (p. 48) and that "Grading is mostly mindset" (p. 4). To shift grading paradigms, all stakeholders must make sense of standards-based grading, and this is a taxing endeavor.

Educational Infrastructure

A relatively new line of research has emerged in the last several years most often referred to as "educational infrastructure". Educational infrastructure can shape teacher practice by providing resources for action and creating intentional opportunities for advice seeking that ultimately build capacity for instructional improvement (Hopkins, et al, 2015). Hopkins and Woulfin (2015) frame educational infrastructure as systems that facilitate instructional improvement consisting of tools, policies, and structures that are coordinated to both support and constrain educator changes. Furthermore, educational infrastructure can facilitate changing teacher beliefs and practices by structuring teacher interactions and the flow of knowledge (Shirrell, Hopkins, & Spillane, 2018). At a basic level, routines, roles, materials, and procedures are the defining ingredients of educational infrastructure (Spillane, Hopkins, & Sweet, 2017). Some specific examples of these elements include assessment cycles, instructional coaches, learning communities, and curricular material, to name a few. At the heart of educational infrastructure is

coherence to build consistency of practice between teachers (Mehta & Fine, 2015). For instance, if professional development efforts are focused on one topic, while instructional coaches are emphasizing something different, substantive instructional change is less likely to occur. Two central components of educational infrastructure include advice networks and organizational routines, both of which can support or disable efforts to implement reforms.

Routines create stability by organizing work structures and creating constancy in practice (Sherer & Spillane, 2011). Organizational routines can take many forms but include a variety of formal structures such as grade level teams, cycles of assessment, and professional learning communities, among others (Spillane, Parise, & Sherer, 2012). Routines can both enable or constrain practices, but ultimately the goal is to create a level of standardization to promote change (Sherer & Spillane, 2011). Routines can also facilitate the sharing of knowledge and advice between teachers.

Information and advice are critical for knowledge development and building social capital (Spillane, Kim & Frank, 2012). Collegial interactions, both formal and informal, are key to the dissemination of reform messages and building shared understanding. Advice seeking interactions have the potential to either enable or undermine reform efforts (Ronfeldt, 2017). Of importance is not only who teachers talk to but also what they talk about (Wilhelm, Cobb, Frank, & Chen, 2018). Generally, those in formal leadership positions actively provide and are sought out for advice, but this is not always the case. Instructional coaches are usually not in an administrative role but do act as key brokers of information (Woulfin & Rigby, 2017). Physical proximity, such as

sharing an office or being in the same hallway, can also influence social interactions (Spillane, Hopkins, Sweet, & Shirrell, 2017). In short, although teachers may hear reform messages from school and district leaders, they also glean information and advice from within the teacher ranks.

Despite a growing body of research illuminating the importance of educational infrastructure, Cohen and Moffitt (2009) indicate that coherent educational infrastructure to support instructional improvement is often weak or absent. Mehta (2013) argues that the absence of this infrastructure is a central reason for the failure of many past reforms. This lack of sufficient resources thus constrains capacity-building efforts to help teachers make sense of reforms.

Chapter Summary

Traditional grading and assessment practices host numerous weaknesses. These flawed practices are deeply entrenched in the "grammar of schooling" and thus difficult to change. Proficiency-based learning has emerged as a potential "solution" to the issues inherent with many classroom practices. More than just a shift in grading practices, this reform effort requires a complete overhaul of classroom pedagogy. Despite increasing research on the topic, a serious gap exists on how teachers actually implement proficiency-based learning practices. The complications of teaching preclude much substantive change despite significant efforts by teachers (Kennedy, 2005). To succeed, teachers need practical guidance and supports to implement proficiency-based learning in their classrooms which is what this study aims to understand.

CHAPTER 3: RESEARCH DESIGN & METHODOLOGY

The purpose of this comparative case study was to understand the sensemaking process of teachers in high schools with regard to the implementation of proficiency-based learning practices. Furthermore, this research aims to illuminate the role played by school and district leaders and how they facilitate or impede teachers' sensemaking experiences with implement proficiency-based learning practices. The study's overarching research questions were:

1. How do Vermont teachers experience the shift to adopt and implement proficiency-based learning practices?
2. In what ways do district and school leaders support Vermont teachers with making sense of proficiency-based learning?
3. What similarities and differences exist between, within, and across districts in Vermont teachers' experiences implementing proficiency-based learning?

This chapter describes the study's research methods and includes the following sections: (a) overview of research design, (b) rationale for research approach, (c) site descriptions, (d) participant selection, (e) methods of data collection, (f) data analysis methods, (g) ethical considerations, (h) issues of trustworthiness, and (i) limitations and delimitations. The chapter culminates with a brief summary.

Overview of Research Design

The Vermont policy requiring schools to adopt proficiency-based learning allows for local interpretation and adaptations. Thus, each district can operationalize proficiency-based learning in a variety of ways. A case study approach allows for

variability and similarities to be parsed out. Operating with different leadership styles, educational infrastructures, and political environments, each school district in Vermont is decidedly unique. Despite district and school level differences, teachers are responsible for putting reforms into practice, but without appropriate support and guidance, any initiative is doomed to fail. The intent of this research study was to "rely as much as possible on the participants' views of the situation" to better understand how teachers make sense of proficiency-based learning practices (Creswell, 2013, p. 25). School and district leaders provide resources and supports, but teachers are the ones changing their practices in their classrooms that ultimately make any reform successful (Kennedy, 2005; Weatherly & Lipsky, 1977). Using interviews, surveys, and documents, I aimed to understand how teachers put proficiency-based learning into practice and in what ways education leaders supported this process.

A comparative case study design provides an opportunity to compare and contrast how teachers at different high schools in separate districts experience the shift to implement proficiency-based learning (Yin, 2014). Furthermore, each school district in Vermont tends to have varying administrative approaches, educational infrastructure, and organizational histories. By studying two cases, namely high schools situated within supervisory unions/school districts, I aimed to gain a broad understanding how schools in different regions of Vermont are approaching implementation of proficiency-based learning.

To effectively put proficiency-based learning into practice, teachers need new skills and knowledge, enhanced by resources and other supports that help build their

collective capacity (Elmore, 2004). Additionally, to substantively change teaching practices means to modify attitudes and beliefs about pedagogy, which is no easy feat (Elmore, 2004). Teacher perceptions of proficiency-based learning and how they change their behaviors, beliefs and mindsets is critical to understanding the overall sense making process. With regard to school leaders, the manner in which they communicate the reform is important to how teachers respond as well. The strategies they employ and the degree to which they "bridge and buffer" influences how teachers can put any reform into practice effectively (Honig, 2004; Rutledge, et al 2009). Therefore, data from both teachers and leaders is necessary to fully understand the sensemaking process of teachers as they attempt to change their classroom practices to align with the state policy initiative of proficiency-based learning.

Rationale for Qualitative Methods

As mentioned, for this study I used a comparative case study design. Two separate cases were selected for this research study. Each case is a high school in separate school districts / supervisory unions, all located in the state of Vermont. The selected sites for this study were chosen because each was actively implementing proficiency-based learning practices but none were necessarily intrinsic in nature (Glesne, 2011). Each site is described in detail to provide rich, thick description of the school context so as to gain an understanding of how teachers make sense of policy messages and implement complex reform initiatives (Glesne, 2011; Yin, 2015). Creswell (2013) suggests that "...the intent of the case study may be to understand a specific issue, problem, or concern (e.g. teenage pregnancy) and a case or cases selected to best

understand the problem" (p. 98). The cases in this study are by definition a "bounded integrated system" with specific limits to what will be included and what will not (Glesne, 2009). Two sites were chosen to provide sufficient insight into the phenomenon under study without diluting the analysis (Creswell, 2011). Merriam and Tisdell (2016) explain, "The inclusion of multiple cases is, in fact, a common strategy for enhancing validity or generalizability of your findings" (p. 40). In sum, a comparative case study approach best aligns to the purpose, problem, and research questions inherent in this project.

This study is grounded in an interpretivist paradigm, specifically the social constructivist philosophical framework (Glesne, 2011). The interpretivist approach focuses on "interacting with people in their social contexts and talking with them about their perceptions" (Glesne, 2011, p. 8). This aligns with my research questions which aimed to understand the processes teachers go through, both individually and socially, to make sense of education policy. Creswell (2013) identifies that the constructivist paradigm is used to help researchers understand processes, especially within the specific contexts that participants operate in. Furthermore, as Merriam and Tisdell (2016) explain, "The overall purposes of qualitative research are to achieve an understanding of how people make sense out of their lives, delineate the process (rather than the outcome or product) of meaning-making, and describe how people interpret what they experience" (p. 15). This study's purpose was to "uncover and interpret" this sensemaking process and how it relates to the implementation of proficiency-based learning in high schools (Merriam and Tisdell, 2016).

Site Selection

Two Vermont high schools were selected for this study. Each was purposively selected according to specific criteria. Not all schools in Vermont are actively applying proficiency-based learning principles equally, although all high schools must respond to the state Educational Quality Standards that stipulate a proficiency-based high school diploma for the graduating class of 2020. Both high schools selected were known to be actively implementing proficiency-based learning practices, and each site differed in both their process and stage of implementation.

Flatland High School

Flatland High School is a comprehensive 9-12 public school that serves five townships in "suburban" Vermont. Flatland HS is the only high school within the school district. The towns in the district vary in their demographic makeup creating a moderately heterogeneous student population at the high school. The student population is approximately 1,228 with 111 faculty members. Starting as a pilot program, the implementation of proficiency-based learning has shifted to a school wide implementation process. As a component of their shift to proficiency, Flatland HS does not compute class rank and honors distinctions are based on the Latin Honors System (the same system most colleges and universities use for academic distinction). Flatland HS has been implementing proficiency-based learning for several years and is considered a leader in the greater Vermont region. Since they began implementation efforts prior to the official Vermont policy rollout, Flatland HS is routinely looked to for advice and guidance on the topic of proficiency.

The high school has been actively implementing proficiency-based learning practices for nearly ten years. Implementation efforts started "organically" at least a decade ago, potentially even further back according to some teachers and administrators at the school. Flatland has a history of supporting standards-based reforms and providing extensive resources to teachers to support educational reform. Instructional coaches have been a mainstay of their educational infrastructure for nearly a decade and teachers at the school have ample opportunities to attend workshops, conferences, and other professional learning experiences. At the high school, there is a principal and assistant principal along with a team of instructional coaches that work both at the high school, as well as at other sites in the district. A central figure at the district level is the curriculum coordinator who provides guidance to the high school and other schools in the district but who works collaboratively with members of the Flatland HS leadership team.

Riverbend High School

Riverbend High School has implemented proficiency-based learning for several years and is perceived throughout the state of Vermont as an innovative school. Riverbend is located in a more "urban" region of Vermont and serves approximately 300 students in grades 9-12. The high school has a low student to teacher ratio, 7:1, allowing for a more personalized learning experience. Riverbend is the only high school within the district. Similar to Flatland HS, Riverbend HS has a history of implementation efforts focused on standards-based reforms that has evolved into their current work with proficiency.

The school leadership consists of a principal and assistant principal along with

various committees and groups that inform decision-making at the school. At the district level, the director of curriculum works closely with the high school principal to lead implementation efforts and to provide instructional guidance for teachers.

Participant Selection & Recruitment Procedures

For each site, prior relationships had been established. Site "gatekeepers", namely building principals, were emailed an institutional letter of support to sign, so as to allow research to be conducted at each school (Creswell, 2013). Within each site, purposeful sampling was utilized to identify individuals that would provide a wide range of perspectives regarding the implementation process. Each principal was asked to identify teachers that they thought could provide insight into the implementation process from across various grade levels and disciplines. These individuals were then contacted to see if they were willing to participate. Not everyone on the initial list selected to participate in the interview process. Each principal provided more than one name for each subject area allowing for sufficient "back up" participants. Criteria for selection included content area expertise (science, math, ELA, social studies), years in education, and grade level focus (freshman, etc.). Ultimately, it was the school principal who provided suggestions for guiding me toward teachers to interview.

Data Collection Methods

The data collection methods for this study included interviews with teachers and school leaders, a teacher survey, and the review of school documents. Initially, an online survey was administered in May, followed by individual interviews and the collection of various documents. Some interviews were conducted shortly after the online

questionnaire while others were done in the following fall, about three months after the survey.

Table 3.1. Overview of Interview Participants

	Administrators	Instructional Coaches	Classroom Teachers
Flatland	3	3	4
Riverbend	3	2	4

Teacher Survey

For each high school site, all teachers were invited to participate in an online survey. The survey included approximately 10 multiple choice and 10 open-ended questions (see Appendix B). The goal of the survey responses was to provide a broad overview of faculty perceptions around proficiency-based learning implementation and to provide demographic information for each site. The survey was provided to school principals to disseminate via their faculty email lists. All teachers at both sites were provided the online questionnaire. This survey was provided first before any interviews were conducted.

Interviews

Interview data collection occurred at the participants' place of employment. This matches Glesne's (2011) recommendation of meeting at a place that is "convenient, available, and appropriate" for the participant (p. 113). The participants did not need to travel and could meet within the constraints of their personal timelines. All administrator and teacher interviews were recorded and transcribed. Notes were taken during and after

each interview to extend my thinking and record my reflections (Miles, Huberman, & Saldaña, 2014).

District-level curriculum coordinators, school principals, assistant principals, and instructional coaches were interviewed individually. Teachers at each site were asked to participate in the online survey. Additionally, a selection of teachers were interviewed one-on-one at each site, totaling four teachers from each school. In total, 19 individuals were interviewed individually.

After all data was collected from each site, each case was analyzed individually and then comparatively, keeping in mind context. Cataloging the specific processes and resources at each site allowed a side-by-side comparison of how each high school approached implementation efforts. The purpose of the cross-case analysis was to understand similarities and differences between sites with regard to the resources and supports provided to teachers (Miles, Huberman, Saldaña, 2014). Furthermore, comparing teacher experiences of implementing proficiency-based practices in their classrooms was needed to answer the research questions.

District and School Leader Interviews

District and school leaders were interviewed to gain an understanding of how proficiency-based learning is being implemented, the resources provided, and the overall messaging around the process. Interviews were conducted on an individual basis and utilized an open-ended, semi-structured question protocol (Glesne, 2011). Furthermore, the interview questions are closely linked with the broader research questions. Each interview lasted approximately one hour and was recorded for transcription purposes. In

addition to interviewing school-based principals and district curriculum leaders, instructional coaches at each site were also interviewed on an individual basis. Between the two sites, a total of 12 administrators and instructional coaches were interviewed. The administrator interview protocol is located in Appendix C

Teacher Interviews

At each high school (9-12), four teachers were identified for individual interviews. To achieve a broad array of experiences, teachers from a variety of content areas were interviewed. A math, ELA, social studies, and science teacher were interviewed at each site. Each teacher was formally asked to participate via an email letter. An open-ended interview protocol was used with flexibility around sub-questions. Careful management of airtime for each participant and overall interview length was a critical focus during interviews (Glesne, 2011). Between the two sites, a total of eight teachers were interviewed. The interviews were recorded and then transcribed. The teacher interview protocol is located in Appendix D.

Document Analysis

School and district crafted documents that pertained to proficiency-based learning implementation were analyzed as a third component of data collection (Merriam & Tisdell, 2016). These documents have been historically underutilized but can provide an objective and unobtrusive source of information (Merriam & Tisdell, 2016). Documents reviewed included school profiles, frequently asked question pamphlets, grading policies, student handbooks, process visuals, and curriculum framework templates.

Documents were reviewed with memos written during and after review. Memos

on each document were focused on the intent of the document and how the item (such as a unit planner) linked to data collected from the questionnaire and interviews. These memos were subsequently coded similarly to how the interview transcripts were coded. Furthermore, document analysis provided insights into the resources and supports available at each organization. District and school administrators at each site were also asked to share documents related to the work around implementing proficiency-based learning, and these were used for analysis. The specific documents varied from one site to the next. For instance, one site had a visual representing the instructional process while another site had a visual showing how to interpret grades.

As mentioned, some documents were collected prior to the dissemination of the online questionnaire and initial interviews, but some were collected during face-to-face interviews with administrators. Principals or curriculum coordinators each emphasized certain documents that they had either created or felt were of significance to implementation efforts. This was noted and probed during teacher interviews. For instance, when asked what supports and resources had been most helpful with implementing proficiency-based learning, I would then probe to see if any specific documents were of use to them based on the documents identified by administrators as being of importance. Initially, interview data and site-specific documents were compared, but cross-site comparisons were also made.

Data Analysis Methods

Using an emergent design, a combination of *a priori* and *in vivo* codes were developed during the analysis process. The research questions and the literature base

used for this study informed the crafting of the codes. These codes were grouped by themes and used to assist with the interpretation of the data. In general, a data analysis "spiral" process was implemented with regards to the data collection, analysis, and reporting components (Creswell, 2013). The CAQDAS system *Dedoose* was used to organize data, as well as for coding purposes.

During interviews, while reviewing transcriptions, and when analyzing documents, memos were kept to document any questions or points of interest that arose. Miles, Huberman, & Saldaña (2014) explain, "Jottings can strengthen coding by pointing to deeper or underlying issues that deserve analytic attention (p. 94). These memos were also coded. Interviews were recorded and subsequently transcribed. Transcripts were initially reviewed, with notes taken and sections highlighted. Then all transcripts were formally coded.

Coding was done in multiple cycles; during each stage of analysis different coding methods were utilized (Miles, Huberman, & Saldaña, 2014). The codes were routinely validated during the analysis process as well to make sure that they were not drifting and that they continued to make sense (Miles, et al, 2014). Codes were clustered around themes and big ideas in order to help classify the patterns that emerged from the data.

Potentially, the most important aspect of the data analysis process was making sense of the findings. The interpretation of the data was a critical step involving "abstracting out beyond the codes and themes to the larger meaning of the data" (Creswell, 2013, p.187). Furthermore, "naturalistic generalizations" were made so that

the learning gained from this study could be applied to other cases (Creswell, 2013, p. 200). The themes and categories are described in detail to expose their significance to the study. These themes are also connected back to the conceptual framework. Furthermore, both a within and across case analysis were conducted. A review of similarities and differences within individual sites was then followed by a comparison of data across sites to identify common themes.

Trustworthiness

Researcher Positionality and Bias

I recognize the importance that reflexivity plays in any study (Glesne, 2011). As a researcher, I came into this study with my own biases, but to maximize validity, I attempted to appropriately identify my perspective and how this could impact the study. I am a firm believer in the potential of proficiency-based learning, and I feel strongly that traditional grading practices are detrimental to students, and thus a change is necessary. At my previous school, I was a leader in the implementation of PBL for several years. As a former teacher, I focused on researching classroom assessment and grading practices to improve my own practice. I currently occupy a role as a district leader supporting the implementation of proficiency-based learning in numerous schools and grade levels.

As a researcher, I operate through the "lens" of a classroom teacher and education leader. My interests focus on discovering ways to improve student achievement and support the teaching profession. My experience in the classroom holds sway over what I deem important and what I believe to be of less importance in the realm of education

reform. Educators need strategies they can implement in their classrooms and schools, not lofty theories that hold little value on the ground floor. In my research, I aim to understand how individuals make sense of proficiency-based learning so that this knowledge can be used to assist in the implementation process and effect change in the classroom.

As an educator with extensive knowledge and experience with implementing proficiency-based learning, my background holds the potential to influence my interpretations, and as such, I positioned myself within the study (Creswell, 2013). For the past several years I have been implementing components of proficiency-based learning in my classroom, in addition to leading this work at the district and school levels. Creswell (2013) states, "Researchers have a personal history that situates them as inquirers", and this certainly aligns with my situation (p. 51). With prior experience applying proficiency-based practices and extensive background knowledge on the subject, my interview questions were crafted to ascertain how other educators make sense of and subsequently implement this reform. Merriam & Tisdell (2016) emphasize that in qualitative research the researcher is the central instrument for the collection of data, which is how this study was framed.

Triangulation

Document analysis, interviews, and surveys are the central sources of information for this study and are aimed at ensuring triangulation of the data (Creswell, 2013). Furthermore, two separate sites were used to collect data with a wide variety of participants at each site. By using multiple sources of data, each can corroborate

information from the other (Marshall & Rossman, 2016). For instance, documents can support information gleaned from interviews and vice versa.

Rich, Thick Description

Though I make no expectations of transferability or generalizability, I include rich, thick descriptions so that the reader might better understand how the findings of this study could relate to other contexts (Merriam & Tisdell, 2016). From the case descriptions to the findings, I attempt to provide detailed and varied descriptions whenever possible. (Maxwell, 2013; Creswell, 2013).

Ethical Considerations

Several safeguards were used to protect the participants involved in this study. To ensure the confidentiality of participants, pseudonyms will be used both for the names of the participants and also for locations/schools. Furthermore, all data will be kept on a password-protected laptop and any interview recordings will be kept on a password protected device. The proposal for this research study was submitted to the University of Vermont IRB committee for review prior to any data collected. Each participant was provided a consent form and informed that they could leave the study at any time.

Limitations & Delimitations

This study has certain limitations and delimitations that must be acknowledged. First, this study involves two cases which by no means represent the experiences of other Vermont schools implementing proficiency-based learning. Only a selection of teachers at each site were interviewed; again, not fully representing the entire faculty. Also, the schools chosen for this study were high schools, so the study's findings

are constrained to that of 9-12 grade level schools. Administrator and teacher experiences with implementing PBL vary from school-to-school, district-to-district, and state-to-state, depending on a variety of contextual factors that are outside the scope of this study. The time period for this study was relatively brief (several months) and the phase of implementation at most schools was ongoing. It is likely that perceptions and attitudes may change at these sites within the next few years as implementation efforts ramp up. Furthermore, schools that are just starting to implement proficiency-based learning may have different experiences and perceptions.

Chapter Summary

In summary, this chapter provides a detailed description of the methodology used in this study. Comparative case study methods were utilized, operating through a constructivist paradigm. The goal of this research study was to better understand the sense making process of school leaders and teachers as they implement proficiency-based learning practices. Three data collection methods were employed to support triangulation: document analysis, individual interviews, and surveys. Furthermore, multiple measures were taken to ensure credibility, dependability, and transferability.

CHAPTER 4: FINDINGS AND INTERPRETATIONS

Three distinct themes emerged from the data analysis and frame the study's findings. The overarching findings are as follows: 1) Teachers' beliefs, values, and practices were generally reform-oriented, but some teachers struggled with adopting certain aspects of proficiency-based learning, 2) District and school leaders leveraged educational infrastructures that melded capacity-building elements with constraining mechanisms, and 3) Teachers and administrators linked prior reform work to the current implementation of proficiency-based learning practices, building off of their past efforts with a blend of both assimilation and accommodation. In essence, there was a conflict between what teachers were expected to do and what they could do, even with substantial structures and supports. Overall, teachers in this study were deeply engaged with implementing proficiency-based learning in their classrooms. Generally, teachers felt supported by school and district leaders, though their autonomy and discretion was intentionally bounded for the sake of internal coherence. Furthermore, both sites had a history of reform that seemed to help with the rollout and implementation of proficiency-based learning. Implementation was framed through the lens of previous standards-based reform efforts so as to make proficiency seem familiar to teachers, which promoted some assimilation, which potentially limited the impacts of the current reform work. Internal coherence was variable at both sites due to the differing responses by teachers to the specific challenges they engaged with at the classroom level and the varying capacities of educators to engage with shifting practice.

Impacts on Teacher Beliefs, Values, and Practices

"Worthy but Hard"

In general, participants from both sites indicated that the shift to proficiency-based learning was a challenging, but also worthwhile endeavor. Despite the general agreement that implementation is difficult, participants were mostly supportive of the initiative, which came through in survey responses and in the interviews. 78.6% of survey respondents from Riverbend High School agreed or strongly agreed that proficiency-based learning is a promising approach to improving student learning. At Flatland High School, 85% agreed or strongly agreed with the previous statement. Generally, teachers saw value in the shift to a proficiency-based system and, simply put, saw proficiency-based learning as holding the potential to solve a variety of issues with the schooling experience. For instance, a science teacher from Riverbend High School emphasized her reason for supporting the shift, saying "I guess I just feel like this system has so much potential to clarify what we're teaching and what we're asking students to learn." The philosophy of proficiency made sense to most teachers and therefore there was minimal opposition. This general support removed one barrier to implementation that is sometimes a major obstacle for reformers: teacher buffering.

Though a majority of teachers were supportive of the effort to implement proficiency-based learning practices, they did find the shift to be difficult. No teacher indicated that the shift was by any means easy. Data from the teacher survey indicated that 85.7% of survey respondents from Riverbend agreed or strongly agreed that implementing proficiency-based learning is difficult. Whereas 60% of respondents from

Flatland agreed or strongly agreed that proficiency-based learning is difficult to implement, 23.8% remained neutral. Overwhelmingly, participants indicated that to understand and put into practice proficiency-based learning takes an enormous amount of time. An English teacher from Riverbend described the shift as, "It's challenging, important, frustrating, and transformative." This same teacher also said, "It takes much more prep and consistency than doing what I've always done - those are great things but they are CHANGE and change is hard. Worthy but hard." Part of the reason why teachers found implementation to be difficult was the amount of work to create new documents or at least revamp past artifacts. A social studies teacher from Flatland asserted, "This is a paradigm shift for most teachers who have been in the system 10 years or more. It requires a huge change in mindset that is difficult for some to make." A driver education teacher from Riverbend High School emphasized the difficulty of the shift stating, "It is a hard transition away from traditional graded system. It is harder for teachers to integrate themselves into a new mindset." Some teachers even indicated that the shift to proficiency-based learning was harder than their first year of teaching. Overwhelmingly, teachers found the shift toward proficiency to be difficult, especially for teachers who had well embedded systems and practices that seemed to be working for them. The challenging nature of the shift meant that teachers required significant resources to support their efforts to change, which will be discussed in a later section.

Though some aspects of proficiency-based learning were familiar to teachers, a majority at both sites agreed that overall, proficiency-based learning was a shift from their past practice. At Riverbend, 57.1% agreed or strongly agreed that proficiency-based

learning was very different than past practice. At Flatland, 66.6% of teachers in the survey agreed or strongly agreed that PBL was different from how they approached grading and assessment in the past. These percentages could be influenced by teacher bias, meaning that if they are making serious efforts to change, then proficiency-based learning will seem to be different than their past practice. However, if more assimilation is occurring rather than accommodation, then the changes may not seem as drastic. For instance, an ELL teacher from Riverbend explained that "For some folks it's a tweak, for others it's a whole new thing". An English teacher from Riverbend High School with 25 years of education experience summed up the change well, stating, "I have seen a lot of things come and go. And this shift that we've made in the past year has been the single greatest change to education that I've ever experienced as a teacher." Again, depending on the teacher and the nature of their engagement with proficiency-based learning, the shift could be seen as a major overhaul or a minor amendment. Though a majority of teachers were actively engaged with changing their practices, the extent of the actual change is not entirely known.

Proficiency-based learning was not seen as a monolithic reform, but a multifaceted package of elements. Teachers were selective with the particular components that they attempted to make sense of and put into practice, exercising bridging and buffering strategies. Learning targets, proficiency grading scales, formative assessments, and differentiated instructional practices were just a few elements of proficiency-based learning teachers engaged with. For most teachers at both sites, these practices were not entirely new, since both districts had been doing some work in the

realm of proficiency for several years. However, some teachers were just starting to toy with the changes, even though other teachers in their districts had been doing so for the last few years. A central component of proficiency in both districts was the need to revise or create new assessments that aligned with the common proficiencies. Teachers also had to adjust their grading practices, because the online gradebook programs required scores to be entered in alignment with proficiencies. For instance, teachers could no longer enter in scores according to task and assign various categories weights (i.e., homework equals 15% of the overall grade); scores had to be associated with specific proficiencies. Though common proficiencies existed, teachers had to unpack these, creating student-friendly learning targets, which require a significant upfront investment of time to craft.

In sum, a majority of teachers at both sites were willing to push forward with implementation, despite the inherent challenges because they saw value in the shift. Overall, teachers were supportive of proficiency-based learning; there was minimal outright opposition to the reform. However, there were pieces of proficiency-based learning that teachers were more supportive of than others. As will be described in the next section, a primary reason for teachers supporting proficiency-based learning was that they recognized the potential benefits while simultaneously acknowledging flaws with past practice. The Flatland High School assistant principal said "I think it's really exciting work and I think it's really challenging work and the more comfortable educators can become in that disequilibrium of the shift, the better it is going to be for student learning." A core aspect of the shift toward proficiency hinges on teachers

recognizing the need to make the shift in the first place.

Past Practice As Malpractice

As a component of the transition away from traditional grading and assessment practices, many teachers reflected on their past and recognized that there were serious issues with some aspects of pedagogy. Teachers at both sites identified flaws in their past practice. A sense of dissatisfaction with how they used to do things was a common sentiment.

Several teachers in this study indicated dissatisfaction with many facets of their pedagogy. A math teacher from Flatland High School with 27 years of education experience remarked, "I'm actually a little embarrassed by some of the things I used to think were learning and teaching". A social studies teacher from Riverbend indicated, **"**I had become disillusioned with much of the earlier practices, just feeling as though kids were run through some sort of mill and trying to memorize." This same teacher also described the previous system as "unfair and unpredictable". An English teacher at Riverbend explained it like this:

> I mean, the idea that we're going to just give kids credit for seat time and progress them along based on time that they've spent is a model of incredibly passive transmission of information and knowledge, and obviously, incredibly outdated.

More than seeing proficiency-based learning as a better model of education, many teachers recognized that aspects of past practice were actually damaging to students. An English teacher from Flatland High School said, "I discovered that many of my practices were about compliance, so I had to be really honest about why I was asking students to

do things". Reflecting on what they had been doing for years or even decades illuminated that some classroom practices were not necessarily as effective as previously thought.

This recognition of "past practice as malpractice" seemed to emerge from personal reflection and engagement with new instructional practices. A math teacher of 15 years from Flatland High School said that, "I think the trickiest part with proficiency-based learning is that we have to evaluate our teaching methods, which is hard and time consuming, but I believe is essential to understanding and implementing PBL". Similarly, a social studies teacher from Riverbend said, "It takes time to plan, implement, and reflect on the process. Reflection is especially important and that is the most challenging." The assistant principal from Flatland High School also experienced a realization that what they had been doing was imperfect, remarking:

> As someone who went through that myself after almost 20 years in the classroom, I thought I had done a pretty good job. Then a lot of my practices I recognized were not best practice for learning and making that shift is hard work and it can be frustrating and it is certainly humbling.

Blind to issues within "traditional" classroom practices, many teachers only became aware of problems once they began implementing proficiency-based learning and reflected on their past beliefs and practices. Upon reflection, many teachers began shifting their mindsets around specific issues, such as grading practices. As discussed in an earlier section, this "disequilibrium" was turning point for many teachers as they transitioned away from some historically embedded practices. In light of information

that countered past practices, teachers then entered a phase of dissatisfaction, which then proceeded to attempts at changing actual practices to remedy the "malpractice" issues.

Grading emerged as a particular area of discontent. Teachers found many grading practices arbitrary, subjective, and to a certain degree, shameful. A science teacher from Riverbend High School lamented on past grading practices, saying, "It's embarrassing as a profession, it's embarrassing." For example, a social studies teacher from Riverbend remarked, "It was always a search for what was wrong in the students' work. It was always trying to justify an 89. Why isn't' that a 93?" They went on to say that "There was a lot of fudging and freedom going on before. Anybody could make someone pass just by fooling around with the number. You just go in there and massage the numbers". This same teacher called this manipulation of the gradebook the "dirty secret" of teaching. A science teacher from Flatland High School illuminated the false specificity inherent with a percentage-based grading scale saying, "I can't tell you that this kid is a 98." They went on to say that the point-based system was "Way too subjective" and "That game. It was just ridiculous." Remarking that changing student grades was common practice, this same teacher argues:

> And that's no different than what teachers have always done because we've always manipulated the gradebook, right? If a kid was on the border of an A+ or an A, and you felt like they were an A, you change those numbers or you go the other direction. There's always been a manipulation of data.

An instructional coach at Flatland mirrored this admission about gradebook engineering, stating "And I would decide, I think the student should get a B minus instead of a C

plus. And then I would manipulate my gradebook to match it." Historically, gradebooks were completely private documents, with little oversight or guidance dictating grade entries, thus being a realm of significant teacher discretion. Proficiency-based learning illuminated the problems inherent with some of the grading practices teachers had taken for granted, which facilitated many teachers with jettisoning the deficient practices.

Not all teachers saw their past practices as flawed, but as reported earlier, even if a certain level of cognitive dissonance was absent, most teachers still saw proficiency-based learning as a beneficial reform. This harkens back to the prior section, where some teachers saw a large divide between their past practice and proficiency, while others only saw a small crevice. Some teachers didn't see any issue with what they had historically done. Those that did see flaws with past practice tended to also engage in more accommodation than assimilation in their classroom practices. The level of implementation certainly varied from teacher to teacher. Some were doing complete overhauls, while others were merely tweaking their practices. As discussed, some teachers had already put in work reforming their classroom practices, so they only had to make small changes. However, others were not as engaged in transforming their teaching, thus only making superficial revisions.

Admitting that something you have done for years, if not decades is incredibly difficult to do and requires a sense of loss. Many teachers in this study had well-developed systems and structures that worked for them in their particular classrooms. For many, implementing proficiency-based learning was different to varying degrees from what they had been doing. When teachers saw how certain practices were flawed or

otherwise did not support students in beneficial ways, teachers were generally willing to engage in change efforts. These efforts ranged from assessing habits of work, such as participation, separately from academic achievement or to providing multiple opportunities for students to demonstrate proficiency. Teachers that recognized past practices as "malpractice" were to some degree demonstrating a "growth mindset" and willingness to improve their practice (Dweck, 2007). Most teachers wanted to provide the best education for their students, so when it became apparent that what they had been doing was potentially faulty, thus many teachers were compelled to shift their practices.

Letting Go of Content

Potentially the greatest challenge for teachers was the shift to incorporate transferable skills alongside content within the classroom curriculum. Historically, many teachers had taught and sometimes assessed skills such as collaboration and communication, but with proficiency-based learning, those skills are a required component. There were two parallel concerns surrounding transferable skills 1) These skills were an addition to the already full curriculum, thus making the shift more daunting and 2) The inclusion of skills seemed to eclipse content, which many teachers found to be alarming, since content tended to be a defining feature of their classrooms. Overwhelmingly, teachers in this study emphasized the importance of content knowledge over skills. In short, teachers saw themselves as content experts.

High school teachers are content experts, often entering the profession for their love of a particular subject area. Though teachers in this study indicated that many had historically incorporated the instruction of skills in their classrooms, such as

collaboration, it usually was just an add on to the main focus of the content (math, science, history, etc.). Generally, most teachers had a singular focus on teaching content, often with little guidance on what specifically to teach. Though there was a recognition that transferable skills are indeed important, that was often subsumed by the concern that content seemed to be downgraded in importance in a proficiency-based system. An English teacher at Riverbend High School explained their concerns, saying:

> And, I think it is dangerous to believe that content is not important, and if we prioritize those transferable skills which are deeply, deeply important and critical, but if we do that without creating the opportunity for students to explore deep content understanding and mastery they aren't - first of all they're not going to be able to transfer those skills and they're not going to be able to use them flexibly.

More than a defense of subject area content, teachers in the study argued that skills are no more important than content. A science teacher at Flatland High School said "And I think there's starting to be a recognition that you can't really demonstrate a skill without the content." This same teacher stated the root of the issue succinctly that, " It's scary I think, for teachers to let go of that content because they feel like they're letting it go." An art teacher at Flatland High School was particularly alarmed at the increased attention on transferable skills, stating this shift "devalues content toward extinction." A math teacher at Flatland indicated the extra effort required of transferable skills, stating "I have had to incorporate time to teach the transferable skills, whereas in the past it was more of an afterthought if it happened directly at all." High school teachers traditionally operated with significant discretion as to what they taught, even in the presence of standards,

which had been around in some form for years. Furthermore, some teachers felt that transferable skills competed for time and attention, meaning that they couldn't cover as much as they wanted to.

Administrators at both schools acknowledged the fact that teachers struggled with including transferable skills alongside their content. The Flatland School District curriculum coordinator indicated that, "They love their content. That's often why they're a teacher and many of them see standards-based practices as a threat to content because they think that it dismisses content as being unimportant." The curriculum coordinator for Riverbend School District echoed this sentiment, stating "And I think that they are very attached to the amount of content rather than going in depth". The Flatland district curriculum coordinator indicated the possible reason for the teacher struggle with transferable skills, stating, "And then content - subjugating content to a transferable skill, super counter-intuitive to teachers. We're used to just teaching our thing and sprinkling some transferable skills on top." They added that, "Thinking about a transferable skill ahead of your content, huge paradigm shift. In other words, the end goal is actually not the periodic table". Many teachers had entrenched conceptions of what they "had" to teach which influenced their responses to the inclusion of transferable skills.

Teachers saw transferable skills as an extra, on top of an already full curriculum. Some teachers viewed their goal as trying to get through as much content as possible, often at a surface level, aiming to cover a certain amount of facts during their course. With the shift to proficiency-based learning, transferable skills were held alongside content proficiencies with regard to degree of importance. This was alarming

to some teachers who historically had only focused on teaching content knowledge. Loss of autonomy and discretion with regard to the "what" of teaching challenged some to rethink their classroom curriculum. What had historically been at the whim of the teacher was now being dictated from above, albeit in a flexible manner, which distressed some teachers.

Bringing Transparency to the Classroom

Shifting to proficiency-based learning meant bringing increased transparency to the classroom. The classroom tends to be a "black box" with minimal incursions from the outside. As mentioned earlier, teachers have historically operated with significant autonomy and discretion within the walls of their classrooms and they value this freedom. With online gradebook portals, common proficiencies, and other trappings of proficiency-based learning, classrooms became a little less private. In general, teachers were not overly upset with the loss of privacy or that their classrooms were more open to the outside world, but it was broadly recognized that the personalized nature of many classroom practices, especially grading, was no longer possible within a proficiency-based system.

At Flatland High School, participants emphasized that an expectation of autonomy and discretion had existed for some time. For instance, a math teacher from Flatland spoke about the flexibility teachers have had with crafting classroom learning targets and instructional strategies, "So our approach is always to put teacher autonomy kind of first. And we have spent many years letting teachers have a lot of autonomy around their targets and their approach." An instructional coach from Flatland remarked

simply that, “We really value our autonomy here.” Teacher autonomy was highly valued and a mainstay at Flatland. This autonomy permeated grading practices in particular.

The curriculum coordinator for Flatland school district indicated that teachers were historically provided significant flexibility in their classrooms, “And with that freedom, we all were allowed to build our own fiefdoms. And within those fiefdoms were, at the heart of it sometimes was how we graded.” Speaking about using a new standards-based online gradebook, an instructional coach from Flatland High School indicated that, “This is the first time our gradebooks have ever been transparent.” They went on to say:

> But that has never been the case before and that’s been great in many ways, but scary for some teachers because our gradebooks have been intensely private for a long time. Nobody saw your gradebook, and then at the end, you punched in a number.

Discussing the issues inherent with this grading autonomy, the Flatland principal spoke about the tension this freedom created:

> So people could just have a lot of autonomy, which was great and you saw some really interesting things as a result of that but it didn’t feel like people were pulling in the same direction and it often -- and there were times when it felt like a competition for resources because you all weren’t pushing in the same direction of either the same standards or the same proficiencies and thus you didn't’ always see a lot of transfer across classrooms.

Online gradebooks provided a higher level of transparency, than was present in the

past. Additionally, the use of online gradebooks also meant teachers had less discretion with how they entered grades.

Historically, teachers were provided a wide berth as to how they conducted their classrooms and their approach to grading. With the advent of proficiency-based learning, some of this autonomy and discretion was reduced. Common proficiencies, grading guidelines, open gradebooks and other forms of standardization took away some level of choice for teachers, while simultaneously reducing classroom privacy. Though not an overwhelming constraint on teachers, this reduction of autonomy and discretion did add to teacher stress from the overarching implementation effort around switching to proficiency-based learning. Classroom-level discretion is viewed by many teachers as an important element of their profession. Any reduction in autonomy can be viewed as an attack by the administration to control their work. As Ingersoll (2003) argues, the classroom is "...a small universe of control." for teachers (p. 171). Thus, anytime constraints are placed on what teachers do in the classroom, there tends to be some pushback or resentment (Labaree, 2010; Ingersoll, 2003).

Building Capacity and Increasing Consistency

Someone To Talk With

A diversity of supports and resources were provided to teachers aimed at assisting with the implementation of proficiency-based learning. Survey responses indicated that teachers felt they were provided sufficient resources. 81% of teachers at Flatland strongly agreed or agreed that they had adequate training and professional development to implement proficiency-based learning well. 71.4% of teachers at Riverbend agreed

with this statement. These supports ranged from the principal and curriculum coordinator as resources, to instructional coaches, college courses, workshops, conferences, fellow colleagues, books, blogs, and school-based teams, among a myriad of other supports. Rising to the top were instructional coaches and the school principal, as the most often referenced sources of advice. Having someone to talk to proved to be a key resource for teachers. Accessibility and credibility were two defining characteristics that teachers looked for when identifying individuals for advice and information about proficiency-based learning.

The utilization of instructional coaches at Flatland High School was a central feature of their capacity-building framework. The curriculum coordinator for the district emphasized the importance of coaches to the implementation of proficiency-based learning, stating, "Without coaches, this doesn't happen." Instructional coaches were important because they held a wealth of knowledge and could answer teacher questions in real time. A music teacher at Flatland emphasized the importance of talking with others as opposed to using a document:

> Face-to-face interactions with experts in this field have been the most helpful. Readings and videos are too open to interpretation, whereas when I'm face to face with someone we can usually tell very quickly when there's a discrepancy.

The role of the coaches at Flatland evolved over time, but currently was set up as a resource for teachers, specifically to field questions, curate resources, and coordinate professional development. More than just being knowledgeable and experienced, the instructional coaches were held in high esteem as education professionals. The principal

of Flatland remarked that the coaches, "They're highly respected amongst the faculty." The coaches also had a close relationship with school and district leaders. One of the instructional coaches emphasized the importance of having a close working relationship with the principal, explaining "We spend a lot of time working with the administration in order to, in some cases, instruct the administration so they know the right questions to ask, they know how to support the faculty." As resident experts in proficiency-based learning, instructional coaches at Flatland were routinely tapped by teachers for guidance regarding proficiency-based learning practices.

Conversely, the principal of Riverbend High School was the go-to resource for most teachers at that school. Survey results had 79% of respondents from Riverbend identifying the school principal as their main source of advice and guidance. An English teacher at Riverbend summarized the importance of the principal saying, "My principal is a PBL [proficiency-based learning] HERO-GURU-THERAPIST-TEACHER." A social studies teacher at Riverbend mirrored this sentiment, stating that, "He's a gentle soul who knows his stuff. He's wicked smart and thoughtful about it and I think he's very thoughtful of everyone's learning curve." A history teacher at Riverbend discussed the his positive view of the principal, stating, "My principal is terrific, but so are colleagues and my curriculum director." The drivers education teacher furthered this, stating, "Our principal, has a plethora of knowledge and patience." At Riverbend High School, instructional coaches did exist, but their role was minor compared to how coaches were used at Flatland. This likely accounts for why coaches were not cited as a major source of advice. Furthermore, the principal at Riverbend was respected and trusted by staff,

adding to their credibility with teachers.

Teachers saw certain individuals, namely coaches and principals, as experts because of their deep understanding of proficiency-based learning and their trustworthiness. Individuals that could articulate components of the shift and who teachers trusted were the people that teachers went to for guidance. Being a good listener also seemed to play into who teachers were willing to talk with. As indicated, at Flatland this was the coach, while at Riverbend it was the school principal. As teachers moved forward with implementation, they would routinely reach out to their resident proficiency experts for advice and guidance. The Flatland instructional coaches and the principal of Riverbend possessed expertise in proficiency-based learning practices, which marked them as the go-to individuals for teachers as they attempted to make sense of the transition away from past practices.

Opportunities for Professional Learning

Though certain aspects of proficiency-based learning were seemingly familiar to many teachers, implementation still required extensive capacity-building efforts. Various professional learning opportunities such as conferences, workshops, and college courses were offered to further build teacher knowledge of proficiency-based learning practices. Furthermore, the geography of schools were taken into consideration to strategically place teachers so that collaborative opportunities were increased in addition to more traditional structures, such as professional learning communities (PLCs). Broad "packages" of resources and supports were provided to teachers to support their collective sensemaking of proficiency-based learning implementation.

Time to collaborate is something that teachers overwhelmingly indicated was needed to make the shift to proficiency a reality. This time was provided in a number of ways from shared offices, grade level teams, common planning blocks, and professional learning communities. The assistant principal at Flatland High School discussed the intentionality of giving teachers time to work through proficiency-based learning, stating "There's been time allotted for teachers to philosophically understand the difference between a more traditional approach to learning and a standards-based approach to learning." A social studies teacher at Flatland supported this, saying, "So, there's a lot of time for interactions, and conversation, and collaboration, a lot of time for that." Professional learning communities (PLCs) were a staple at both Flatland and Riverbend. PLCs provided teachers time to interact with colleagues to share work and discuss dilemmas of practice. At Flatland, ninth grade teachers operated on a team, where they had opportunities to plan lessons and discuss learning targets collaboratively. Also, at Flatland, teachers of the same subject shared offices, providing yet another avenue to have impromptu conversations about teaching. Time to work, particularly in a collaborative fashion, was central resource provided to teachers in assisting with the implementation of proficiency-based learning.

At Riverbend High School, a culture of risk taking was well established and welcomed by teachers. An English teacher discussed the importance of having the principal allow teachers to try things out without feeling like they were being watched:

> He's letting us take risks and fail, and try again better - rather than punish us, or 'hold us accountable' for mistakes. He's helping us feel responsible for making

> big positive changes, rather than making us feel caught when we don't do it right the first time.

An instructional coach at Flatland also emphasized the importance of having the freedom to try things out, stating "And that's been important up to this point because there's so much risk-taking involved in making these huge shifts that tying in evaluation would not have probably politically been a good move." Having the space to put new practices into action without the threat of accountability was mentioned by several teachers as being important to supporting their efforts to implement proficiency. Generally, teachers were not held accountable through supervision and evaluation structures with regard to the implementation of proficiency-based learning. Instead, administrators focused on providing support and feedback for improvement, without fear of being formally evaluated. Teachers in this study appreciated feeling more relaxed with implementation efforts and not being constantly critiqued.

In addition to instructional coaches and building principals, numerous other resources were referenced as being useful sources of information. Colleagues, books, conferences, workshops, and district created documents were all mentioned by teachers at both sites. At Flatland, the district curriculum coordinator emphasized "professional learning trips" as a hallmark of their implementation efforts, saying:

> Probably, if you really dug into the root of this, I think the biggest shift is the result of sending people to some of these conferences, one group at a time, and being really intentional about who you send and what you expect of them when they return.

At Riverbend, a physical education teacher discussed the past few years' efforts to support teachers, explaining, "The district has offered many courses over the last two years as well as support when needed." Monthly all faculty workshop sessions focused on the Understanding by Design framework was referenced by numerous teachers at Riverbend as helpful to make classroom level shifts in pedagogy.

There was no shortage of capacity building resources provided to teachers. In general though, human resources were the preferred source of advice and guidance, as opposed to books, online resources, or other reference type materials, including district-drafted documents. Though some teachers did mention certain books or websites as useful sources of information, usually it was in-house individuals where teachers turned for advice. Some district created documents were mentioned as well, namely unit design tools.

From the questionnaire responses and interview transcripts, teachers generally felt supported by administrators and that the resources provided were aligned with their needs. 81% of respondents from Flatland strongly agreed or agreed that they had adequate training and professional development, while 71.4% of respondents from Riverbend agreed that they had adequate support.

Unit Design Tools

Consistently mentioned by teachers and administrators alike, curriculum frameworks, specifically the Understanding by Design (UbD) and Know, Understand, Do (KUD) tools, were cited as key resources to supporting the implementation of proficiency-based learning. A social studies teacher at Riverbend High School described

the UbD framework, explaining "Its called Understanding by Design, and it's the whole idea of backwards design starting with the outcome first, and then building towards that the whole time." The logic of "backwards design" unit planning was a central feature at both sites. Both the philosophical underpinnings of these curriculum design approaches and the templates associated with each approach were critical to assisting teacher sensemaking.

The importance of the unit design tools cannot be understated. Both teachers and administrators alike consistently emphasized the centrality of the UbD and KUD unit frameworks. Most teachers and administrators were already familiar with these curriculum tools and many had previously used them in their classrooms. The "backwards design" curriculum planning method was well embedded and teachers were comfortable with this process. Ease of use, familiarity, and compatibility with current practice all emerged as reasons for the wide acceptance of these frameworks.

An instructional coach at Flatland High School said that the use of KUDs in the shift to proficiency-based learning was a major resource for teachers, stating, "That's been huge." The curriculum coordinator for the Riverbend School District mirrored this importance, saying "So that UbD template as a resource, very helpful." A science teacher at Riverbend indicated, "One of the biggest pieces is the UbD stuff, which is an absolutely essential." They went on to say that "The UbD piece is absolutely key." An English teacher at Flatland, when asked what the most important resource was for them in their transition to proficiency-based learning, stated without hesitation, "Backwards design.", which is just another way of referencing UbD. At Riverbend High School, an

English teacher and instructional coach remarked that amid the various resources provided, “The UbD template has been huge too.” In sum, the Understanding by Design and the similar, Know, Understand Do unit design templates were a central resource for teachers in supporting the implementation of proficiency-based learning at the classroom level. These tools were directly applicable by teachers and helped to inform classroom practice.

Not only were the UbD and KUD frameworks well accepted because of the recognition factor but also for their ease of applicability. The curriculum coordinator for Riverbend School District put it simply, saying “I could not find a framework better than UbD.” He went on to say that despite the variety of options in unit design frameworks, the UbD model was the best, stating, “And I think that we haven’t found anything as cogent and comprehensive as a framework with other authors.” The UbD and KUD design templates were not entirely new for many teachers. Most teachers had either used the frameworks directly or at a minimum, were familiar with the logic of the “backwards design” unit planning process. The principal at Riverbend High School indicated that the UbD framework was familiar to many and that “Many of the teachers have used it before.” Teachers saw the UbD and KUD frameworks as a bridge, linking their past work with that of proficiency-based learning. An English teacher at Flatland indicated that shifting to proficiency required the development of a variety of materials, but that they were able to use items aligned with the UbD framework, “The only two pieces that I was able to pull that relate to PBL are understanding by design kind of curriculum structure and some assessment pieces.” The River Bend principal mentioned that the

UbD framework didn't require a formal introduction because "Almost all teachers have had some exposure with Wiggins and McTighe. So you can get that back out for people and see it with fresh eyes." A science teacher and instructional coach at River Bend further emphasized the familiarity with UbD, indicating that "An interesting thing is that if you share that with teachers, because people have read it for so long, regardless of what their practice is, they usually are like 'Oh, this book again? I know this. I've done this'." A science teacher at River Bend indicated that a beneficial component of using the UbD framework with the proficiency work was that "I was able to draw from old material." An English teacher at River Bend mentioned "And so my experience in the past has been really rooted and tied to understanding by design." A science teacher at River Bend High School indicated that proficiency-based learning and the backwards design style of unit planning went hand in hand, stating, "Although I've used UbD in the past, PBL requires it and I now practice it to a much fuller extent." Though UbD and KUD frameworks were familiar, they were seen and used differently in the context of proficiency-based learning.

Though the concept of backwards design was viewed through a new lens, many teachers were seeing something new as familiar, which has potential to limit implementation fidelity. Administrators at both districts leveraged the use of backwards design unit planning, but intentionally framed their use in light of proficiency-based learning. Given the vast familiarity of the backwards design philosophy, teachers were more apt to embrace the concept even though they were doing so in a different manner than before. This certainly helped to create a bridge between past practices and proficiency, but with the potential of losing some of the more substantive components of

proficiency-based learning along the way. In general, administrators used the logic of "you are already doing this" to assist with transformation efforts.

"Creative Constraints"

Administrators at both districts balanced providing teachers with flexibility to leverage their professional judgment while simultaneously putting up "guardrails" to ensure a certain level of consistency and coherence. These constraints did create some tension with teachers as it intruded on their autonomy and discretion, but generally was executed with sensitivity to the historical existence of teacher independence. Constraints included: marking period timelines, electronic gradebooks, common proficiencies, and grading agreements, to name few. Essentially, these constraints limited teacher discretion and standardized many classroom processes. Balancing teacher autonomy and specific expectations, administrators attempted to minimize variance in implementation while not quelling teacher creativity.

At Riverbend High School, the central instrument for increasing consistency between teachers was the use of a unit planner tool, which aligned with the school wide ten marking period assessment cycle. The district curriculum coordinator discussed the elementary nature of the system, "It's ten empty boxes". He also emphasized, "We're not saying what to put in the boxes." The Riverbend principal mirrored this statement, "You need to fill out these 10 boxes. You're not telling them what to fill in the 10 boxes." The principal also said that this system, "It's super simple". Though there was significant freedom inherent with this system, there was still a level of rigidity and according to the district curriculum coordinator; it did require teachers to rethink some of their practices.

Despite the formulaic nature of the marking period schedule, teachers were still able to flex their pedagogical muscles. Essentially, all teachers were required to select two content specific proficiencies and one transferable skill proficiency to summatively assess each marking period. The intent was to make sure that all proficiencies were assessed at some point and that there was a predictable cycle of assessments and student feedback. Generally, teachers didn't feel that their freedom was overly constrained through this process. A social studies teacher at Riverbend said, "I don't feel like our creativity is impacted at all." This same teacher supported the move to restrict certain practices, stating that historically there "...was too much autonomy in the building." The principal of Riverbend explained that despite some of the restrictions placed on teachers, they were not dictating everything, "But for the most part, we're not telling people what they should be teaching or what indicators they should pick or the sequence or anything like that. An that of course feels freeing for people." Teachers not only indicated that they the constraints weren't too constricting, but some also supported the need for increased consistency.

Similar to Riverbend, Flatland also imposed certain constraints on teachers to ensure consistency of practice. Administrators at Flatland referred to their restrictions as "guardrails." Similar to Riverbend, Flatland had a set of proficiencies that all teachers needed to use. However, teachers still had flexibility to create learning targets within their classrooms, based on these proficiencies. The district curriculum coordinator emphasized that they weren't aiming for uniformity, but rather less variability, emphasizing "But, there's some level of consistency. Not complete, like everyone's

doing the exact same thing, but trying to find that middle ground where everyone's not just doing whatever they want either." Additionally, Flatland has a set of four grading "agreements" that all teachers at the high school were expected to follow. These agreements included: 1) Common conversion, 2) Four-point scoring, 3) Reassessment plan; and 4) Dual reporting. These agreements or guidelines, though broad, provided a certain level of commonality across classrooms. Teachers at Flatland didn't mention much concern over these guidelines. Given that these agreements allowed a certain level of teacher autonomy, classroom practices were not overly restricted.

In addition to grading agreements and marking period calendars, the online grade book was another instrument to control what teachers could and could not do. Both high schools in this study utilized online gradebooks, though both programs were different. School and district leaders leveraged the gradebooks to help increase consistency in grading and reporting practices. Administrators made decisions about how certain items would count in the gradebook, such as with formatives and summatives. The principal at Riverbend indicated that they didn't provide teachers with much choice in how to use the system and that, "We turned off a lot of the features." An instructional coach at Flatland emphasized the restrictions the gradebook provided stating, "And it forces you to think about things and it doesn't let you do certain things that in the past you've done, so it forces you to think about it." Current gradebooks, especially those that are based on standards-based practices, require teachers to change their grading practices to match the gradebook. The district curriculum coordinator for Flatland said, "...if you pick the right platform it can force pedagogical changes." Despite the constraints, the assistant

principal at Flatland discussed that teachers could still find ways to keep doing what they had always been doing, stating, "So you can work within a new system and really hold on to a lot of the practices that don't support standards-based learning." Though restricted in certain ways, the constraint of the gradebook didn't necessarily force all teachers to make substantive changes to their classroom practices. Though grades had to be entered in specific ways, teachers still had significant discretion with how those grades were calculated or determined. The ways in which assessments and assignments were scored was still within the control of teachers and thus varied between classrooms. Despite the benefits of online gradebooks, they cannot fully control what teachers do in their classrooms.

School & District Resources

Both districts created libraries of documents focused on the implementation of proficiency-based learning. Administrators, usually the district curriculum coordinators, created most of these documents but in some instances the high school principal or instructional coaches crafted them. This was particularly true at Flatland, where the instructional coach team developed a number of resources for teacher, student, and parent consumption. A central feature of the data collection process in this study was the curating of documents. Some documents were pulled directly from district websites, while administrators provided others during interviews. The documents varied in their targeted audience and usage.

Most documents were focused on teacher use, with a few targeted at parents. Each site had school profiles, which included basic information on their grading

systems. Graduation standards or requirements were also available for each site, though the specifics of these requirements differed. Riverbend had an extensive handbook, offering details of many facets of the proficiency-based learning system, from grade translations to reassessment procedures. Unit planning documents were present at both sites, though the terminology and specific structure were not the same. Flatland provided several implementation-focused visual diagrams, some showing the curriculum hierarchy and conceptual framing of the proficiency-based instructional process. Flatland also had teacher proficiency scales, focused on what the implementation of proficiency-based learning should "look like". Additionally Flatland had a frequently asked questions (FAQ) document and a set of grading agreements for teachers. Furthermore, documents at both sites emphasized the transferable skill aspects of the graduation requirements, though they were framed in different ways.

Specific questions in the online survey asked teachers what resources they found to be most useful and the district provided documents were rarely, if ever mentioned. During the one-on-one interviews with teachers, questions around resources were also asked, with some probes around documents, but again, district generated documents were not often referenced. As discussed in earlier sections, coaches and colleagues emerged as the go to source of information for most teachers. A number of teachers also referenced their school based principal and various professional development activities as being useful sources of guidance and advice, but not documents.

The Riverbend high school principal discussed the creation of a 25-page

handbook for teachers that, in their words were "kind of the rules of engagement around PBL". The handbook discussed issues such as the 100-point scale, use of zeros in grading, grade calculations, reassessment procedures, and number of other minutiae details surrounding proficiency-based learning. The district curriculum coordinator for Flatland discussed three specific documents that they had crafted. One was a visual of the curriculum hierarchy, one was focused on common practices and the use of proficiency scales, while the third was a conceptual framework of the proficiency-based learning instructional process. During interviews with teachers at Flatland, these documents were not referenced, nor were they observed in the classrooms or elsewhere.

Teachers at both sites did reference unit planning documents, but this was generally more focused on the logic of "backwards design" unit planning. School and district administrators on the other hand did reference various documents, especially when they were the ones that had a hand in their creation. Generally, the purpose of these documents drafted by administrators was to help articulate different aspects of proficiency-based learning implementation. The visuals allowed for explanation of a variety of processes and structures, while other documents elaborated on best practices.

As discussed in a previous section, teachers leveraged numerous sources for information, advice, and guidance. The two most commonly cited sources of information were instructional coaches at Flatland and the high school principal at Riverbend. Colleagues were another oft-cited source of guidance. Generally, it seems that teachers talked with other teachers when they had questions about proficiency-based learning. This came out specifically when talking with a teacher at Flatland, who

emphasized being on a grade level team and sharing an office with that team influenced whom they tended to talk with. In sum, teachers did not go to documents for guidance, but instead to people they saw as experts with regard to proficiency practices. However, these documents do have potential value to those who created them.

Significant amounts of time went into the creation of these documents, which administrators mentioned directly. Despite the apparent lack of value to teachers, these documents or "artifacts of implementation" appeared to be of value to those who created them. The crafting of proficiency-based learning handbooks, visuals of the implementation process, and other sorts of documents, emerged as a key sensemaking practice for school and district leaders. The process of making these documents were one of the ways that principals and curriculum directors made sense of the state policy and the shift to proficiency. The reification of proficiency-based learning So, though teachers may not have found the documents directly applicable, administrators were better able to articulate the shift and gained further understanding of what proficiency-based learning meant for their particular context from having created the documents.

An Evolution Rather Than a Revolution

At both sites, proficiency-based learning wasn't something that just dropped out of the sky. Even prior to the adoption of Act 77 and the Educational Quality Standards, teachers had been incorporating standards-based grading practices for years. Thus, when proficiency-based learning implementation became "official", it wasn't wholeheartedly new for many teachers at these schools. Teachers and administrators in both districts talked about a history of education reform and initiatives aligned with the current shift

towards proficiency-based learning. For both sites, the past work was melded to fit with the state framing of proficiency. For these two sites specifically, the shift to proficiency was a natural fit because past administrators had already begun some of the foundational work. Survey results and interview discussions revealed that teachers saw proficiency-based learning as a natural progression of the work they had already been engaged in. Though the terminology was a little different, there were distinct similarities with the implementation process. A social studies teacher at Flatland referred to the transition by stating, "So it's been an evolution rather than a revolution." A social studies teacher at Riverbend talked about how initial work around standards helped with the transition to proficiency, saying "And so the PBL stuff was a natural fit."

At Flatland High School, standards-based work could be traced back as far as 1994 when they started crafting standards-aligned graduation requirements. At Flatland, there was significant variability in how long teachers thought proficiency focused work had been occurring. Lengths ranged from five years to over 20 years ago, with the average ranging between 5-10 years ago. Again, it was indicated that the work started with a previous administrator. This work was really just focused on curriculum and not on changing classroom practices.

Similarly, proficiency-based learning focused work was not seen as completely new for teachers and administrators at Riverbend High School. From interview and survey results, data indicate that on average, participants indicated that work had begun about five years ago with a previous administrator, beginning with the creation of their own framework of student outcomes, labeled "Learning Expectations". Just like the

teacher responses at Flatland, there was wide variation in understanding of when the work actually started. A social studies teacher at Riverbend stated, "Quite a bit of work has been done over the past few years to gear us up for this change." An English teacher indicated, "I would say we've been working toward making this shift since the early 2000's." Across the board, teachers found that many facets of proficiency-based learning familiar to prior practice.

Though there were many new components that teachers and administrators mentioned with the adoption of proficiency-based learning practices, some of this work was built on prior reform efforts. The assistant principal at Flatland High School discussed that the school had been moving towards proficiency-based learning for nearly two decades, "Our educational leaders from 18 years ago, when I started, have continuously moved the school in a direction of standards-based instruction without necessarily calling it that." The principal at Flatland also mentioned that though they didn't necessarily call their work "proficiency", they had been doing the work for a while, stating "We didn't have the fancy words for what we were attempting to do."

Administrators were generally considered the catalyst for much of the work around standards and proficiency; it was not always a mandated effort. Many teachers referred to the shift as a "grassroots movement", with an emphasis on a culture of volunteerism and pilot programs. An instructional coach at Flatland indicated that, "I think it, fortunately, began organically." At Flatland, much of the initial work around proficiency-based learning started in the ninth grade teams.

Once Act 77 was passed along with the Educational Quality Standards,

implementation efforts at both sites remained gradual. This intentionality of going slow was well received by teachers. At Flatland, they even had a term for this strategy, calling this continuum approach "respectful onramps". Despite the flexibility this approach provided to teachers, there were some drawbacks as well. The Flatland assistant principal remarked that, "So the kind of when-you-are-ready approach or when-you-are-philosophically-onboard approach gives people space but it can also create pockets within institutions as large as Flatland certainly." A social studies teacher at Flatland emphasized they appreciated the ability to go at their own pace, especially when they were a new teacher, "So the first year that I started working with this and just doing it incrementally and that was a big piece that I wasn't forced to do it all at once." Teachers talked about how they were not forced to implement proficiency all at once, but were allowed to go at their own pace.

The implementation of proficiency-based learning seems to be an extension of the decades long standards-based movement. Standards, or in this case, proficiencies, formed the backdrop for the much of this reform. Teachers made connections to their previous work with standards, which seemed to facilitate a smoother transition to a proficiency-based system of education at both sites. Though proficiency-based learning is touted as a major reform to current practices, implementation played out more subtly. Connections to past practices were made that framed proficiency-based learning as being an new iteration of prior work, rather than something entirely new. This holds both challenges and benefits in that it was deemed less overwhelming for some to wrap their heads around, but simultaneously holding the potential to hide more meaningful implications.

Chapter Summary

In sum, teachers were generally receptive to the shift towards proficiency-based learning, though it was widely deemed challenging. Proficiency-based learning did require a new pedagogical mindset that threatened some long held beliefs, values, and practices, but was palatable enough to most teachers. School and district administrators offered no shortage of capacity building resources to support teachers with making sense of the shift. Balanced with these supports were some constraints meant to create consistency of practice from classroom to classroom. Additionally, the shift to proficiency-based learning seemed to be an extension of past reform efforts. This evolutionary perspective further supported the shift from traditional practices to more proficiency-oriented practices, as teachers were able to ease into the new educational paradigm. The next chapter will discuss these findings and relate them to the current literature, along with offering implications and opportunities for future research.

Chapter 5: DISCUSSION & IMPLICATIONS

As a reform initiative, proficiency-based learning is incredibly complex. The findings in this study indicated teachers generally were agreeable to the overall philosophy of proficiency-based learning and were willing to make substantive efforts to implement the policy as defined by their school and district leaders. Teachers in this study attempted to accommodate components of proficiency, but also assimilated aspects into their current practice. What teachers ultimately adopted or did not was a matter of what was doable. Teachers cherry picked the elements of proficiency-based learning that were the easiest to implement and that required the least amount of loss or new learning. I argue this is not because teachers were resistant, but because the prospect of implementing proficiency-based learning was so daunting that teachers were conducting a sort of "pedagogical triage". To note, this term has been used in the past by Cuban (1993), but in reference to how teachers identify which students to focus attention on in the classroom. My definition of this concept relates to how teachers select specific elements of a complex reform initiative to implement. The cognitive lift required to put complex reforms into practice, such as proficiency-based learning, can seem overwhelming and thus teachers will selectively implement pieces or chunks of the reform when possible. Teachers only have so much mental bandwidth and time, so decisions need to be made as to what they will put into practice. Leveraging their professional discretion, teachers as "street-level bureaucrats" ration their time in the face of competing demands (Weatherly & Lipsky, 1977). Deviating a bit from prior research on sensemaking and policy implementation, the findings from this study show that

teachers didn't necessarily modify or adapt the content of the reform but instead engaged in "selective implementation", choosing some pieces over others.

Discussion

The Classroom as a Bastion to Change

Despite significant efforts by teachers, change appeared to be incremental in nature, despite the substantive change implied with proficiency-based learning philosophy. One facet of the "grammar of schooling" that endures is the siloed nature of teaching, especially at the secondary level (Tyack & Cuban, 1995). This isolation makes changing the "instructional core" an elusive challenge (Supovitz, 2015). Despite decades of reform attempts, the norms of privacy and autonomy remain a central feature of the teaching profession (Mehta, 2013a). Historically, teachers have operated as "street level bureaucrats", "private practitioners", "gate keepers", and "independent contractors", acting as de facto policymakers, deciding what to change and what to keep the same within the walls of their classrooms (Weatherly & Lipsky, 1977; Spillane, 2004; Wiggins & McTighe, 2007; Wagner, 2008; Cuban, 2016). This makes implementing reforms, especially initiatives that aim to impact the core of the classroom, a daunting prospect. Isolated in their classrooms, teachers in this study wielded significant autonomy and discretion, creating a buffer to change.

One of the issues with the acute isolation of teachers is that great teaching becomes merely "random acts of excellence" or "random innovations", with teachers operating their classrooms as fiefdoms, closed off to the outside world (Wagner, 2008; City, et al, 2009). Teachers in this study did not make all the same changes; each teacher

was on her own implementation journey. Given the norm of isolation in schools, teaching practices have remained relatively stable for decades. Many teachers want to be left alone to do as they please and manage their classrooms in ways they see fit. Once the classroom doors close, teachers can decide how to teach (Ingersoll, 2003. Even in the presence of rules and policies, teachers can buffer themselves. Wagner (2008) indicates, "Many teachers go through the motions of complying with school or district mandates, while doing as they please in their classrooms" (pp. 155). Given the culture of autonomy and discretion prevalent in many classrooms, there tends to be a lack of a "coherent culture of instructional practice" (City et al, pp. 31).

Educational researchers have indicated for decades that teaching is by nature a conservative profession; a bastion to change despite reformers best efforts (Cuban 2013; Cuban 2016). Baumgartner and Jones (2009) frame policy change around the concept of punctuated equilibrium, which stresses that the policy landscape tends to be in stasis, with change being incremental in nature, and sometimes disrupted by more seismic shifts. Labaree (2010) furthers this perspective, stating "And a key reason that teachers often resist reform efforts may be that they are trying to preserve a form of teaching and learning that seems to work and to fend off an alternative approach that might not" (pp. 135). The concept of "dynamic conservatism" certainly played out within this study (Cuban, 2013). Letting go of past practices and pulling in new ones is no easy task and often manifests in piecemeal implementation, which will be elaborated upon in the next section. As this study indicated, change tends to occur on the fringes of the instructional core, rarely making a substantive mark.

Selective Implementation

Teachers made laudable efforts to implement proficiency-based learning. However, certain elements of PBL appeared to be more challenging to implement and were more contentious than others. The willingness to implement existed, but ability to put the reform into practice was lacking. As Anderson (2017) remarks, "Even with enthusiastic effort, reforms can be challenging to wrap one's mind around" (p. 1292). Grading practices and transferable skills emerged as the two most problematic aspects of proficiency-based learning. Grading in particular is close to the "instructional core" and has traditionally been an aspect of teaching where teachers have exercised significant discretion. Instead of binary of assimilation vs. accommodation, this study suggests that teachers aimed to accommodate, but selectively. The low hanging fruit of the reform initiative is what teachers were able to adopt in the near term.

Given the daunting nature of implementing proficiency-based learning, teachers in this study made decisions about what aspects of the policy to adopt. Innovations contain elements, with some being "core components" and others as more on the periphery (Century & Cassata, 2016). Though some elements of PBL were grafted onto past practices, teachers made efforts to accommodate rather than merely assimilate. Teachers utilized the district proficiencies, incorporated formative assessments, and allowed students to reassess on summative assessments for instance, but were hesitant about incorporating transferable skills or moving away from traditional grading practices. Proficiency-based learning is so complex that teachers were unable to adopt all aspects of the reform in the near term and instead made decisions regarding what they would be

able to reasonably do now. Utilizing what Linblom (1959) refers to as the "branch method", teachers in this study made "deliberate, systematic, and defensible" exclusions to what aspects of the policy they were able to implement (pp. 86). Deviating from the theory of bounded rationality, teachers in this study were generally operating with sufficient information, but lacked the capacity to implement proficiency-based learning "whole cloth" (Lee & Porter, 1990; Schneider, 2014). The elements of proficiency-based learning that required new knowledge, loss, or were counter to teacher beliefs and values, did not get adopted. The specific issue of grading surfaced as a particularly problematic element.

As has been discussed, classroom-grading practices have a long history of being firmly entrenched (Schimmer, 2016; Brookhart, et al., 2017). Schimmer (2016) affirms this stating, "Traditional grading practices have deep roots, which makes them challenging to transform" (pp. 14). The grading practices that teachers utilize tend to be influenced from what they experienced in school, crafting teacher conceptions of "real school" (Tyack & Cuban, 1995). Despite efforts to implement PBL, teachers in this study struggled with changing their grading practices. Many teachers lack a sufficient level of "assessment literacy" which likely inhibits their ability to make substantive changes in this dimension of pedagogy (Feldman, 2018; O'Connor, 2018). Furthermore, most teacher education programs offer little in the way of grading and assessment training (Smith, Tinkler, DeMink-Carthew, & Tinkler, 2017).

Artifacts of Implementation

Findings from this study also extend the research on sensemaking by illuminating

how practices that support individual understanding of reform initiatives. The findings suggest that though informational materials, such as handbooks, are not a commonly referenced source of guidance for teachers, they are of value to those that generate them. The creation of these "artifacts of implementation" is potentially an important sensemaking practice for school and district leaders. The process of interpreting an education reform, such as proficiency-based learning, and translating it into a visual or written document can be an avenue for administrators to make sense of policy initiatives (Spillane, 2004). Engaging in the reification of a policy message may help those tasked with leading implementation efforts to better understand the true intent of the reform (Spillane Reiser, & Gomez, 2006). To craft a document for consumption by stakeholders, such as teachers, the individual must make sense of what a particular policy means and put it into actionable language that is sensitive to their particular context. Through the act of creating these artifacts, the school or district leader may gain a deeper understanding of the policy in question. Furthermore, though this research indicated that the intended audiences, namely teachers, do not explicitly use these documents, they do create a common base of information for the school or district. From frequently asked question guides to instructional sequence visuals, these "artifacts of implementation" are an important sensemaking practice for those who create them if not always for those they are made for.

Though teachers did not reference the school and district crafted documents, teachers themselves were engaged in creating their own "artifacts of implementation". Specifically, teachers utilized the UbD and KUD templates to map out their curriculum

and instructional sequences. Both of these documents were provided by the district and were intentionally designed to "force" teachers to organize their instruction in common ways. Furthermore, teachers were constrained to only use a certain number of performance indicators or educational learning outcomes when drafting their plans with the templates. In short, both administrators and teachers engaged in the sensemaking practice of crafting "artifacts" to support the implementation of proficiency-based learning.

Bounding Autonomy through Educational Infrastructure

Intentionally designed educational infrastructure, orchestrated by school and district leaders helped to facilitate teacher sensemaking of proficiency-based learning, both individually and collaboratively. The literature on educational infrastructure is ever increasing and though there is no definitive set of components, three elements seem to be generally common: advice & guidance, tools, and routines. These three ingredients emerged as essential capacity-building instruments for school and district leaders assisting in the implementation process. The balance of advice, tools, and routines offered both supports and constraints for teachers.

Several sources of advice and guidance were identified and included: instructional coaches, principals, colleagues, conferences, workshops, books, and district created documents. Instructional coaches were a commonly referenced source of guidance in this study. Colleagues were mentioned as sources of advice as well at both sites. Where teachers get advice and guidance from and the quality of that advice matters a great deal. Spillane , Hopkins, & Sweet (2017) emphasizes the critical importance of advice as a key

component in instructional improvement efforts, especially as it relates to developing new knowledge about a particular reform. Though administrators can influence advice networks to a certain degree, this realm of educational infrastructure is more in the realm of teacher agency.

Several routines were leveraged at both sites, namely assessment cycles alongside gradebook programs. Organizational routines are a key coupling mechanism, which this study further emphasized (Spillane, Parise, & Sherer, 2011). At River Bend, using marking period cycle, all teachers had to enter grades at certain times, creating consistency in the grain size of assessments between classrooms. Within these assessments needed to be a certain number of performance indicators, which meant all teachers had to fit their curricular units within a specified time frame.

District and school leaders in this study generally took an improvement stance vs. a management stance with regard to their design of educational infrastructure (Cobb, Jackson, Henrick, Smith &the Mist Teamet al, 2018). Emphasizing capacity building efforts as opposed to monitoring, administrators aimed to ensure teachers had the resources they needed and the flexibility to experiment in their classroom. Administrators in this study deftly balanced the loose-tight dilemma that education leaders must negotiate (DuFour & Fullan, 2013). Walking a thin line between letting teachers do what they want and mandating certain practices, was artfully employed by administrators. Referred to as "creative constraints" at one site, honoring teacher autonomy and discretion, while also having common expectations was a tricky balance, but teachers appreciated not being blatantly mandated from the top. "Defined

autonomy" or "bounded autonomy" balances a management versus improvement approach to leadership (DuFour & Fullan, 2013; Johnson, Marietta, Higgins, Mapp, & Grossman et al, 2015). Consistency and coherence are both key to effective implementation of most any initiative, including proficiency-based learning, but sensitivity to teacher freedom within the classroom is also important.

Implications

Decouple Grading from Proficiency-Based Learning

As discussed, proficiency-based learning is a broad policy that is by no means monolithic in nature. The changes inherent with putting proficiency-based learning principles into practice is daunting and for some educators can seem overwhelming, if not impossible. Teachers in this study showed that buy-in to adopt proficiency-based learning practices is possible, but with some caveats. Certain elements of proficiency-based learning are easier to adopt and challenge teacher past practices less. Thus, teachers selectively accommodate those pieces that cause the least amount of disruption to their current conception of teaching.

Given the political nature of grading, it is recommended that this particular component of proficiency-based learning be tabled until teachers have had time to put other aspects of PBL into practice. Schimmer (2016) emphasizes that switching to proficiency-based grading requires a different mindset. More than a new program, grading is a cultural shift and thus cannot be merely mandated from above (Colby, 2017). Classroom grading is sometimes referred to as the "third rail" of education reform, underscoring the difficulty of making changes to this area of teaching (Erickson,

2010). Grading reform is notoriously contentious, controversial, and politically charged. (Colby, 2017; Stack & Vander Els, 2018). As Colby (2017) emphasizes, "Of any area of school transformation, grading reform presents itself as the most problematic." (pp. 109). Westerberg (2016) supports this notion, stating, "Classroom assessment and grading practices in the United States are buttressed by fervently held, time-honored practices and beliefs." (pp. 7). This study reinforces this situation. Though proficiency-based learning was generally well-received by teachers in this study, the element of grading emerged as an area of complication.

Grading can and should be decoupled from the broad reform of proficiency-based learning. Grading is only one part of a complex system of teaching and learning. A research study on Maine's implementation of proficiency-based learning policy indicated that teachers and administrators were consumed with creating new grading systems and were distracted from changing classroom teaching practices (Shakman, Foster, Khanani, Marcus, Cox, (2018)). Classroom instruction is not a monolithic practice; it is multi-dimensional, with some elements being more amenable to change than others (Spillane, 2004; Diamond, 2015). Schneider (2014) argues that we cannot expect teachers to abandon all their past practices and adopt new practices whole cloth, stating:

> Thus, if research is going to be put to classroom use it must be easy to add on to existing practice, it must allow teachers to maintain most of their previous work, and it must be adaptable to the other particular contexts of different classrooms (pp. 188).

Proficiency-based and competency-based reforms could be torpedoed by the political

nature of grading practices. If grading practices are tackled, it should be the last thing on the list. This sentiment is mentioned time and again in books on the topic. Given the contentious nature of grading, some practices should remain as a form of a political olive branch during the transformation effort (Stack & Vander Els, 2018). Given that changing grading practices is controversial, this element should not be implemented until teachers have sufficiently made sense of other aspects of proficiency-based learning.

Leverage Instructional Coaches

Despite a broad array of resources and supports that administrators provided to teachers, instructional coaches emerged as an instrument with significant potential to move proficiency-based learning practices forward. Though many schools currently leverage instructional coaches in one way or another, the strategic use of coaches as "professional sensemakers" should be considered a key component of a school's educational infrastructure (Domina, Lewis, Agarwal, & Hanselman, 2015). As the findings in this study suggest, teachers look to the resident experts for instructional guidance. Though this may sometimes be the school principal or other administrator, teachers generally turn to colleagues for advice (Spillane, Hopkins, & Sweet, 2017).

Onsite expertise is an essential capacity building resource for teachers. Findings from this study indicate that having an in-house proficiency-based learning maven that teachers feel comfortable talking with is important. However, expertise in specific educational domains is often in short supply (Cobb, et al, 2018, p. 224). Assessment literacy in particular, is an area of weakness for many teachers. Once in the classroom, teachers continue to receive little training in grading and assessment (O'Connor, 2018;

Guskey, 2015). Schimmer, et al, (2018) notes, "The lack of assessment literacy is crippling well-intentioned teachers and schools in efforts to improve student achievement." (p. 82). Instructional coaches can fill this knowledge gap by providing information to teachers in the realm of grading and assessment.

Prior literature illuminates the important role coaches play in schools to develop teacher understanding of initiatives, to broker messages from administrators, model practices, and generally support instructional improvement (Woulfin & Rigby, 2017; Kraft, Blazar, & Hogan, 2018). Coaches can act as "professional sensemakers", helping to translate reforms into classroom practice (Domina et al, 2015). Coburn and Woulfin (2012) found that coaches play a critical political role, where they can leverage their influence to nudge teachers in the direction of a specific reform. This political aspect certainly played out at both sites, where coaches were generally respected and held positions of social power within their schools. Instructional coaches could help navigate the politically charged waters surrounding the issue of grading.

Engage in the Creation of Guiding Documents

District curriculum coordinators and school principals are critical policy mediators who frame the messaging of policy expectations for teachers (Spillane, 2004). Given this central role, it is important for administrators to have a solid grasp of the policy they are attempting to implement. Findings from this study illuminated the importance of what I refer to as "artifacts of implementation", which are informational documents crafted by district and school leaders. The creation of these documents provides a valuable sensemaking practice that assists with the reification of a reform

initiative (Spillane, Reiser, & Gomez, 2006). These documents serve three broad functions. First, they are an avenue for education leaders to make sense of policy messages. Second, they create a knowledge base for the organization, including common terminology. Third, some of the documents analyzed in this study created standard work routines around teaching practice. Thus, "artifacts of implementation", namely those documents aimed at clarifying aspects of a reform initiative, are of importance for those that create them and as part of the local knowledge base for that particular policy.

Maintain Implementation Pressure

Sustainability of any reform is a perennial challenge for education leaders and policymakers alike (Datnow, 2002; Coburn, 2005). Schools are constantly encountering a barrage of mandates, many of which compete with one another (Honig & Hatch, 2004). Like many reforms before, proficiency-based learning could easily fall to the wayside and be taken over by the next initiative, thus perpetuating a fad mentality with education reform.

Many books on the topic of proficiency-based learning suggest four-year implementation timelines (Heflebower, Hoegh, & Warrick, 2014; Westerberg, 2016). Given the incremental and evolutionary nature of policy implementation, a 6-10 year implementation timeline is recommended. Teachers need substantial time to make sense of the switch to proficiency and to put all the pieces together. As discussed earlier, though teachers may be making moves to put proficiency into practice, certain components will take longer and require more assistance. Both schools in this study were already a year or two into formal implementation efforts, with significant work still

remaining. Furthermore, teachers indicated in the online questionnaire that they had been engaged in standards-based work for some time. Teachers at both sites indicated an average of eight years of prior proficiency related work. Some teachers indicated that their school had been doing the work for nearly twenty years. Despite nearly a decade of work, both schools appeared to be far from changing the "grammar of schooling" (Tyack & Cuban, 1995). Too often it seems that schools jump from initiative to initiative, therefore it seems prudent to stick with efforts to implement proficiency-based learning for an extended time period.

School and district administrators should buffer teachers from competing demands and stay focused on putting proficiency into practice (Rutledge et al, 2009). Though it is likely impossible to ignore all external pressures, education leaders would be wise to resist the temptation to tackle too many reform initiatives at once, lest proficiency-based learning be eclipsed or teachers to become exhausted from initiative fatigue. Riehl and Sipple (1996) further emphasize the importance of minimizing intrusions on teachers' work, which can help build commitment and investment by educators. Sustainability of any reform is challenging, but if deep, lasting change is to occur, leaders must stay the course (Coburn, 2005). Until proficiency-based learning is a central feature of the school culture and structure, there is a risk that it could "expire" (Datnow, 2002).

Recommendations for Future Research

Though there is a growing body of literature focused on proficiency-based learning, there remains a dearth of empirical research on the topic, especially pertaining to implementation considerations (Pollio & Hochbein, 2015; Sturgis, 2015). In the last

few years a number of states have passed legislation that require schools and districts to implement some version of proficiency-based learning, sometimes in the form of proficiency-based graduation requirements, such as in Vermont and Maine. Yet despite the increased traction proficiency and competency-based education initiatives are gaining, school districts don't have much to rely on for guidance. More research on this topic would certainly benefit both policymakers and education leaders. In addition to complimenting some the inherent limitations of this study, there are also numerous avenues to extend on this particular study.

In Vermont and other locations across the country, proficiency-based learning is not just a secondary school phenomenon. Future studies should include middle and elementary schools, both within Vermont and in other states that are actively implementing proficiency-based learning. This could provide insights into full district efforts and the nuances of implementation at various grade levels.

This study also only looked broadly at implementation and did not investigate the differences in experiences by subject area. There are potentially different challenges encountered in mathematics versus English language arts, for instance. A wider range of subjects would also be beneficial, such as art, physical education, and potentially investigating student experiences as well. Given that students are the central "recipients" of proficiency-based learning, their experiences could illuminate challenges and facilitators to implementation as well.

A longitudinal study of a school or district over the course of several years might also provide useful insights. This study investigated two school districts over six month

time span, so a study that looked at teacher experiences over several years would likely be valuable. Furthermore, a larger sample size might improve generalizability.

Yet another potential thread of research involves the financial implications of proficiency-based learning. Implementing proficiency-based learning requires a substantial investment of resources, with time being the largest expense. Time for professional learning communities, team meetings, and other opportunities for teachers to meet is critical to build capacity, but draws attention from other possible initiatives. Specialty online gradebooks, ones that have the capability to handle proficiency-based data, may be necessary and could impose financial constraints as well. Spillane (2004) made it clear that sensemaking of reform initiatives is a resource-intensive endeavor. Within this line of research are issues of equity and adequacy. Districts that have access to more resources will potentially be able to implement proficiency-based learning with a higher degree of fidelity, while those that have fewer resources may not be able to access what is needed.

The academic achievement implications of proficiency-based learning are of great interest. Pollio & Hochbein (2015) focused on the connections between standards-based grading practices and scores on standardized tests, finding that there is a positive connection between the two. Further research is needed on the efficacy of proficiency-based learning and similar practices. Making connections between proficiency-based classroom practices and standardized test scores is important to confirm the effectiveness of proficiency-based learning practices. If there are no benefits to student achievement, then proficiency may need to be reconsidered as a viable reform.

A major concern from many parents is the college admissions implications of proficiency-based learning. Minimal information, mostly anecdotal, is available to indicate how students with proficiency-based grades and transcripts are impacted in the college admissions process. Future research that illuminates any barriers to college acceptance would potentially help quell fears from students and parents and reduce public pressure to roll back proficiency-based policies, such as what occurred in Maine (Barnum, 2018).

Overall, the field is ripe for new studies. Empirical and conceptual contributions on the implementation of proficiency-based learning could help support the sustainability of this reform and to support other states as they develop new policies.

Conclusion

Despite the increasing attention on the philosophy of proficiency-based learning, little formal research exists that provides insights into how teachers implement this complex reform and how administrators respond to support teachers. This study aimed to understand how teachers experience the shift from traditional pedagogy towards a proficiency-based model. Furthermore, this particular study also sought to investigate the sorts of resources and supports school and district leaders provide to help teachers with implementation efforts.

Findings from this research study illuminated the impact of proficiency-based learning on teacher values, beliefs, and practices. Overwhelmingly, teachers in this study had positive views of proficiency-based learning and actively worked to implement it with fidelity, as defined in their districts. Teachers found the transition away from

traditional classroom practices to be challenging work and at times counter to what they had always done, but with the support of district and school leaders, were willing to alter their classroom practices, albeit incrementally.

District and school administrators provided a wide variety of supports and resources aimed at helping with implementation efforts. At both sites, educational infrastructure "packages" were intentionally employed. Providing advice and guidance, professional development opportunities, leveraging familiar curriculum tools and using containing mechanisms, such as online gradebooks, all worked in unison to guide teacher implementation.

As discussed above, the field of proficiency-based learning, also referred to as competency-based education, remains a bountiful source of further research. More and more districts across the nation are implementing different "flavors" of proficiency-based learning practices. Though numerous books exist on the topic, an empirical research base remains sparse. Education leaders, policymakers, and practitioners remain hesitant about moving forward with implementation, especially with recent moves such as that in Maine where state policy was rolled back in the face of choppy implementation efforts. What the future holds for proficiency-based learning is unknown, but this study will hopefully help guide more effective implementation efforts in Vermont and elsewhere. Too often it seems that when the real thorny work of an implementation effort comes into play, people want to quit. If any reform is going to stick, all stakeholders must push through the difficulties and messiness of change or else proficiency-based learning could become yet another failed reform effort.

So is proficiency-based learning actually happening in Vermont high schools? The answer is sort of. Vermont is on the cusp of transforming the schooling experience as we know it, but as research has shown, most change tends to be incremental. Major disruptions in education are rare. Despite the potential of proficiency-based learning to turn schooling on its side, that doesn't seem to be happening. Proficiency-based learning philosophy is a departure from the current "grammar of schooling" however, change at the classroom level seems to be relatively minimal thus far. Despite ample resources and support, teachers are still in the midst of shifting their mindsets toward a new paradigm of teaching. Attempting to overhaul a system that has remained relatively stable for nearly a century is not going to happen overnight. The implementation of proficiency-based learning will take time and a commitment to continuous improvement. The outlook is hopeful.

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Appendix A: Data & Methods Matrix

Research Question	*What Information I Need*	*Who*	*Instrument*
RQ1	What curricular changes are needed	Teachers	Interviews
RQ1	What assessment changes are needed	Teachers	Interviews
RQ1	What grading/reporting changes are needed	Teachers	Interviews
RQ1	How does PBL influence one's philosophy of teaching/learning	Teachers	Interviews
RQ1	What do teachers need to know to effectively implement PBL	Teachers, Admin	Interviews
RQ1	How do teacher attitudes, values, beliefs impede implementation of PBL	Teachers	Interviews, Survey
RQ1	In what ways do teachers assimilate and accommodate classroom practices as they implement PBL.	Teachers	Interviews
RQ1	To what extent do teachers create "hybrid" grading practices	Teachers	Interviews, Documents
RQ1 & RQ2	What supports/resources, including PD, are most beneficial/helpful for teachers with regard to implementing PBL	Teachers, Admin	Interviews, Survey, Documents
RQ1 & RQ2	What constraints/challenges/barriers influence implementation	Teachers, Admin	Interviews
RQ2	What are the different strategies that school leaders employ to implement PBL	Admin	Interviews, Survey, Documents
RQ2	What sorts of implementation plans are used to guide the implementation of PBL	Admin	Interviews, Documents
RQ1 & RQ2	What successes have schools seen with PBL implementation	Teachers, Admin	Interviews
RQ2	What is the response to PBL from: teachers, parents, students	Teachers, Admin	Interviews

RQ2	What are the sources of advice/guidance/information for implementing PBL	Teachers, Admin	Interviews, Documents
RQ2	How are instructional coaches utilized, if at all	Teachers, Admin	Interviews
RQ2	What contextual factors influence the implementation of PBL	Teachers, Admin	Interviews, Documents
RQ3	How are schools implementing PBGRs in relation to PBL	Teachers, Admin	Interviews, Documents
RQ3	How is PBL & PBGRs differentiated by school leaders	Teachers, Admin	Interviews, Documents
RQ3	How do school leaders create coherence between PBL & PBGRs	Teachers, Admin	Interviews, Documents
RQ4	To what extent are there differences between teachers in implementing PBL both within and across schools?	Teachers	Interviews
RQ4	Is there a common conception of PBL within and across schools?	Teachers, Admin	Interviews, Documents

Appendix B: Teacher Questionnaire

1. How long have you been a teacher at this school?
2. What subject/content area do you teach?
3. How many years have you been a teacher? At this school?
4. What grade level(s) do you teach?
5. What is your current perception of proficiency-based learning?
6. To the best of your knowledge, how long has your school been implementing proficiency-based learning practices/proficiency-based graduation requirements?
7. How would you define proficiency-based learning?
8. What resources and support have been most helpful with making sense of PBL and how it applies to classroom practice?
9. How have your beliefs and attitudes about teaching changed at all since implementing PBL?
10. What has been difficult with regard to implementing PBL practices in the classroom?
11. Any other comments you would like to make pertinent to the topic of proficiency-based learning or proficiency-based graduation requirements?

Appendix C: Interview Protocol for District & School Leaders

1. How do you define proficiency-based learning?
    a. Are there other terms that you have heard used?
    b. Does your school have a preferred term for this work?
2. How do you see proficiency-based learning connecting with the VT state initiative around proficiency-based graduation requirements? Is your school/district focusing more on PBL or PBGRs or both?
3. How did the process to shift to proficiency-based learning begin at your school/district? Was there a catalyst?
4. Can you describe your "rollout" of PBL and your implementation plan?
5. What was/is your source of guidance to inform your implementation efforts?
6. Which gradebook program are you currently using? Have you switched recently? In what ways does the gradebook you are using help or hinder implementation of PBL?
7. Describe your role with regard to the implementation of proficiency-based learning & proficiency-based graduation requirements.
8. How do you differentiate proficiency-based learning and proficiency-based graduation requirements?
9. How have you assisted to create a sense of coherence between proficiency-based learning and proficiency-based graduation requirements?
10. What have been some celebrations/bright spots that your school/district has experienced around the implementation of proficiency-based learning?

11. What are some challenges/barriers that your school/district has experienced around the implementation of proficiency-based learning?
12. What is your current attitude toward proficiency-based learning practices? Has it evolved?
13. Can you describe your perception of teacher attitudes towards the shift to proficiency-based learning from teachers, students, and parents/community members?
14. Can you describe a turning point or "aha" moment in your implementation process?
15. What supports/resources has the school and/or district provided to assist with the implementation of proficiency-based learning? Do you utilize outside consultants? Do you utilize coaches? If so can you describe their role and responsibilities?
16. What sorts of professional development opportunities have been provided?
17. What supports/resources seemed to have been the most impactful?
18. What are the next steps in the implementation of proficiency-based learning and/or proficiency-based graduation requirements at your school/district?
19. What would you tell a school leader who was thinking about adopting proficiency-based learning practices?
20. What else would you like to share?

Appendix D: Interview Protocol for Teachers

1. Demographic questions?
2. How would you define proficiency-based learning?
3. How would you define proficiency-based graduation requirements?
4. To what extent has guidance been provided to connect PBL & PBGRs?
5. What are your general attitudes/perceptions of proficiency-based learning practices?
6. How has your attitude towards proficiency-based learning changed or evolved?
7. How did the shift towards PBL begin at your school/district?
8. Can you describe the process of how you have attempted to "make sense" of PBL?
9. How does PBL fit with your philosophical beliefs around teaching & learning?
10. How does PBL fit with your previous instructional practices?
11. How has PBL influenced your classroom curriculum?
12. How does PBL fit with your previous grading & assessment practices?
13. What supports and resources have been provided to help teachers implement PBL?
14. What resources/supports have been most helpful to you in the implementation process?
15. How does the gradebook your school uses help or hinder with the implementation of PBL?
16. Can you describe the professional development opportunities you have been

provided specific to PBL?

17. Does your school/district utilize instructional coaches focused on the implementation of PBL? Can you describe their role/duties? Do you feel that this resource has been important to the implementation of PBL?
18. What do you feel is lacking or is needed to further support the implementation of PBL at your school/district?
19. What challenges or barriers have you come against with implementing PBL in your classroom?
20. How do you feel PBL connects with the statewide initiative of proficiency-based graduation requirements?
21. What else would you like to add?