NEW STANDARD OF EDUCATION: IMPLEMENTING A PROFICIENCY-BASED EDUCATION MODEL IN A MONTANA ELEMENTARY SCHOOL DISTRICT

by

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ABSTRACT

In Montana, recent state-level educational legislation has been written to mandate that school districts adopt proficiency-based models of instruction and assessment. The intent of proficiency-based education is to provide students with rigorous and engaging learning opportunities, provide students with the individualized support needed to become proficient on grade-level standards, and ultimately prepare them for college, career, and civic life (Great Schools Partnership, 2018). Key characteristics of this model examined in this study include curricular resources aligned to standards, formative and summative assessments to guide instruction, varied instructional paces, providing students multiple opportunities to demonstrate proficiency, and embedding student self-assessment (Great Schools Partnership, 2018).

The purpose of this research is to understand and explore Belgrade School District's implementation of proficiency-based education (PBE) structures within its elementary schools and develop a strategic action plan based on emergent facilitators and barriers. An intrinsic case study was conducted, and data was collected through semi-structured interviews with teacher and administrator participants. Structural coding was applied, and thematic analysis was conducted to identify facilitators and barriers to each criterion of PBE in Belgrade. The following themes emerged from participant responses: "time," "pockets," and "putting the cart before the horse." Each of these themes contains more specific barriers, such as lacking professional development, insufficient accountability from administrators, inadequate Tier 1 instruction, gaps in understanding of the rationale for PBE, and varied teacher buy-in, which participants feel contribute to a noncomprehensive implementation of proficiency-based education in the elementary district. An action plan was developed for the district based on these barriers, which can be adapted to fit schools in similar contexts that are facing similar legislative pressure. In addition to meeting accreditation requirements, adopting a PBE model has the potential to affect student achievement and educational experience due to its emphasis on equity (Levine & Patrick, 2018).

CHAPTER ONE

INTRODUCTION

At the core of America's educational system lies an urgent need for transformation. Schools, which were once advertised as gateways to a "better future," have failed to adapt to a changing social and economic landscape. Rather than individualizing education to meet the needs of each individual student, the current traditional models perpetuate systemic inequities—lowering the ceiling of opportunity for all students to varying degrees. If there was a viable solution to this problem, wouldn't educators and policymakers everywhere jump at the chance to put that plan into action? Proficiency-based education is designed to shape students into lifelong learners, and is founded on the core belief that all students can and will reach high expectations when they feel included, respected, and valued by their community (Great Schools Partnership, 2018). Although proficiency-based educational models have been in existence since the 1960s and 1970s, reform initiatives have increased exponentially in recent decades–gaining traction primarily on the East Coast and at secondary or higher education levels. Across the country, state legislators are recognizing the need for more equitable approaches to education and have worked to embed laws pertaining to proficiency-based education. The changes have been slow, and reform bills often include language or structures that make practical application challenging.

Montana's Proficiency-Based Legislation

In 2023, the state of Montana created a grant that would provide funding for schools that developed "transformational learning" programs (Montana Code § 20-7-1602). Legislators believed that these programs were a necessary next step for the state's public schools, arguing

that “transformational learning is an appropriate means of fulfilling the people's goal of developing the full educational potential of each person,” (HB351). According to House Bill 351, transformational learning is defined as a “flexible system of pupil-centered learning” that is “customized to address each pupil’s strengths, needs, and interests, includes continued focus on each pupil’s proficiency over content, and actively engages each pupil in determining what, how, when, and where each pupil learns.” The intentionally broad nature of this bill provides individual districts with an immense amount of autonomy in the implementation of these programs, and legislators quickly discovered that school districts were utilizing these funds for items such as furniture, curricular materials, or technology under the guise of “customized” learning. In order to receive funding, school districts were expected to:

> Include a strategic plan with appropriate planning horizons for implementation, measurable objectives to ensure accountability, and planned strategies to: develop a transformational learning plan for each participating pupil that honors individual interests, passions, strengths, needs, and culture that is rooted in relationships with teachers, family, peers, and community members, provide effective professional development to assist employees in transitioning to a transformational learning model, and ensure equality of educational opportunity to participate by all pupils of the district, (Montana Code § 20-7-1602).

One primary complication with the rollout of this grant was that schools were responsible for generating their own definition of proficiency. As a result of differences within the literature and the expectation for districts to interpret it effectively, definitions across the state were considerably varied–some far more rigorous and research-based than others. Under this grant, districts the size of the one in this study received over $200,000 per year, yet it is unclear how the funds have been used to support transformational learning in terms of proficiency-based education (MT Office of Public Instruction, 2024). As Belgrade School District begins to

allocate these funds during the 2024-2025 school year, action steps listed in this paper should be considered and prioritized.

In 2023, Senate Bill 8 was signed into law by Governor Gianforte, establishing a statewide definition that states: “Proficiency-based learning is an education system in which student progress is based on a student’s demonstration of knowledge and skills, not seat time or the age or grade level of the student” (SB8, 2023, p.1). This notion of responsive, student-centered instruction and assessment is certainly best practice, but the state is falling short in its support of this initiative. Providing ongoing funding to districts wishing to implement these models is an effective first step, but it does not ensure that they are being implemented with any level of fidelity. Particularly in Montana, school districts are faced with the challenge of being isolated and underfunded–preventing collaboration between schools, reducing access to high-quality professional development from leaders in the field, and increasing teacher turnover, which all impact their capacity to adequately adopt a proficiency-based model.

The waters were further muddied when the state presented its new accreditation laws related to proficiency-based education. Chapter 55 states that “to ensure a learner-centered system and establish a plan for continuous education improvement, the school district shall develop, implement, monitor, and evaluate an integrated action plan,” (Montana Code § 10-55-601). According to this document, school districts must create conditions to “ensure that every student is afforded equal educational opportunities to learn, develop, and demonstrate achievement in content standards and content-specific grade-band learning progressions,” and must “include curriculum aligned to all content standards and appropriate learning progressions,” (Montana Code § 10-55-603). The stipulations required for accreditation, although related to the

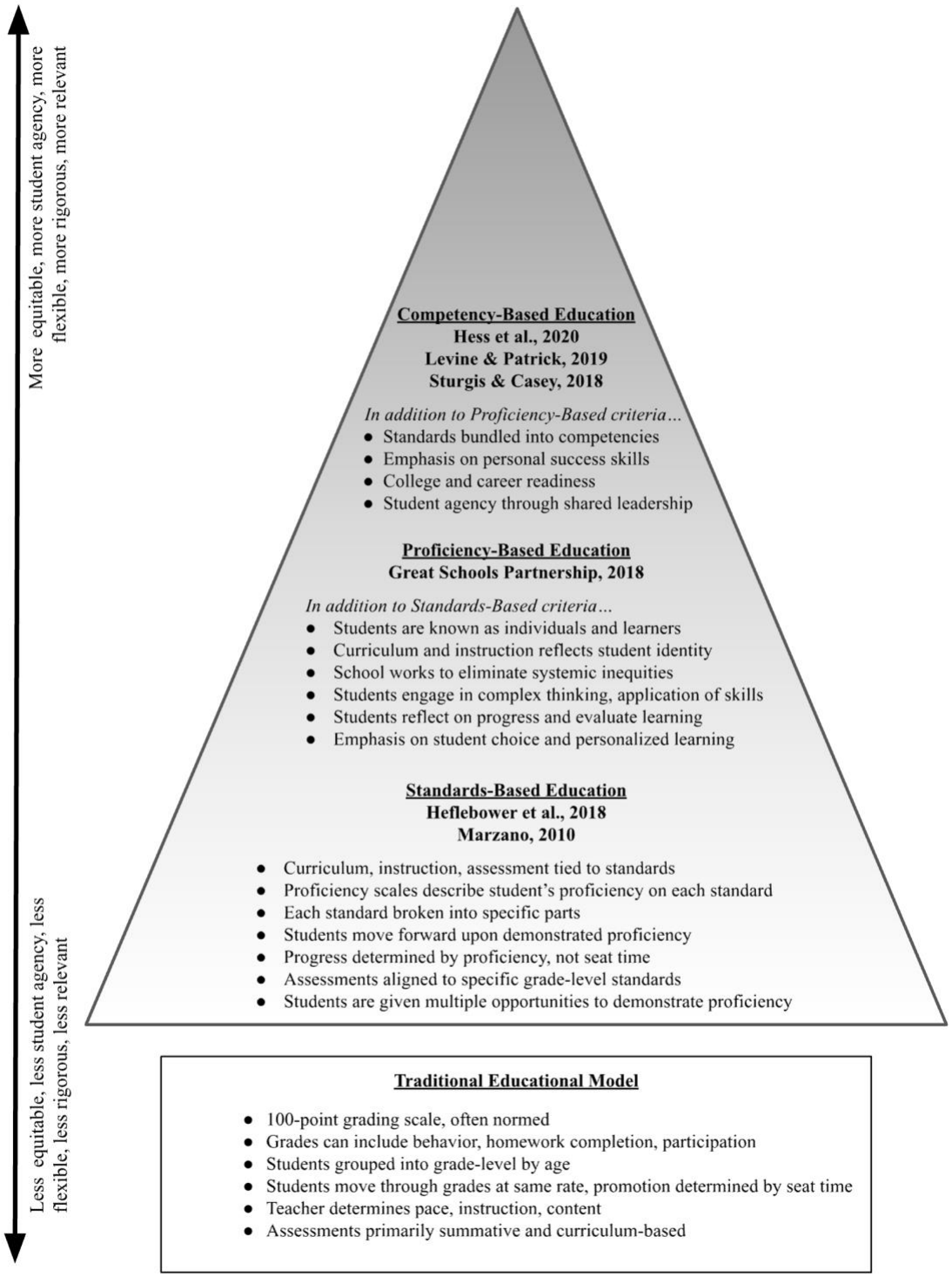
definition provided in Senate Bill 8, differ slightly. For many school districts in Montana, having multiple definitions and incongruent expectations of proficiency-based implementation has caused confusion, frustration, and, ultimately, inaction.

Conceptual Framework

Standards-based education (SBE), proficiency-based education (PBE), and competency-based education (CBE) are often used interchangeably in the literature, despite all three having different criteria for implementation. There is certainly overlap among their curricular, instructional, and assessment structures, but each model has discrete characteristics that affect student agency, rigor, relevance, and equity. In Figure 1, the traditional model has been placed outside of the pyramidal continuum to indicate a complete lack of overlap between this approach to education and the three others. This model is the least equitable, least rigorous, and least relevant due to its grading policies and instructional approaches.

The purpose of Figure 1 is to highlight the ways in which competency-based education builds upon structures of proficiency-based education, which builds upon structures of standards-based education. The three models are not separated within the pyramid to emphasize the similarities and overlapping criteria, but are placed in a hierarchy based on equity, rigor, relevance, and agency.

Figure 1. Conceptual framework illustrating the relationship between standards-based, proficiency-based, and competency-based education models.



This conceptual framework may act as a road map for school districts that are currently operating within a traditional model and feel that jumping directly to proficiency or competency-based education is too big of a shift from their current approach. Starting first with a standards-based model would put curricular and assessment structures into place. Additionally, this model introduces varied student pacing based on proficiency at the most basic level in comparison to a proficiency or competency model. In order to prepare students for success in life after school and to create an instructional culture focused on equity, districts should use standards-based and proficiency-based models as initial steps in the development of a competency-based model.

Standards-Based Instruction in Belgrade School District

Fortunately, Belgrade School District (BSD) has reaped the benefits of being one of the biggest districts in the state. Due to funding and proximity to other large school districts, BSD led the charge in shifting to a proficiency-based education when it adopted a standards-based structure in 2018. Belgrade School District has identified itself as a "standards-based instruction" (SBI) district at the elementary level since the initiative's rollout in 2018. The process of shifting away from traditional models of instruction and grading began with a pilot at the kindergarten level, during which a committee of teacher leaders developed assessments and a standards-based scope and sequence, which was called a "Yearlong Context" (YLC). Teachers bundled standards that seemed to fit well together conceptually and implemented this YLC as both an instructional guide and schedule for reporting student progress on report cards. This work was done only within the context of math and English language arts—science and social studies instruction remained program-based and more traditionally taught. In this first year, the committee constructed proficiency scales and assessments for each grade-level standard and rolled out the

first iteration of a standards-based report card to the kindergarten parents. Teachers quickly became more familiar with the intricacies of their standards and began to understand the multiple components within each. Although this process was robustly scaffolded by support from the Alliance for Curriculum Enhancement and Dr. Marie Alcock, it was not without barriers. This small team of teacher leaders was challenged by an overall lack of background knowledge related to SBI, and started to recognize that many of the assessments they created were not accurate measurements of the standards. Furthermore, there were minimal opportunities to work collaboratively during contracted time, so progress was slow. The priority at this time was to develop 3.0 assessments—or assessments of an entire standard rather than its parts. As a result, these assessments were treated as summative measures rather than formative tools to help guide instruction and were often given at the end of a quarter for the purposes of reporting student proficiency to parents.

In 2019, the elementary schools expanded this initiative, and the same process was conducted in first through fourth grades. Proficiency scales and assessments were developed for standards in math and ELA, and standards-based report cards were distributed across all grade levels. This movement gained momentum and was supported by an all-staff mandatory training in standards-based instruction during the 2019 school year, but progress came to a screeching halt when schools were closed due to the Coronavirus. By the 2021-2022 school year, work resumed and SBI teams developed proficiency scales, assessments, and YLCs for both science and social studies. Throughout the 2022-2023 and 2023-2024 school years, a significant portion of contracted committee time has been spent revising or creating assessments and adjusting yearlong contexts to better align to district-adopted resources. Because of the hiatus in

professional development and work time due to COVID-19 pandemic, a decision was made to remove 4.0 assessments or learning opportunities from the structure to focus attention on aligning the K-4 teachers within minimum grade-level standards. The standards-based structures put into place through this initiative are a pragmatic first step in the shift toward proficiency-based education, and will allow the district to focus its efforts on the implementation of more advanced criteria of PBE.

Purpose and Significance of the Study

The purpose of this qualitative study is to understand and explore Belgrade School District's implementation of proficiency-based education structures within its elementary schools, and develop a strategic action plan based on identified facilitators and barriers. The findings of this case study are particularly relevant and significant due to newly adopted state-level educational legislation mandating a shift to PBE. A pragmatic framework was applied to the design, methodology, and analysis of this study because, in addition to contextualizing the specific nature of reality in Belgrade School District, this research aims to inform and support school leaders in Montana or similar contexts looking for practical approaches to proficiency-based education implementation (McCaslin, 2008; Vogt, 2005).

Research Questions

To examine the implementation of proficiency-based education within a specific context, this study focuses on three research questions:

1. How does a Montana elementary school district currently implement proficiency-based education?

2. What do teachers and administrators view as the facilitators and barriers that affect a comprehensive implementation of a proficiency-based education model in a Montana elementary school district?
3. What action steps are needed to advance the implementation of a proficiency-based education model in this context?

Methodology

In order to move Belgrade School District (BSD) into a more authentically proficiency-based model, interviews with teachers and administrators were utilized to identify current structures that are comprehensively implemented, and which may be lacking. To identify specific facilitators and barriers of each component, structural codes (Saldaña, 2021) that aligned to specific criteria of PBE such as "pathways aligned to standards," and "feedback to adjust instruction" were applied to the raw data. Once structural codes and code clusters were created and organized, a thematic analysis of the material was conducted to recognize throughlines in the data. These themes were driving factors in the development of a strategic action plan for BSD, and the proficiency-based structural codes provided a more specific context for these recommendations.

Limitations

This study may have limitations related to its design and methodology. Because it is an intrinsic case study of Belgrade School District (BSD), the findings may be minimally transferrable to districts that differ in size, geography, funding, student demographics, or grade

levels served. More specifically, this study is likely most relevant and applicable to Montana schools operating under the same state-level legislation as BSD.

Methodologically, the decision to utilize stratified purposeful sampling alongside convenience sampling may have produced results that are representative of only some of the district population. It was essential to examine if there were differing perspectives of Belgrade's proficiency-based implementation between administrators and teachers, but the sample included an equal number of participants from each group. This ratio is not representative of the elementary district, as there are only 5 administrators and approximately 80 teachers. As a result of this sampling decision, it is possible that the findings of this study inaccurately weighted administrator perspectives more heavily than teacher perspectives based on the entire population. Furthermore, veteran teacher participants were chosen strategically based on their level of knowledge of the district's current implementation of proficiency-based education. Although new teachers were included to provide insight into the level of collective understanding along a continuum of experience, the veteran teachers have all served on the district's standards-based instruction committee and have historical knowledge of the process. Additionally, these teachers serve as leaders for their grade levels and have a strong understanding of what happens in various classrooms beyond their own. Because this study focused on the implementation of PBE rather than teacher knowledge of PBE, it was important to select participants who had the strongest understanding of the current structures the district has in place.

Definition of Terms

Proficiency: A learner has demonstrated knowledge and/or skills related to a set of standards (Vermont Agency of Education, 2017). Although definitions of proficiency vary across contexts, this definition from the Vermont Agency of Education was selected because it is utilized in the Great Schools Partnership criteria for PBE (2018) that are examined in this study.

Grade-Level Standards: Describe what every student should learn and be able to do at each grade level (Common Core State Standards Initiative, n.d.).

Standards-Based Education: A system of assessment and grading that describes student progress in relation to standards and allows students to move to more challenging content once they have demonstrated proficiency on a standard or set of standards (Marzano 2010).

Proficiency-Based Education: Systems of instruction, assessment, and reporting that reflect students' proficiency on given state standards. If students fail to demonstrate proficiency, there are opportunities for reteaching, additional practice, and/or reassessment (Great Schools Partnership, 2016).

Competency-Based Education: A personalized learning model that provides students with the personal skills and knowledge to be successful in higher education, careers, and adult life. Equity, student agency, and rigor are cornerstones of this approach (Hess et al., 2020; Levine & Patrick, 2018; Sturgis & Casey, 2018).

Tier 1 Instruction: Primary-level, research-based core instruction targeting grade-level standards. All students receive this level of instruction, and it is designed to meet the needs of a majority of students (Preston et al., 2016).

Tier 2 Instruction: Targeted, evidence-based interventions provided to students who did not demonstrate adequate proficiency or growth on grade-level standards after receiving Tier 1 instruction (Preston et al., 2016).

Summary

By addressing the research questions above, this case study aims to generate pragmatic solutions to barriers of PBE implementation faced by school districts across the United States, especially in Montana. Although the results of this research fill a gap in the literature relating to proficiency-based models in elementary schools, many of the facilitators and barriers that were identified through thematic analysis echo what is seen in other contexts. The findings and recommendations in this paper, although designed specifically for Belgrade School District, may be relevant for many schools across Montana that are adjusting to newly adopted proficiency-based criteria for accreditation. Districts that make these shifts will create a school environment that is more equitable, more rigorous, and more relevant for all students.

CHAPTER TWO

REVIEW OF LITERATURE

The goal of this research is to explore the implementation of a proficiency-based education model in an elementary school district in order to improve its effectiveness. This review will cover the history of education in the United States, compare current models of education that exist, and examine the facilitators and barriers to proficiency-based education. The literature summarized below will provide a strong rationale for implementing a proficiency-based education model as a mechanism to increase academic equity and student achievement.

History of Education in the United States

The educational system in the United States has served many roles since its inception, and despite the institution's centuries-long history, its purpose is still debated today. During the Industrial Revolution, schools shifted away from their initial basis in religion and toward meeting the needs of the economy and workforce. 'Factory-model schools,' as they were called, were created to be as efficient and organized as possible–grouping students by age, standardizing curriculum, and measuring student achievement for the purpose of comparison (Sleeter, 2015). Sleeter (2015) argues that this approach to education served to maintain economic roles in the United States and "reproduces social stratification based on race and class" (p. 112) because it is "anchored in steeply hierarchical capitalist and racist structures" (p. 111).

In the 1830s, "Common Schools" were developed to provide universalized, free access to education for all students with the intention of preparing students for democratic citizenship and entering the workforce (Kober & Rentner, 2020). Advocates of these "Common Schools," or

public schools as they are now known, believed that this system would eradicate systemic inequities such as poverty and crime, but for over a century, these ‘universal’ schools have not provided truly equitable educational opportunities to students of minority race, religious, or linguistic groups (Kober & Rentner, 2020).

Many efforts to close this gap have been put forth by the American government–shifting its focus from access to quality. In 2002, *No Child Left Behind* (NCLB) was signed into law by the Bush administration, reflecting a commitment by the president to ensure that all students received quality education regardless of their background (NCLB, 2002). An emphasis on high-stakes testing, teacher accountability, and high-quality instructional methods during this time ultimately resulted in increased stress for teachers and students and had an overall negligible impact on student learning (Mertler, 2010).

In 2009, yet another educational reform was developed: *Race to the Top.* Developed by the Obama administration, this initiative incentivized states by providing funding to develop rigorous standards and assessments, adopt high-quality data systems to communicate student progress, support teacher effectiveness, and provide resources for high-need schools needing interventions (US Department of Education, 2009). The most notable outcome of this movement was the creation of the nation’s Common Core State Standards, which aimed to provide a consistent and clear understanding of what children were expected to know at each grade level (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010). Supporters of this reform believed that aligning these learning goals and creating a common finish line for all students would increase the likelihood that all students would be given access to equitable instruction and, ultimately, would demonstrate similar levels of

proficiency regardless of background. Despite having equity seemingly at the forefront of educational reform, the reality is that the implementation of these laws has not moved the needle in closing the opportunity gap for a majority of our students. Sleeter (2015) argues that this is because each of these reform efforts has been a variation of factory-model schooling, simply wrapped up in different packaging. Evidence of this persistent opportunity gap can be seen in the most recent National Assessment of Educational Progress (NAEP) reading and math scores for fourth graders across the nation–indicating significant “achievement gaps” for Black, Hispanic, and American Indian students in comparison to their white, English-speaking peers–a gap that has remained consistent since 2002, when NCLB was first established (US Department of Education, 2022). It is important to note that the official NAEP report refers to this gap as an “achievement gap,” but I will continue to refer to it as an “opportunity gap" throughout this paper to emphasize that these scores are the result of inequitable educational practices for all students rather than a true reflection of potential or performance.

Educational Models

Each of the fifty states is given significant autonomy over its public education system, and the result of this has been a wide range of educational models implemented in schools across the nation. The four major models in use today include: a) traditional education, b) standards-based education, c) proficiency-based education, and d) competency-based education. The literature often uses standards, proficiency, and competency-based terminology interchangeably, but the following sections will provide in-depth definitions to provide background information and highlight the significant differences between the three.

Traditional Model

Traditional models of school are most closely related to the factory model and are characterized by fixed grade levels where students are grouped by age, instructional coverage of all grade-level standards, students moving at the same pace through material regardless of proficiency, and predominantly summative assessments–although assessment practices vary widely by teacher (Hess et al., 2020). Most specifically, though, grading in a traditional educational model utilizes a 100-point scale, at times providing students with averaged scores or grades on a curve (Chappuis & Stiggins, 2020; Guskey, 2013). These structures are highly inequitable and harmful to students since grades are often invalid or inaccurate due to the probability of statistical error, their negative impact on student motivation and growth mindset, and the effects of teacher implicit bias based on race, class, or socioeconomic status (Guskey, 2013; Haimovitz & Dweck, 2017; Quinn, 2020; Wormeli, 2006). Despite these detrimental characteristics, a recent nationally representative survey estimates that more than 75% of schools in the United States still utilize traditional models of instruction and grading (Klein, 2023).

Standards-Based Education

In a standards-based model, curriculum, instruction, and assessment are all connected to specific grade-level standards, which target specific skills within each content area. For example, a third-grade math standard in Montana expects that students can "use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem," (Montana Office of Public Instruction, 2011) Proficiency scales are a cornerstone of standards-based learning and provide teachers with a blueprint for

instructing and assessing each individual standard by providing clear criteria for student proficiency (Heflebower et al., 2018). An example of a proficiency scale for third-grade math standard OA.3 that was created by Belgrade teachers can be found in Table 1.

Table 1. Example of a proficiency scale for standard 3.OA.3

Standard: 3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	
Score 4.0	In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught
Score 3.0	Task includes ALL of the following: • Use multiplication within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities • Use division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities
Score 2.0	Task includes one or more, but not all, of the following: • Use multiplication within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities • Use division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities,
Score 1.0	With help, partial success at score 2.0 content and score 3.0 content

In contrast to a traditional 100-point scale for grading, a proficiency scale removes reduces the statistical flaw of a traditional system that allots 59% of its points to failure. In a standards-based model, a student is deemed proficient on an entire standard, proficient on part of a standard, or not proficient on any part of a standard. This approach supports teacher instruction because skills are broken into specific components, and students are assessed on each individually–allowing a teacher to target a student's deficits on a more granular level than in a traditional system (Heflebower et al., 2018). Within this model, there are two implementational

realities: true standards-based learning and standards-referenced learning (Marzano, 2010). Despite claiming to be standards-based, many schools operate in a standards-referenced manner due to traditional structures of the education system (Marzano, 2010). In standards-referenced schools, teachers provide students with feedback regarding their proficiency on grade-level standards, but students are not moved forward or backward to different content based on their demonstration of proficiency (Marzano, 2010). A truly standards-based model, however, allows students to move onto more challenging standards immediately upon demonstration of proficiency through assessment (Heflebower et al., 2014).

Proficiency-Based Education

Proficiency-based education (PBE) utilizes the same structures as standards-based education but builds upon them in a way that emphasizes varied instructional pacing and student choice. The intent of PBE is to provide students with rigorous and engaging learning opportunities, provide students with the individualized support needed to become proficient on grade-level standards, and ultimately prepare them for college, career, and civic life (Great Schools Partnership, 2018). The Great Schools Partnership (2018) has developed the most widely used definition of PBE, which they refer to as “Beliefs and Practices of Proficiency-Based Learning.” The criteria are broken into four major sections: a) learning environment, b) outcomes, c) assessment and feedback, and d) learning pathways (Great Schools Partnership, 2018). Each of these sections includes core beliefs that are accompanied by implementation criteria as outlined in Table 2.

Table 2. Great Schools Partnership (2018) definition of proficiency-based education models.

Learning Environment: Students can and will learn when they feel included, respected, and valued by their learning community. 1. Students are known as individuals and learners, and they are supported in developing positive relationships with each other and with adults in the learning community. 2. The curriculum, classrooms, and structures of the school recognize and honor student identities and interests. 3. The district and school communities have systems and structures that engage and include all students, families, and the broader community in meaningful ways. 4. The district and school actively work to uncover and eliminate systemic inequities based on demographic groups and identity traits.
Outcomes: All students must be challenged, believed in, and supported to reach common, high expectations. 1. Learning outcomes are clearly articulated and consistently applied to all students, including those that are long-term (graduation competencies and performance indicators), short-term (learning targets), and habits of work. 2. All students engage in complex thinking and the application of skills and knowledge throughout the learning process within and across content areas. 3. Interventions, extensions of learning, and opportunities to revise and relearn are systemic and provided regularly so that all students achieve common outcomes.

Table 2 Continued.

Assessment and Feedback: Student learning is enhanced by clear cycles of practice, feedback, assessment, and reflection. 1. All forms of assessment are aligned to a common set of competencies. 2. Habits of work are assessed and reported separately from academic knowledge and skills. 3. The continual use of formative assessment provides opportunities for students to practice, self-assess, and give and receive feedback. 4. Summative assessments, evaluated against common scoring criteria, are used to evaluate a student's level of achievement on competencies and performance indicators at a given point in time. 5. All forms of feedback (including grades) are used to adjust instruction and learning, to inform academic interventions, and to identify extensions of learning. 6. Students regularly reflect on their learning progress and are taught to evaluate and use feedback.
Learning Pathways: Students are empowered and engaged by choice in their learning experiences. 1. All learning pathways (courses, internships, extended learning opportunities, etc.) are aligned to a common set of standards. 2. Learning in different ways and at varied paces is expected and planned for in all settings, requiring differentiation, student choice, and personalized learning options to meet common outcomes. 3. Students make important decisions about their learning experiences and how they will demonstrate their knowledge and skills.

Competency-Based Education

The fourth and final educational model seen in schools today is known as Competency-Based Education (CBE). In this system, learning is organized in a variety of ways to motivate students, engage them in their own learning process, and provide them with skills to be

successful after graduation (Hess et al., 2020; Sturgis & Casey, 2018). Proficiency-based and competency-based educational models both define student progress based on proficiency rather than seat time; CBE creates more clusters of learning targets called “competencies” and encourages integrated instruction for students that mimics the real world (Sturgis, 2012). An example of this is a third-grade mathematics competency stating that “students will solve problems by identifying arithmetic patterns and using properties of operations.” Rather than narrowly addressing a student’s proficiency on a single standard, this competency includes multiple mathematics standards such as: Using arrays and equal groups to solve division and multiplication problems, determining the unknown whole number in a multiplication or division equation relating three whole numbers, solving two-step word problems using the four operations within cultural contexts and represent those problems using equations with a letter standing for the unknown quantity, and identifying and explaining arithmetic using properties of operations (Montana Office of Public Instruction, 2011).

CBE models focus on skills in addition to content and put students in the driver’s seat of their own learning–providing a truly personalized learning experience for students by embedding student autonomy, choice, and voice more intentionally than any of the other models described above. Although many criteria for CBE exist in the literature, a leading definition from the Aurora Institute (2019) is included in Table 3.

Table 3. Aurora Institute (2019) definition of competency-based education models.

Students are empowered daily to make important decisions about their learning experiences, how they will create and apply knowledge, and how they will demonstrate their learning.
Assessment is a meaningful, positive, and empowering learning experience for students that yields timely, relevant, and actionable evidence.
Students receive timely, differentiated support based on their individual learning needs.
Students progress based on evidence of mastery, not seat time.
Students learn actively using different pathways and varied pacing.
Strategies to ensure equity for all students are embedded in the culture, structure, and pedagogy of schools and education systems.
Rigorous, common expectations for learning (knowledge, skills, and dispositions) are explicit, transparent, measurable, and transferable.

Implementing a Proficiency-Based Model

Although clear guidelines and definitions have been developed related to proficiency-based education, it is important to note that the fidelity of its implementation in schools varies widely across school districts in the United States depending on the interpretation of the research and language used in state legislation (Evans et al., 2021). For example, in Montana, the only component of true PBE that is required by law is that proficiency is that "student progress is based on demonstration of knowledge and skills, not seat time or the age or grade level of the student," (SB 8, 2023, p. 1). As a result of this, many schools are lacking fundamental components of the model–most of which relate to an equity-centered learning environment.

A large majority of the literature related to the practical implementation of PBE is within the context of secondary schools rather than elementary schools, and it is important to keep this in mind when considering the facilitators and barriers discussed within these structures. Furthermore, a significant portion of case studies have been conducted in east coast school districts rather than central or western states, which may affect their applicability to this context of Montana.

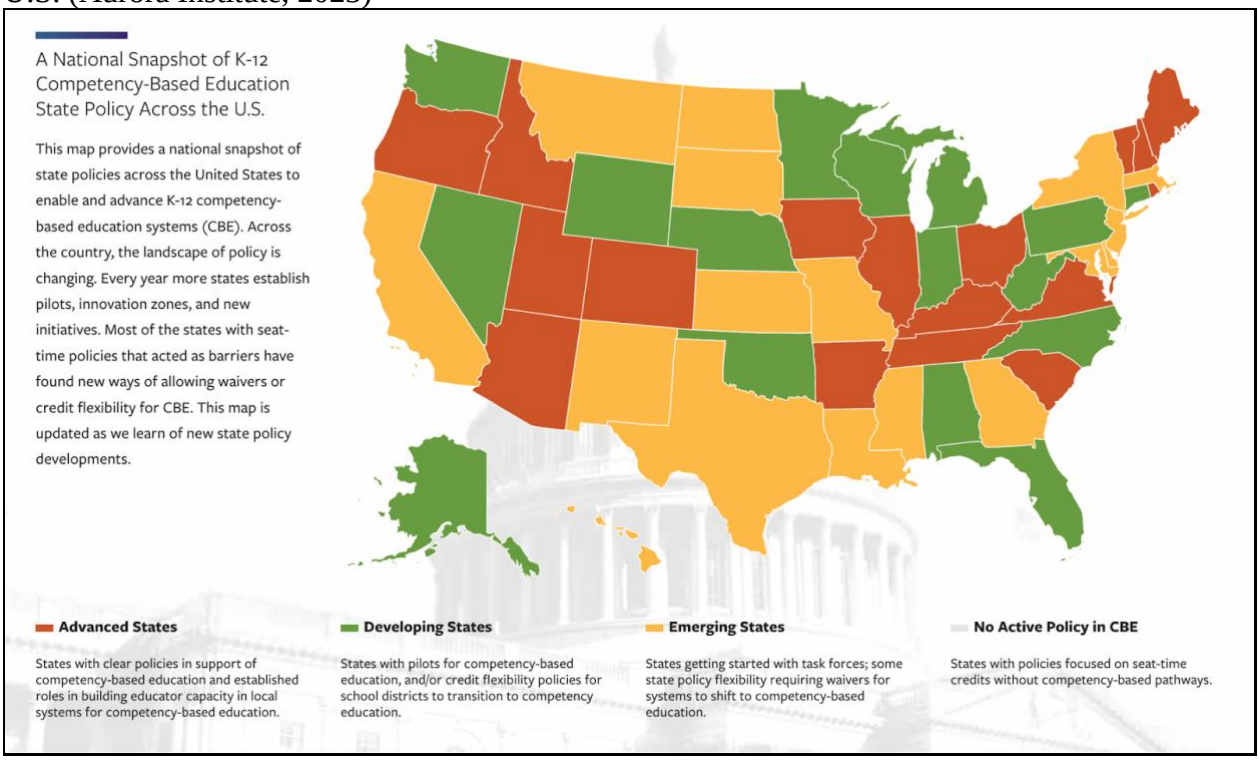
Rationale for Implementation

States across the nation are developing legislation related to proficiency-based models of instruction with the intention of improving high school graduation rates and preparing students with skills for college or their careers (Brodersen et al., 2017). The adoption of these policies has been gradual, but states are feeling the pressure to keep up with current research. Figure 2 provides a "snapshot" of state-level proficiency-based education policies across the United States–classifying each state as advanced, developing, emerging, or lacking policy entirely. According to this scale, Montana is classified as a "developing" state due to its recent Transformational Learning Bill, and it is my hope that this case study and future research will encourage state legislators to continue this work.

However, there are significant benefits to the approach that extend beyond checking boxes for the purposes of accreditation. In contrast to traditional models of schooling, PBE instruction aligns more closely to the ways in which students learn according to research in cognitive psychology. The National Research Council Division of Behavioral and Social Sciences and Education (2001) provides a framework of four principles to help design instructional environments that enhance learning based on the knowledge of how people learn,

and there is a clear overlap with these principles and the criteria of a comprehensive PBE implementation. First, classrooms should be learner-centered, creating space for students to bring in their own culture-specific background knowledge, learn and practice resilience, and move at a pace that supports their individual zone of proximal development (Dweck, 1989; Moll et al., 1993; Vygotsky, 1978). Second, classrooms should be knowledge-centered, with attention to what is taught, why it is taught, and what proficiency looks like (DBASSE, 2001). Much like PBE, this principle emphasizes understanding over memorization and recommends that teachers provide opportunities for students to develop meta-cognitive strategies.

Figure 2. A National Snapshot of K-12 Competency-Based Education State Policy Across the U.S. (Aurora Institute, 2023)



The third characteristic of an instructional environment that enhances learning is the presence of formative assessments to make students' learning visible and support self and teacher progress monitoring (DBASSE, 2001). These formative assessments are part of an ongoing process and provide students with multiple opportunities to demonstrate their learning. Furthermore, teachers and students alike can use these assessments in a diagnostic manner to identify specific misunderstandings prior to the end of a unit (DBASSE, 2001). The fourth and final principle states that learning is highly influenced by the context in which it exists, and that approaches to teaching should be community-centered (DBASSE, 2001). The research highlights the importance of teaching skills such as risk-taking, openness to feedback, and questioning in addition to academic content–all of which are explicitly stated as criteria or are natural outcomes of proficiency-based education (DBASSE, 2001; Willingham, 2021).

A second rationale for implementing PBE is its capacity to improve overall achievement scores and close current opportunity gaps among students. The model's emphasis on equity (Sturgis & Casey, 2018) and promotion of academic rigor (Hess, 2023) offers the potential to inform future decisions about curriculum, instruction and assessment in school districts across Montana. Since 2007, the percentage of Montana's fourth graders who are proficient in reading has been on a steady decline (US Department of Education, 2022). In 2022, only 33% of the fourth-grade student population demonstrated grade-level proficiency in reading. When broken down by racial or ethnic groups, the data is even more alarming: 37% of white students, 30% of Hispanic students, and only 9% of American Indian/Alaska Native students were proficient (US Department of Education, 2022). In mathematics, the disparity in scores across racial or ethnic groups was even larger: 43% of white students, 25% of Hispanic students, and only 7% of

American Indian/ Alaska Native students were proficient (US Department of Education, 2022). When considering these data, it is essential to recognize that they reflect broad and persistent inequities perpetuated by the design of the United States' traditional educational system rather than deficits among specific student groups.

Historically, traditional models of schooling have not been designed to equitably meet the needs of all cultural groups they serve, and although not the only solution, PBE may be a way to address this by bringing in student choice and voice as well as varied pacing. Allowing students to choose the manner and context in which they learn may be a small, but first step in decolonizing education–recognizing various culturally-specific knowledges and making content more relevant for all learners. Sturgis and Casey (2018) believe that transforming the criteria and definitions of success, "are particularly important for students who have been historically marginalized and who are likely to encounter discriminatory barriers and other challenges in their lives because of their race, ethnicity, or disability," (p. 18) Furthermore, they argue that the "lifelong learning skills and positive cultural identity" developed in proficiency and competency-based learning models "empower these students to navigate through and around barriers, self-advocate, and affect positive change in their lives and communities," (p. 18).

Facilitators to Implementation

Through an analysis of case-study literature related to proficiency-based education models, seven key factors arose as facilitators to comprehensive implementation. Professional development opportunities (Evans & DeMitchell, 2018; Stump & Silvernail, 2014; Stump et al., 2016), time for teachers to work or plan collaboratively (Evans & DeMitchell 2018; Evans et al., 2019; Rogers 2021; Steiner et al., 2017; Stump et al., 2017; Torres 2015), obtaining buy-in from

stakeholders (Evans & DeMitchell, 2018), and structural reforms (Evans & DeMitchell, 2018) were the most frequently mentioned facilitators–acting in opposition to what Evans and DeMitchell (2018) refer to as “high-leverage barriers” (p. 11) due to their potential to impact resistance in the earliest stages of PBE implementation. At the state level, policies that specifically strip seat time from definitions of proficiency were identified as top-down facilitators for schools’ implementations of PBE (Brodersen et al., 2017). Although this is a minimum definition on which to ground proficiency-based education, it provides administrators with clear language to begin this shift within their own buildings. By removing seat time, schools are forced to identify new ways to define proficiency–all of which are likely more accurate and supportive of students’ individualized learning needs.

From an assessment standpoint, the research identified common standards-based assessments (Evans & DeMitchell, 2018; Stump et al., 2017) and consistent grading procedures (Stump & Silvernail, 2015; Torres, 2015) as facilitators to PBE implementation. These components are particularly essential in the early stages of implementation if a school is shifting away from a traditional education model that utilizes a 100-point scale for grading, because teachers will be adjusting the criteria included in determining student proficiency within a subject area.

The final facilitator mentioned in the literature was the presence of coaching and mentorship (Steiner et al., 2017). Much like professional development and collaborative work time, providing ongoing support for teachers and administrators was a determining factor in long-term success and fidelity or comprehensiveness of a school’s implementation of PBE.

Barriers to Implementation

Much like the facilitators listed in the research, barriers to proficiency-based education exist throughout different phases and layers of the implementation process–affecting planning, fidelity of implementation, and longevity of implementation. Interestingly, many of the elements that teachers, administrators, and school districts identified as facilitators were also considered barriers to implementation in many cases. Structurally, one of the biggest barriers to varied paces of instruction and learning was the continued influence of the traditional school model structure. Researchers found that varied pacing is the least rigorously adopted criteria of a true PBE model, and this is likely because it is a significant deviation from current school structures where students are grouped into grade levels based on age (Evans & DeMitchell, 2018; Evans et al., 2019; Sutherland et al., 2022). In a typical school setting, students are not moved onto more challenging standards or future grade-level material if they have demonstrated proficiency of current material–instead, they move at the pace of the class as determined by the teacher's direct instruction (Steiner et al., 2017). As a result of this, all students move through grade levels at the same rate and typically graduate from high school at age 17 or 18, making seat time, not proficiency, the current determining factor for graduation.

Barriers to the introductory phases of PBE implementation were identified as family resistance and buy-in from administrators, teachers, and parents (Evans & DeMitchell, 2018; Stump et al., 2016). Multiple studies discovered that buy-in from key stakeholders was separate from, although at times caused by, conceptual clarity and parent misunderstanding of the reform (Evans & DeMitchell, 2018; Shakman et al., 2018). However, it appears that the root cause of this lack of parent buy-in stems from general resistance to change and the belief that this reform

would not be able to accomplish what it is intending to accomplish (Evans & DeMitchell, 2018). For teachers, this lack of buy-in was also caused by a resistance to change and the dramatic shift required in instruction and grading (Evans & DeMitchell, 2018; Rogers, 2021). The landscape of education has been in a state of constant evolution since its inception, and although it is of paramount importance that the system evolves until it finds the most effective and equitable approach, teachers are feeling burnt out by the pressure of constantly adapting to the "next best thing." For parents and teachers alike, shifting from a traditional model toward a proficiency-based model is asking them to reframe the ways in which they think about education. This is a difficult mindset shift because many of today's parents and teachers were educated in a traditional system–it is their only point of reference. Securing buy-in from this group is asking them to critically reflect on their own experiences and to consider that, even if a traditional model worked for them, it may not work for everyone, everywhere, equally.

Once a school or district has made the decision to adopt a proficiency-based education model, barriers to structural implementation arise. The literature describes the ways that variation in teacher understanding of proficiency, lacking building-level guidance, and lacking high-quality curricular materials prevent the initiative from gaining momentum in the earliest stages (Rogers, 2021; Steiner, 2017). These barriers are noteworthy, especially if all are present in a school, because they impact every component of education: curriculum, instruction, and assessment. Curricularly, high-quality, standards-aligned materials have been identified as a critical factor in student academic achievement and are particularly impactful in upper grades (Steiner, 2017). Without these materials, teachers and districts are often left to make decisions that are not based on evidence or research–leading to less rigorous and less equitable content

(Steiner, 2017). Instructionally, Rogers (2021) argues that administrative guidance is one of the most significant contributors to a sustained and comprehensive implementation of PBE. Without it, schools will start to see "different approaches within departments or even teacher inaction," because "'laggards' [are] able to hold on to traditional practices of curriculum development and classroom pedagogies" (Rogers, 2021, p. 8). Lastly, variation in teacher understanding of proficiency means that a student's grade may not reflect their actual competence related to grade-level standards. This has a trickle-down effect on the student because, in a truly proficiency-based model, students move on to new standards once they have demonstrated proficiency in others. If a teacher, school, or district is not able to accurately, consistently, or reliably assess a student's knowledge of grade-level material, the teacher's instruction and, ultimately, the student's movement will be impacted.

The final two barriers, professional development and a focus on multiple initiatives, predominantly affect the endurance of PBE implementation and are strongly correlated to the barriers already listed. Without ongoing, mandatory professional development, collective knowledge of proficiency-based assessment and instruction cannot be developed, and "laggards" (Rogers, 2021, p. 8) will disrupt the comprehensive adoption of this model. In addition to building knowledge, effective professional development provides teachers with time to work collaboratively with grade-level or grade-band peers to develop aligned assessments, plan for instruction, and explore multiple avenues to build in student choice–all of which will contribute to an aligned, comprehensive adoption of PBE throughout the school or district. A focus on multiple initiatives, Rogers (2021) states, often results in teachers feeling that "this too shall pass" (p. 3). Spreading teacher and administrative attention to multiple reforms will likely

increase the frequency of teacher burnout, reduce time spent on PBE implementation, and potentially allocate funding away from PBE.

In light of recent state-level legislation and the multi-faceted shift required to adopt a proficiency-based educational (PBE) model, it is important that this initiative not become "just another failed reform." PBE has to the potential to impact student achievement and close opportunity gaps by increasing rigor, prioritizing equity, promoting autonomy, responding to student learning through varied pacing, and reflecting multiple cultures and knowledges. In Montana specifically, the implementation of PBE will likely improve overall student proficiency in reading and math, and has the ability to close the current opportunity gaps for students who have been historically oppressed within the state's education system. In order to effectively adopt this model, districts will need to identify barriers and facilitators that exist within their context—using these to guide their structural or organizational shifts. Although standards-based, proficiency-based, and competency-based terminology are often used interchangeably in the literature, there are key differences between the three models that result in varying implementational realities and a range of equitable structures. For schools currently utilizing a traditional model for instruction and grading, the shift toward PBE, or ultimately, CBE, might need to be done longitudinally on a continuum, starting with the implementation of the more basic criteria of a standards-based model.

CHAPTER THREE

METHODOLOGY

The purpose of this intrinsic case study is to examine Belgrade School District's implementation of a proficiency-based education (PBE) model at the elementary level. More specifically, research questions and interview protocols were developed to explore potential facilitators and barriers experienced by faculty, with the goal of developing a robust inventory of action steps to support the district in enhancing its implementation of PBE criteria. The research questions that anchor this study are as follows:

1. How does a Montana elementary school district implement a proficiency-based education model?
2. What are the facilitators and barriers that affect the comprehensive implementation of a proficiency-based educational model in a Montana elementary school district?
3. What action steps are needed in order to advance the implementation of a proficiency-based education model in this context?

This chapter provides an in-depth description of this study's methodology and includes the following sections: a) researcher positionality, b) research design, c) context and participant selection, d) data collection, e) data analysis, and f) strategies for validation.

Researcher Positionality

As a member of the Belgrade School District staff, it was imperative that I analyze the impact of my positionality throughout the research design, data collection, and analysis processes, and these considerations are discussed in more detail in each of those sections of this paper.

I am currently an instructional coach at the three elementary schools in Belgrade School District and work closely with teachers, principals, and district administrators in this capacity. As a result of this, I have formed strong relationships with each group and collaborate with them on projects related to instruction, classroom management, and standards-based approaches. As an enrolled graduate student at Montana State University Bozeman, I have taken multiple courses in competency-based education and assessment in education, making me uniquely prepared to examine the implementation of Belgrade's current standards-based instructional practices. Due to this background knowledge, I have worked alongside a consultant from the Alliance of Curriculum Enhancement to provide professional development for staff centered around standards and proficiency-based models. Given this background and my current positionality, I am personally and professionally invested in this study. While all educational research includes subjective decision-making, my location within this work increases the potential influence of my experiences and views. To critically examine this potential influence, I engaged multiple methods to check for bias (e.g., triangulation of data from diverse participants, use of reflexive researcher memoing, development of a codebook, and use of multi-phase coding, etc.). These practices are described in further detail below.

Research Design

An intrinsic case-study design was chosen for this study with the goal of generating an actionable, contextualized plan for Belgrade School District to review for future implementation. There is minimal peer-reviewed literature related to proficiency-based education models, and a majority of what exists is grounded in theory rather than authentic application. This contributed to the decision to utilize a case study design, because it is the most effective way to "investigate a contemporary phenomenon within its real-life context and address a situation in which the boundaries between phenomenon and context are not clearly evident" (Yin, 1993, p. 59). Although this study is not fully participatory in nature, it was important to me as a researcher that the rationale and primary focus of this work be developed alongside district administrators to ensure the results are both relevant and valuable to the community under study. Conversations with this group made it clear that an intrinsic case study was the most appropriate structure for this work because Belgrade School District is a unique case in which stakeholders have specific interest (Stake, 1995).

A single case was additionally chosen due to time constraints, which researchers warn may result in limitations in generalizability and concerns with uniqueness or artificial conditions (Eisenhardt, 1989; Yin, 2018). Despite these potential limitations, there is a likelihood that portions of this study are applicable to other school districts in the state of Montana. Like Belgrade, a majority of the school districts in the state are classified as rural, and some possess similar characteristics related to student demographics, funding, geography, and politics. Although these similarities exist, conversations with school leaders in Montana show Belgrade is at the forefront of standards-based practices, while many schools are still employing traditional

instructional and grading practices. This case study was primarily developed to explore facilitators and barriers to implementation of PBE in the context of Belgrade School District, but other districts who are looking to make a shift away from traditional models in light of new state legislation may look to this work as a roadmap to a true proficiency-based approach to education.

Research Paradigm

Pragmatism is not often identified as one of the four major research paradigms, but has gained attention in recent years due to its emphasis on action rather than philosophy. Because of this, a pragmatic paradigm was selected to frame this work to fill gaps in the literature related to the application of PBE in elementary school contexts specifically. Pragmatism is concerned with solutions to problems rather than methods and looks for "what works" within the context being studied (Creswell & Poth, 2018, p. 27). John Dewey (1910) states that pragmatism highlights the value of combining actions and beliefs through a process of inquiry that should serve as the basis of any research. Because the results of this research are of value to Belgrade School District, it is imperative that action is at the center of my recommendations–action that I am uniquely positioned to support in my capacity as an instructional coach.

Pragmatism is often applied to studies that employ mixed methods approaches, but the intention is that this case study will be the first of many studies related to PBE implementation in this district and in other districts. This initial research will provide a rich description of reality by recognizing and considering the nature of the problem–in this case, potentially limited implementation of PBE in Belgrade–and will suggest a solution in the form of next steps specific to the district. Once steps have been taken and sustained for a sufficient length of time, a second study that explores the outcomes of the action taken would be valuable.

Context and Participant Selection

Belgrade is located in southwest Montana, about 15 miles from Bozeman. This close proximity to one of the largest cities in the state provides Belgrade residents with access to amenities not available to more rural communities. The population in Belgrade has grown exponentially since 2019, and most recent census projections in 2022 estimate the current population to be about 11,966 (U.S. Census Bureau, n.d.). This influx of residents pressured the community to adjust to an increased need for resources and has caused a shift in the political context. Although the state legislature in Montana is majority Republican, Bozeman tends to vote more Democratically than most other cities in the state. Belgrade, due to its smaller size and economic landscape, tends to fall somewhere between these two.

This study took place over the course of two weeks in the three elementary schools in Belgrade School District (BSD): Ridge View, Saddle Peak, and Story Creek. Currently, the district identifies itself as standards-based and utilizes the Professional Learning Community model to guide assessment and instruction. Professional Learning Communities (PLCs) are structured meetings with grade-level teams to discuss student data and consider the following questions: 1) what do we want all students to be able to do?; 2) how do we know if they learned it?; 3) what do we do if they didn't learn it?; and, 4) how do we extend learning for students who have learned it (DuFour & Dufour, 2013)? BSD is currently experiencing varying degrees of standards-based instruction implementation K-12, and this study focuses solely on the elementary sector in order to provide reasonable, differentiated action steps to three schools that are in the same phase of implementation.

Participants in this study were K-4 teachers and district administrators from each of the elementary schools. There were a total of 10 participants: three veteran teachers and two first-year teachers that represented a range of grade levels K-4, all three building principals, the district curriculum director, and an elementary instructional coach. Due to my positionality and familiarity with the district, a combination of stratified purposeful sampling and convenience sampling strategies were utilized to recruit participants. Miles and Huberman (1994) note that convenience sampling saves time, money and effort–factors which needed to be considered in my thesis work. However, to combat the potential risk of credibility that arises through a convenience-only sample, stratified purposeful sampling was included.

While conducting this sampling procedure, four major criteria were applied: 1) drawing participants that represented multiple perspectives, 2) using multiple participants, 3) focusing effort on participants who were expected to be most knowledgeable, and 4) considering which participants had been affected by the implementation but potentially less involved in the process (White & Cooper, 2022). As a result of this, homogeneous subgroups, or strata, were identified for the purposes of this study: veteran teachers, new teachers, and district-level administrators. The intent of stratified purposeful sampling is to facilitate comparisons and identify major variations, while expecting commonalities to also emerge through data collection and analysis (Miles & Huberman, 1994; Patton, 2002). From my experience working with each of these groups within the context of my position as an instructional coach, I was aware that each of these groups possessed varying knowledge of proficiency-based models, experienced the implementation of PBE structures differently in their roles, and had diverse understanding of Belgrade's multi-year implementation of standards-based practices.

Because this work is exploratory, the philosophical assumptions that situate the research will be ontological in nature and accentuate the idea that "reality is multiple, as seen through many views" (Creswell & Poth, 2018, p. 20). Veteran teachers, new teachers, and administrators will have varying experiences with the implementation of a proficiency-based education model, and the purpose of this study is to gain an understanding of their realities–how they differ, and potentially how they overlap (Creswell & Poth, 2018). By aligning the ontological philosophical assumption with a pragmatic framework, this research aims to show that reality is based on individuals' experiences, and is founded in solving real-life, practical problems (Frey, 2018).

Data Collection

Data was collected for this study in the form of one-on-one, semi-structured interviews with teachers and administrators. Interviews were selected due to their ability to explain the "how" and "why" from the perspective of participants–both of which will generate conversations framed in action as it relates to PBE implementation (Yin, 2018). The decision to use a semi-structured model came as a result of time constraints, researcher positionality, and a desire to preserve the validity of results. Yin (2018) states that the two responsibilities of a researcher throughout an interview are 1) to follow one's own line of inquiry and 2) to ensure that questions are asked in a way that eliminates or reduces bias. Because I am so intimately involved in the PBE implementation process at Belgrade and professionally invested in the results of this study, it was important to maintain a level of structure in the interviews that ensured I was not corroborating findings I believed to be true from my own experiences as an instructional coach. Furthermore, because interviews were conducted during participants' lunch or prep times, it was important that I respect their time as a researcher. By following my protocol (Appendix A)

closely and relying on the interview questions to guide conversations, I was able to reduce the time spent on content not directly tied to the focus of the study that may have arisen in a less-structured interview (Yin, 2018).

While maintaining a level of structure throughout the interview process, it was also important to allow participants the space to expound their views on the content in a way that invited personal views, attitudes, and perceptions that were potentially influenced by their role. By building upon pre-existing relationships with participants, I was able to embed a level of flexibility in interviews that I believe increased the authenticity of responses. To ensure that this rapport and relationship did not jeopardize the trustworthiness of the study, I engaged in reflexivity–taking a few measures to acknowledge my positionality prior to and throughout data collection, analysis, and interpretation. At the start of each conversation, I clearly articulated to participants that their responses to interview questions were completely confidential and would not be shared with their administrators, with whom I also maintain a close professional relationship. Additionally, I stated that my role as a researcher was entirely separate from my work as an instructional coach. I asked that they answer as honestly as possible, with efforts made to eliminate my role in the district from consideration in their responses. The full statement can be found in Appendix A.

Audio of each interview was recorded on a device and stored with names of participants removed from the titles of each interview file. Recordings were then uploaded into the Otter.ai program, which transcribed each interview, with minor edits that were completed by the researcher, who listened to recordings and followed along on typed transcriptions to correct any errors that appeared. The decision to record audio rather than write notes throughout the

interviews was made solely to prevent bias in data collection. My close connection to this case meant there was potential for my own perspective to influence the content, tone, and quality of the notes taken throughout the conversations, and recording the interviews ensured that my results were not influenced by confirmation bias.

Data Analysis

A combination of deductive and inductive content analysis was applied to the data collected in this study, which was guided by structural coding methods. Structural coding, also referred to as "anchor coding," "utilitarian coding," "index coding," "referential coding," or "macro-coding," is the process of developing phrases that portray a topic of inquiry in which segments of data are related to specific research questions (MacQueen et al., 2008; Saldaña, 2021). This method allows the researcher to "examine comparable segments' commonalities, differences, and relationships" (Saldaña, 2021, p. 130), which mirrors the rationale behind the use of stratified purposeful sampling in this study. To comprehensively understand the facilitators and barriers to PBE implementation in Belgrade School District, it was important to represent all groups of involved faculty members and consider how implementation may impact participants differently depending on their role and experiences. Additionally, the ability for structural coding to identify commonalities between groups allowed me to make both large-scale and differentiated recommendations for next steps.

Once structural codes had been developed, emergent ideas were coded and categorized based on which structural code they described, aligned with, or provided an example of. A codebook was created, starting with structural codes, and definitions were created for each of these based on the PBE criteria from which they were pulled (Great Schools Partnership, 2018).

From there, emergent sub-codes were added to structural codes to illustrate how the criteria were being implemented within the district. For example, “aligned resources” was a structural code pulled from the PBE criteria and interview protocol, and the following sub-codes were added: “new aligned, district-adopted resources,” “some subjects lacking aligned resources,” and “teachers using resources that aren’t vetted.” Participant quotations that described each of these emergent sub-codes were included and labeled to determine whether these were the perceptions of administrators, veteran teachers, new teachers, or a combination.

By relying heavily on emergent codes rather than codes pulled from the literature on PBE, I limited the influence of my potential bias as a researcher, which may have been problematic if utilizing a method such as provisional coding. Saldaña (2021) warns that a potential drawback of provisional coding is finding what you are looking for, and I considered this too high a risk to consider given my positionality. Additionally, due to the intrinsic nature of this case study, the goal was to explore the facilitators and barriers that are unique to Belgrade rather than framing my analysis in literature from other schools’ experiences. Although themes that appeared in interviews mimicked those found in studies conducted in other contexts, emergent coding ensures that the results represent the true reality of PBE implementation in Belgrade School District.

Throughout the entirety of the data analysis process, I moved between and within various phases of the data analysis spiral as new ideas emerged (Creswell & Poth, 2018). In order to gain an understanding of the implementational reality of PBE in Belgrade, I asked teachers to describe what each criterion of the model looks like in reality. In the interview, I separated these questions from the questions related specifically to facilitators and barriers, coding them

separately, and quickly discovered in my analysis that there were many overlapping codes and themes arising from participant responses. When describing current PBE implementation, many teachers naturally mentioned the facilitators and barriers that led to that reality rather than presenting them separately as my interview had been originally structured. In future research, I would plan to embed questions about facilitators and barriers to address this issue because it would likely produce more robust responses from participants than if asked in isolation.

As I developed a large list of codes from participant interviews, I naturally started to create code clusters that would fit within an overarching theme. However, as I conducted a thematic analysis, I observed that codes such as “pockets” were discussed as barriers to multiple criteria of PBE. Rather than indiscriminately adding this code under multiple themes, I analyzed the a priori themes and codes I had previously developed and adjusted a few of them to more clearly reflect the nature and perspective of the participants. For example, in the initial coding, “pockets” was listed as a code under “professional development,” “resources,” “accountability,” and “buy-in.” Because of its frequency and pervasiveness throughout multiple components of implementation structures, I decided to create “pockets” as its own theme, pulling relevant code clusters to emphasize these “pockets” as a barrier. An example of this new theme can be seen in Table 4 below.

Table 4. Example of thematic analysis.

Codes	Code Clusters	Theme
Differentiation in small groups	Tier 1 Instruction	"Pockets"
Whole group instruction focuses on same standard		
Minimal student choice		
Lacking self-navigation		
Assessments not used to guide instruction		
Teachers using resources that aren't vetted	Resources	
Not all teachers using district-adopted resource		
Not all subjects have aligned resources		

In the end, not all facilitators and barriers were able to fit within the structures of "current implementation," but I felt they were some of the most frequently mentioned or were weighed the most heavily by participants–meaning they could not be ignored or left out of the analysis. As a result, I classified these codes separately as "big picture" facilitators and barriers that contributed to the overall success or failure of PBE implementation, according to participants.

Strategies to Ensure Trustworthiness

Three strategies for validation were applied to the data collection and analysis processes in this study. From the researcher's lens, I have consistently engaged in reflexivity–disclosing the biases and experiences that shape my understanding of proficiency-based education and Belgrade School District (Creswell & Poth, 2018). By doing this, I provided transparency to participants and readers as they consider recommendations put forth in this study. From the participant's lens, my prolonged engagement and persistent observation in the field has made me

acutely aware of the district's needs and therefore able to identify relevant concepts and participants to address the research questions most effectively. My relationship with the district allowed me to "build rapport with participants and gatekeepers, learn the culture and context, and check for misinformation that stems from distortions introduced by…informants" (Creswell & Poth, 2018, p. 262). Finally, though this is an intrinsic case study designed to support PBE implementation in Belgrade School District, it is possible that the rich, thick descriptions provided in this thesis allow for a level of generalizability or transferability to districts with similar characteristics looking to facilitate the implementation of proficiency-based education in their own schools (Creswell & Poth, 2018).

The structural codes created for data analysis can be organized into the following broader categories: implementation of curricular criteria, implementation of instructional criteria, implementation of assessment criteria, and "big picture" facilitators and barriers. The purpose of this organization of data is to create a clear blueprint for Belgrade School District, and to illustrate the quality of implementation for each specific criterion of PBE. In addition to listing "big picture" facilitators and barriers in the district, participants described the facilitators and barriers affecting each criterion throughout their interviews, which have been embedded into the results section below.

CHAPTER FOUR

RESULTS

This chapter summarizes the data from structurally-coded participant interviews, using criteria from the list of "Beliefs and Practices of Proficiency-Based Learning" (Great Schools Partnership, 2018) as a framework to organize the findings. Categories of implementation criteria include curriculum, instruction, and assessment, and each of these is composed of more specific subcategories, which are detailed below. The purpose of this section is to illustrate the structures and systems of proficiency-based education that are present in Belgrade School District (BSD) as they relate to these criteria and identify facilitators or barriers that are contributing to the level of current implementation. Pseudonyms and identifying labels were not applied when quoting participants in this section to preserve their anonymity. Due to the small size of the population and sample in this study, using specific pseudonyms or labels for each participant might risk identification by other members of BSD. Instead, participants will be categorically referred to as "administrators," "teachers," "new teachers," or "veteran teachers." Although participants are grouped into one of the above categories rather than identified explicitly, direct quotations in this section have been pulled from each participant at least once.

Implementation of Curricular Criteria

Pathways Aligned to Standards

"Pathways" are defined by Great Schools Partnership as courses, internships, extended learning opportunities, etc., but for the purposes of this study, participants focused on specific curricular materials and their aligned subject-specific courses such as mathematics, English

Language Arts (ELA), science, or social studies. In all ten interviews, participants felt that a majority, but not all, of the pathways were aligned to state standards. More specifically, teachers and administrators alike felt that mathematics was most aligned, while ELA, science, and social studies were potentially only aligned at certain grade levels, or not at all. As a result of this, one veteran teacher felt that this lack of alignment was creating "a lot of holes" in instruction across the schools and grade levels. Because the context of this case study only serves students in grades K-4, participants only mentioned resources when referencing "pathways" --considering whether "courses" were aligned to standards was less relevant than it might be in a high school setting, for example.

Facilitators and Barriers: There was only one facilitator to aligned pathways mentioned in interviews, and this was the recent district-wide adoption of a common math program. Teachers and administrators alike felt that this program aligns closely with the grade-level state math standards and provides comprehensive instructional materials for all grade-level content. However, this facilitator of newly adopted math resources was referenced in combination with the barrier of lacking accountability from administrators, and three teachers–including two new teachers–noted that, despite having a newly adopted math resource, many of their coworkers still think using it "is more of a choice."

Far more barriers than facilitators were mentioned in reference to aligned pathways, although teachers felt that, in general, the district was moving in the right direction with the upcoming adoption of a district-wide ELA program. Firstly, a lack of common resources in science, social studies, and ELA were a point of frustration, with one veteran teacher stating, "we have these standards that we are supposed to assess in science, social studies, and writing…but

there's really nothing for our grade level to teach." As a result of this, all five teachers explained that a majority of the resources being used in these subject areas were not vetted–many of them coming from Teachers Pay Teachers or being created by teachers themselves. A teacher stated that materials in the district felt very "piecemealed," noting that this was not done intentionally, but out of necessity.

When asked what caused this "piecemeal" approach to materials, three teachers who have worked in the district for over five years mentioned that when the district began its shift toward standards-based instruction, it was made clear to them that curricular materials were not needed. One veteran teacher described this shift and its impact in more detail saying, "we were told that standards were the curriculum. So, we kind of got away from using any common resources…and teachers are kind of just doing their own thing." A second teacher in this group believes that the district now faces a widespread "misconception that we can't use a program" and simultaneously implement a proficiency-based or standards-based educational model.

Two participants, an administrator and teacher, mentioned the ways that lacking alignment in curricular resources has acted as its own barrier to other criteria of PBE implementation in the district– contributing to inadequate Tier 1 and Tier 2 instruction. For example, one teacher explained, "Teachers are having to create their own materials, and time is spent creating those materials and not necessarily on differentiation (or instruction)."

Implementation of Instructional Criteria

Differentiation, Varied Paces, Student Choice

Much like the implementation of curricular criteria of PBE, participants felt that elements of instructional criteria were happening in "pockets," with some structures being utilized more

effectively or consistently than others. Differentiation was something that all teachers and administrators felt was happening in all classrooms to some degree, although most respondents believed it occurred predominantly and most intentionally in small-group instruction. At some schools and some grade levels, teachers share students within the grade level to target specific skills and provide opportunities for intervention, enrichment, or reteaching of current standards. Teachers also felt that student choice was encouraged in many classrooms, and they mentioned self-navigation tools as a formal way for students to exercise some autonomy over their learning process. An example of a fourth-grade self-navigation tool for math can be found in Appendix C. Although there are only a small handful of teachers currently using self-navigation tools, other participants felt that student choice related to content was also present–for example, when a student is able to choose which animal to research for an ELA assessment. Of the three elements related to "learning in different ways," all 10 participants felt that the implementation of varied paces was the weakest. Generally, students move together through the same standards during whole group instruction, because developing an individualized learning plan for each student felt daunting to veteran and new teachers alike. One veteran teacher noted, "When you've got 20 kids at 20 different [places]," it's almost impossible to put them in groups. "I'm good," she said, "but I'm not that good." A new teacher echoed this: "I'd probably be differentiating 20 different ways, just because they're 20 different learners. So, you kind of have to do it to the mass majority." Although this seems to be the reality for most teachers in most classrooms, an administrator felt that there "are little pockets of pausing points" where students are given an opportunity to "go deeper with (a) standard with enrichment."

Facilitators and Barriers: The only facilitator mentioned related to this criterion was embedded intervention blocks that are in the daily schedules at two of the three schools. One administrator reported that having "times where it's expected that everybody is doing (interventions)" ensured that all students were exposed to core grade-level material, encouraged teacher teams to share students, and increased the likelihood that students received targeted interventions to meet their needs.

As mentioned in the "implementation of curricular criteria" section above, lacking resources has contributed to barriers to implementing differentiation. Both time and weak Tier 1 instruction were mentioned by teachers and administrators related to differentiation, with one teacher arguing that "differentiation is a whole other step that comes after you have solid Tier 1 instruction. And I'm not sure we have had that in our district, especially when we don't have common resources." Additionally, differentiation appears to be hindered in math specifically due to unfamiliarity with the resource and veteran teachers holding onto previous district expectations of program fidelity. Because the district has not had an aligned common resource in math for so long, an administrator noted that many teachers are struggling to "be flexible with resources" and differentiate based on student needs without feeling like they "can't use this resource at all." Prior to the implementation of standards-based instruction, one teacher explained that district messaging about fidelity conveyed to staff that "there wasn't a lot of room for adaptation," and she feels that, despite shifts in instructional approaches, "people are stuck in that." When teachers were accustomed to teaching one lesson each day, it left little room for slowing down or speeding up according to assessment of student proficiency.

Of all criteria included in the "Beliefs and Practices of Proficiency-Based Learning," (Great Schools Partnership, 2018), varied paces of student learning faced the highest quantity of barriers in participant responses, and it was clear that teachers and administrators indicated that these barriers were going to be the most difficult to overcome. Most commonly highlighted was the nature of a traditional school structure. The presence of traditional grade-levels determined by age, as well as the lack of retention or acceleration through these grade-levels, was mentioned by numerous participants to be a limiting factor for varied paces. Both administrators and teachers explained that students are not individually moved onto new standards once they have demonstrated proficiency, and students are promoted to the next grade level regardless of performance on grade-level standard assessments. When asked if students continue working on a standard until proficiency, a veteran teacher referenced feeling pressure "to get through this stuff," and worried that spending additional time on specific standards would not expose the student to all grade-level content.

Furthermore, the instructional reality of providing individualized learning plans to allow for varied pacing for all students on grade-level standards "is kind of daunting." A new teacher said that, although she does her best to differentiate, meet students where they are at, and provide opportunity for them to move forward or remain with standards, she would "be differentiating 20 different ways…so (I) kind of have to do it to the mass majority." The pressure to address all grade-level standards was felt intensely by participants, and many felt that truly individualized pacing would not be possible without removing traditional grade levels entirely. Currently, one of the three elementary schools implements a model for academic intervention and enrichment known as WIN time, where students are either pulled out to work in a small group with an

interventionist or receive explicit instruction from one of the grade-level teachers based on specific skills in that content area. This time occurs outside of grade-level core instruction, and can be used to reteach previous grade-level standards, review current grade-level standards, or provide enrichment opportunities for students who have met benchmark goals in specific skills.

Feedback to Adjust Instruction and Multiple Assessment Opportunities

In general, participants reported that formative assessments are used to adjust instruction on a relatively frequent basis. More specifically, teachers discussed the role of these "quick checks" in creation of small, targeted skills groups or adjustment of whole group core instruction. Examples of these assessments included district-created common formative assessments, exit tickets, "thumbs up or thumbs down," or informal conversations between teacher and student. One major gap in implementation of these criteria was identified, related to giving students "multiple opportunities to improve their work when they fail to meet expected standards." Two participants specifically stated that many teachers give all of the formative assessments at the end of the quarter, which minimizes or eliminates a student's opportunity for reteaching and reassessment before the reporting period.

Facilitators and Barriers: Teachers and administrators both lauded Professional Learning Communities as a key facilitator. A new teacher felt that weekly PLC meetings with her team were "extremely helpful" in her first year, because they were able to "talk as a team about standards-based instruction" and brainstorm ideas for application in the classroom. Characteristics of formative assessments that facilitated implementation of formative assessments according to participants were the minimal time they require, and the ease of embedding them into daily lessons. A teacher described giving formative assessments on a daily

basis throughout instruction as a tool to identify where specific students have specific gaps in their understanding. Once this data was collected, she said it was easier to “do some targeted quick little interventions with them” before moving to something more formalized.

There was one barrier to these criteria identified by participants, which was the structure and role of the report card. As discussed previously, five participants felt that, in Belgrade, formative assessments are viewed as something to report on a report card rather than a tool to adjust instruction. Because of this, students are only given one opportunity to demonstrate proficiency on a standard because each standard is only included once per year on the report card. An administrator noted that, in some classrooms, teachers are giving all assessments at the end of the quarter rather than throughout it to guide their instruction. As a result of this, she felt that students in these classrooms were only given multiple opportunities to improve their work “if it comes up in the resource again, and you’re teaching it again out of pure luck. But it’s not as intentional.” Veteran and new teachers both expressed frustration with the fact that the current report card does not show growth in standards throughout the year, and echoed the administrator’s perception that the report card structure is what often determines the frequency and timing of formative assessments. A veteran teacher attempted to explain this “end of quarter” assessment phenomenon, stating, “I think it is a byproduct of traditional teaching.” She believes that, for many teachers who have previously used traditional models of education, there may be a vestigial feeling that the students “need to know all of the material before [the teacher] can assess it.”

Implementation of Assessment Criteria

Assessments Aligned to Standards

Of the criteria presented to participants, it appears that this was the one that teachers and administrators felt was implemented most comprehensively–across all three schools, in all grade levels. All 10 participants mentioned "CFAs," which is Belgrade School District's shorthand reference to common formative assessments. The district has a Google Drive of teacher-created assessments available for use. Participants all explained that these assessments have been designed by teacher leaders on the SBI committee and have been revised consistently over time. One teacher who serves on the committee discussed this revision process: "We came up with assessments early on…and we're constantly re-evaluating now that we have a more advanced understanding of those standards, [and] we know what those verbs mean." The Google Drive contains multiple assessments for each standard, ranging from "2.0s" (partial assessment of the standard), to "3.0s" (assessments of the entire standard), and these numbers indicate levels of proficiency on the standard as defined by the corresponding proficiency scales.

Although most participants felt that most assessments were aligned with standards, it is important to note that three of them expressed concerns about incompletion. An administrator commented that the created assessments are potentially "not all developed to the same degree" in all subject areas. Two teachers echoed this and stated that the temporary solution to the lack of quality assessments for all standards has resulted in assessments that are aligned to the curricular resource rather than specific standards–making instruction and assessment difficult when staff are using a wide range of resources.

Facilitators and Barriers: When considering the development of aligned assessments, professional development and time were recognized as facilitators. For members on the SBI committee, ongoing professional development and time for collaboration contributed to the creation and revision of grade-level, standards-based assessments. However, time was also mentioned as a barrier in this process, because participants who serve on the SBI committee felt that the time spent at committee meetings was often spent on big-picture capacity-building rather than providing them with time to apply new knowledge to the development of assessments. It can be frustrating, one teacher on the committee explained, that "there is not enough time to have the conversations that we need." She went on to say "I think that sometimes the district tries to control our time when we are given time to work with these things. And giving us time to actually do the things we need instead of having such a scheduled agenda…can help us move forward." Additionally, because science and social studies were not originally reported with proficiency scores on the report card, the bank of available assessments in these subjects is lacking in comparison to math and ELA–forcing teachers to pull assessments from programs or lessons to "have something to put on the report card."

Formative Assessments for Practice, Self-Assessment, and Student Self-Reflection

Of the 10 participants interviewed in this study, eight reported that opportunities for students to self-assess were quite limited. An administrator did not know if "teachers are really using feedback to kids in that way," and found that most of the teachers tended to utilize assessment data for their own use related to instruction and record-keeping rather than transparently providing it to students to encourage self-assessment. Self-navigation tools were identified as a tool for guiding student self-assessment, but only one veteran teacher in the study

reported that she currently utilizes this tool. When asked why she was able to implement self-assessment in this way when no other teachers in the district had, the participant referenced her professional development through the Alliance for Curriculum Enhancement—there was not training related to self-navigation tools offered through Belgrade School District.

Facilitators and Barriers: There were no explicit facilitators for self-assessment mentioned in interviews. In contrast, seven of the participants felt that this was a difficult component to implement with students in grades K-4 because "it is tough to find the appropriate language" for young children to self-assess. Others commented on the developmental capabilities of kindergarten and first grade students specifically, and the difficulty they have in evaluating their own performance on grade-level standards. "Sometimes," a teacher stated, "they can give you a really honest answer. And other times, [it's] 'I'm amazing.'" Administrators, new teachers, and veteran teachers all felt that student self-assessment was a potential reality for primary classrooms in the district, but that explicit instruction would be needed to provide students with the skills needed to evaluate their own work–particularly in kindergarten through second grade. In addition to the difficulty of creating developmentally appropriate opportunities for self-assessment, a veteran teacher in the district speculated that teachers may not "realize that [letting students self-assess] is something they can do" since it hasn't been explicitly stated by administration and is a component that may be unfamiliar to teachers coming from a traditional instructional background.

Summative Assessments Evaluate Performance at a Given Point in Time

Participants often responded to this criterion with the question, "What do you mean by summative?" or "Do we have summatives in our district?" While I could have provided my own

opinions due to my role in and experience with the district, I asked participants to define "summative assessment" in whatever way they understood it to mean. Although one teacher felt that "end of quarter" 3.0 assessments could be considered summative and another made an argument for end-of-year state tests as summative evaluations of student knowledge, six of the participants felt that the district did not have consistent summative assessments implemented or defined. However, for each of the six, this was not viewed as a deficit due to the district's strong emphasis on formative assessments. The teachers felt that they were "getting all the information (they) need" from formative assessments, and that they were "more diagnostic" and "more prescriptive" than summative assessments.

Facilitators and Barriers: The only response that could be coded as a barrier to this criterion was a lack of district-aligned summative assessments available for teacher use. A veteran teacher discussed her occasional end-of-unit performance tasks which could be considered summative demonstrations of knowledge, but noted that time and teacher expertise may play a role in the frequency or quality of these assessments.

"Big Picture" Facilitators and Barriers

Criteria-specific facilitators and barriers have been mentioned throughout this section, but in conversations with participants, there were additional elements that arose as widespread contributors to PBE implementation in the district. The following themes are not tied directly to any one component of PBE, but participants felt that they impacted the comprehensive implementation of PBE in many ways.

Facilitators

Professional Development: Having ongoing professional development available for teachers was perceived as a facilitator by nine of the 10 participants. More specifically, three of the teachers and 2 of the administrators interviewed felt that the SBI committee of teacher leaders has provided time to collaborate and align many of the district SBI and PBE structures. The three teachers who identified this committee as a facilitator have served as teacher leaders in that capacity for a number of years, and the two teachers who did not name the committee are both new to the district.

Buy-In: Participants strongly believe that buy-in from teachers and administrators alike has impacted the implementation of PBE in a positive manner. One veteran teacher feels that "from an administrator standpoint, they're all on board with 'this is what we want, and this is our vision,' which is great." They indicated that administrator buy-in is necessary in order to create top-down change, and believe it contributes to increased teacher buy-in. One administrator, on the other hand, believes that teachers who "get the picture" and "understand and see the value in [PBE]" are more likely to be "doing these things in their classrooms." Both teachers and administrators were in agreement with this, and concluded that teachers who think that PBE is beneficial to students are more excited and more likely to comprehensively implement it in their own classrooms regardless of its status district-wide.

Instructional Coaches: Creating instructional coaching positions for the K-4 schools in 2022 was acknowledged as a strong "big picture" facilitator, specifically related to the alignment of structures and communication across the district. Five participants felt that adding instructional coaching had a positive influence on the overall implementation of PBE, and both

new teachers expressed the role of coaching in their understanding of logistical expectations. “I would not have understood half of the information that was given to us at the beginning of the year had it not been for the coaches. Having a sort of one-on-one follow-up of big picture things was huge,” recalled a new teacher. For veteran teachers and administrators who have worked in Belgrade for more than three years, they expressed appreciation for the ways in which the instructional coaches have bridged gaps of knowledge between SBI veteran teacher leaders and new-to-the-district employees.

“It’s Not Going Anywhere”: The final theme that arose as a facilitator to PBE implementation in Belgrade was the staying power of current SBI structures. One administrator applauded the district, explaining, “every year we have some sort of SBI component, the SBI teams are still going strong, and we’re still getting continuing support throughout the year. It’s been eight plus years of a full implementation and a big piece of it is the consistency.” Teachers were encouraged that, despite pushback and frustration throughout the process, district administration had not moved away from any fundamental components of standards-based instruction. “It’s not like, ‘oh we did 3, 2, 1, and now we’re going back to A, B, C, D.’ Those things aren’t going away.’” A teacher and administrator commented that, in the past and with enough teacher complaints, many things in the district have faded into the background but feel encouraged that SBI has not done so.

Barriers

Professional Development: All 10 participants identified professional development as their primary concern in discussions of barriers to PBE implementation. Time was the most specific explanation of this barrier provided by both administrators and teachers alike. Because

there are such limited days in the school calendar dedicated to professional development, many are assigned to other district initiatives such as onboarding curricular resources. A district-level administrator said he "feels lucky if he can plan a half day of PD…it's always a fight between other priorities."

The lack of available time for professional development has meant that training related to SBI and PBE has largely been optional–the only mandatory training occurred in the first year of SBI implementation in the district, in 2019. This has been particularly "problematic" with an influx of new teachers, notes an administrator, and many participants described the ways that optional professional development opportunities have yielded disproportionate knowledge of these educational models, as well as a range in buy-in. Because SBI committee members are the only staff members required to attend training each year, one participant on the committee felt that "it shouldn't be put on people having to go back and say things" and that information "needs to come from one source." An administrator echoed this, saying the district's "challenge now is getting the information back from the SBI team to grade levels effectively" without it turning into a game of telephone– messages evolving through each conversation. Another participant on the committee described her experience similarly, and believes "there's definitely information that's been interpreted differently."

Time: Although time was identified as a barrier to specific criteria above, it also arose as a larger-scale concern from teachers who felt that a lack of time impacted the implementation of high-quality curriculum, instruction, and assessment. When asked what may contribute to the feelings of "not enough time," five participants conveyed that their coworkers often complained that standards-based or proficiency-based models felt like "added work." An administrator

provided insight into this perspective and said she felt that it stemmed from "teachers not understanding the 'why'" behind the approach.

Buy-In, Openness to Change: The next full-scale barrier discussed in interviews was the idea of teacher buy-in and willingness or openness to changing their approach to education. Seven of the ten participants named this phenomenon explicitly, and many of them felt that this was most common among the most veteran teachers who have been in the classroom the longest. "There are some teachers who have experience, but this is a switch from how they've always taught. It requires you to be open to having situations where something doesn't work out," said one participant, adding, "I think a lot of the people who are bought in have actually come from other districts." Similar to the barrier of time, four participants hypothesized that the lack of teacher buy-in and willingness to change was due to a misunderstanding of the rationale for implementing SBI or PBE.

Lack of Accountability: Interestingly, this barrier was largely disclosed by teachers–with four of the five teacher participants naming this as a barrier to comprehensive PBE implementation. Much like professional development, components of SBI in the district have been communicated as largely optional, or have incurred minimal consequences if not executed in classrooms across the district. One teacher cites a lack of follow-through and support related to PBE implementation, and feels that the district's "strategy has been, 'oh, if you don't feel comfortable, do what you want.'" For teachers who are meeting all of the criteria and are comprehensively implementing PBE with more fidelity than others, they hope to see teachers held to a higher standard. One veteran teacher who has been a leader in the district's shift toward PBE explained, "at a certain point, if you're not doing what you're supposed to do, and you don't

think this is what's best for kids, if you don't buy into this, if you aren't doing what the district is expecting you to do, there has to be a line at which point people [put you] on an improvement plan."

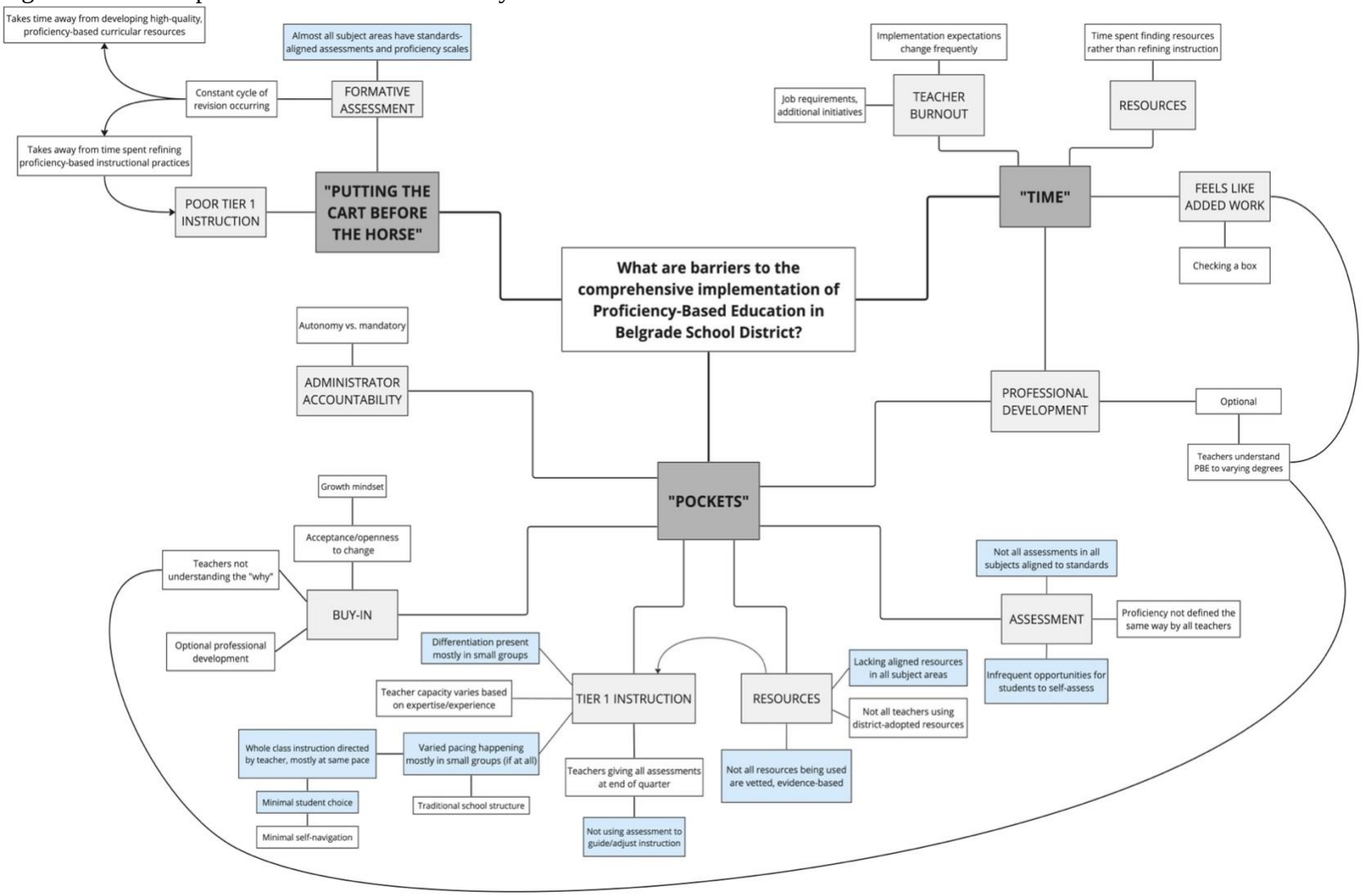
Frequent Changes to Implementation Expectations: Due to Belgrade's ongoing standards-based instruction adoption, messaging to teachers has changed over time. Five participants detailed ways in which the district's stance on and approach to assessment, curricular programs, and communication of student proficiency has changed since the inception of the SBI model in 2018, and acknowledged that the evolutions have yielded staff frustration and misunderstandings. Although recognizing the importance of these changes, participants believe that staff members who have not attended recent trainings may be less open to changing their approach. Evolutions in implementation expectations throughout the district are the result of an increased understanding of the cognitive science about how students learn, but a teacher who has attended every training recognizes that this rationale for changing current structures is not being communicated to staff who do not attend. Instead, many teachers are holding onto messaging delivered in the earliest professional development sessions, which may contradict current implementation expectations–leading to frustration and a lack of flexibility.

Teacher Capacity and Burnout: Four participants, including a new teacher, believe that teacher capacity and burnout have acted as barriers to a more refined implementation of PBE principles. Rather than considering PBE as an approach to instruction and assessment, participants believe teachers view it as "one more thing" they are responsible for in a career that is already substantially demanding. A new teacher summarized this, stating, "I know a lot of teachers are struggling just being present at school. We have a sub shortage, and a lot of people

are tapping out…I think teachers are just exhausted." Two administrators argued that a teacher's expertise and experience play a role in their ability to implement components of PBE, and it is possible that deficiencies in either of these areas may contribute to those feelings of "burnout."

A multitude of facilitators and barriers were identified for each criterion of proficiency-based education implementation in Belgrade School District, many of which mirrored findings in the literature. Themes that arose through a thematic analysis included limited time, "pockets" in implementation, and the feeling that the district implemented components of the model in the wrong order. Each of these themes encapsulates more specific barriers, such as lacking professional development, insufficient accountability from administrators, inadequate Tier 1 instruction, gaps in understanding of the rationale for PBE, and varied teacher buy-in, which are illustrated in Figure 3. The figure is a visual representation of thematic analysis that was conducted and depicts the codes and themes that were pulled from participant interviews. The purpose of this figure is to represent the "current reality" of PBE implementation and provide insight into the facilitators and barriers that have contributed to this level of implementation. Components in blue explain the "what" and indicate codes pulled from participant interviews that were connected directly to specific criteria from Great Schools Partnership's "Beliefs and Practices of Proficiency-Based Learning" (2018) document. These codes allowed me to see which criteria were currently being implemented in the district and at what frequency, informing the next steps recommended in the following chapter. Components in white or grey explain the "why" and "how" of PBE implementation in Belgrade--highlighting facilitators or barriers that participants discussed.

Figure 3. Visual representation of thematic analysis.



CHAPTER FIVE

DISCUSSION

This case study aims to answer the following research questions: a) How does a Montana elementary school district implement Proficiency-Based Education? b) What do teachers and administrators view as the facilitators and barriers that affect a comprehensive implementation of a proficiency-based education model in a Montana elementary school district? and c) What action steps are needed to advance the implementation of a proficiency-based education model in this context? The following sections summarize the findings and will provide actionable next steps for Belgrade School District to establish a more comprehensive implementation of PBE.

It is evident through a thematic analysis of participant interviews that there are a handful of components of proficiency-based education being implemented comprehensively and with fidelity, while others are lacking. Of the 8 criteria examined in this study, those pertaining to assessment appear to be the most consistent across the K-4 district–happening in most, if not all, classrooms. Specifically, teachers and administrators stated that the district has developed a strong bank of formative assessments in ELA and math that are aligned to a common set of standards and noted that this work is ongoing in science and social studies. Furthermore, all participants felt confident that these common formative assessments were being used in classrooms to provide targeted feedback to students.

Both administrators and teachers value the diagnostic nature of these formative assessments, and feel that resource-aligned summative assessments were not a necessary addition to current assessment practices. Rather than give an end-of-unit test, for example, teachers said they preferred to give assessments throughout each quarter as a tool to guide their instruction.

Belgrade gives what they call “3.0 assessments,” which are assessments of single standards, and teachers felt that these could replace summative assessments since they are an indicator of a student’s proficiency on the entire standard.

The following discussion emphasizes barriers rather than facilitators to develop an action plan that is both pragmatic and relevant to the context of Belgrade School District. However, this should not detract from the structures and practices listed above that are being implemented adequately at this time.

“Time”

A consistent theme that arose as a barrier across all three domains of proficiency-based education implementation was limited time. Working within the confines of the annual teaching contract means teachers constantly feel that they are only able to find time for proficiency-based components through reallocation—pulling it from other mandatory tasks that require their attention. When teacher-leaders spend time during committee meetings developing and revising assessments, the burden of creating curricular materials falls onto individual classroom teachers. When individual classroom teachers spend time creating standards-aligned materials, the cognitive space for differentiated, student-centered, and responsive instruction is reduced. In interviews, inadequate time for professional development and collaborative work time was explicitly named by all participants as a barrier to comprehensive PBE implementation–with most training being offered optionally.

The participant sample was primarily composed of teacher leaders who have been involved in training or mentored by instructional coaches, but provided insight into the barrier of time as experienced by their peers. “Because they don’t understand the ‘why’ of our [common

formative assessments],” many teachers felt the volume of assessments required in a PBE system was unmanageable. Rather than viewing assessments as quick checks for proficiency to guide instruction, many teachers felt that they were “something extra” that only existed to communicate progress on a report card at the end of a quarter. This misunderstanding is likely a product of insufficient professional development, which, alongside “collaborating with colleagues,” was another barrier identified under the theme of “time.” Although this study was conducted within the context of an elementary school district, the literature indicates that time is a barrier to PBE implementation within many K-12 contexts (Evans & DeMitchell, 2018; Evans et al., 2020). In the ever-changing landscape of education, districts are pressured to implement numerous initiatives at once, and Belgrade is no exception. Each year, there are a total of 6.5 Pupil-Instruction-Related (PIR) days available for professional development. Three of these take place before the school year begins, and often review district-level logistics, provide new teacher orientation, or allot time for classroom preparation prior to the arrival of students. The remaining 3.5 days are then dedicated to training in new resources such as math, ELA, or social-emotional curricular programs. One district-level administrator felt that finding adequate time for professional development in proficiency-based education “always a fight between other priorities.”

“Pockets”

Participants from all strata of this sample used the phrase “pockets” when describing the implementation of many PBE criteria across the district. This theme was present in various contexts and throughout all domains of PBE: curriculum, instruction, and assessment. Although teachers described the ways in which “these things [were] happening in [their] own classroom,”

many participants gave examples of components that were missing district-wide, in specific classrooms, at specific schools, or in specific grade levels. Interestingly, all of the "pockets" appear to be interrelated–many acting simultaneously as the cause and effect of others. For example, "pockets" in aligned curricular resources meant teachers spent their time finding materials rather than focusing on instruction, leading to "pockets" in high-quality Tier 1 instruction, which ultimately created "pockets" in rigor, student choice, and varied pacing.

Within the domain of curriculum, teachers and administrators felt confident that resources were aligned to grade-level standards in math and ELA, but noted the lack of district-adopted and aligned materials in science and social studies. As a result of this, it was clear that instruction lacked rigor in specific content areas, and that teachers were less confident using a PBE orientation to teach those subjects. Two administrators commented that a teacher's experience or capacity influenced their ability to find high-quality materials, and it was implied in a handful of interviews that some standards in science and social studies were not taught at all as a result of the lack of resources. In math and ELA, this appeared to be a lesser issue, but two teachers mentioned that there were varying expectations of resource use in these areas despite the district having adopted an aligned math program this year.

Half of the participants attributed pockets in proficiency-based instruction to a lack of accountability from administrators at the building and district levels. One veteran teacher expressed frustration with this, stating, "at a certain point, it's like, if you're not doing what the district is expecting you to do… there has to be a line at which point people are like, 'you're on an improvement plan.'" Participants related this lack of accountability to varying levels of resource use, teachers not providing students with multiple opportunities to demonstrate

proficiency on standards, and instruction that is teacher-directed rather than responsive to student needs.

In addition to top-down accountability, participants cited teacher buy-in as being responsible for pockets in proficiency-based instruction. Both veteran and new teachers in the district were not given extensive training on PBE in their professional programs, and implementing this model requires a substantial shift from traditional approaches to instruction and assessment. Participants noted that understanding the rationale behind PBE was imperative to support this shift, as well as a growth-mindset among teachers. This buy-in, coupled with varying implementation expectations from administration has created "laggards" (Rogers, 2021, p. 8) in Belgrade School District who believe that PBE is a current hot-button item that will fade in time–something that teachers noted as a historical trend in the district.

The final mention of "pockets" arose during conversations around teacher knowledge of PBE best practices. Professional development was the most frequently mentioned barrier in interviews, and participants illustrated how the district's approach to PBE-related professional development has created a continuum of teacher understanding. As mentioned above, all training in PBE in Belgrade has been offered optionally, with very minimal support being offered to new teachers in the district. This structure has generated a phenomenon mirroring the Matthew Effect (Merton, 1968), as participants who attend these optional trainings tend to be teacher leaders who are already bought in and have a solid foundational understanding of PBE structures. As a result, the staff in Belgrade has a broad range of skills and knowledge related to PBE–yielding a broad range of PBE implementation across the district.

"Putting the Cart Before the Horse"

Although participants felt confident in the district's creation and implementation of common formative assessments, they expressed concern that too much time and attention was devoted to assessments at the expense of instruction. In the earliest stages of Belgrade's shift away from traditional educational models, an emphasis was placed on the creation of assessments to create a clear "end goal" for teachers. District leaders and consultants felt that this first step was necessary to support backward instructional design (Wiggins & McTighe, 2005) and to establish teachers' understanding of what proficiency looked like on grade-level standards. Many participants believed that the instructional domain of Belgrade's PBE implementation was the weakest and intimated that it was the result of too much time spent creating and revising assessments. With proficiency-based assessments and resources relatively solidified, one administrator implied that Belgrade only operated as a proficiency-based grading district. "I just feel like we put the cart before the horse," one teacher mentioned offhandedly in an interview–a sentiment implicitly echoed in other conversations with participants. In many ways, traditional instructional models are still happening, although assessments and report cards communicate proficiency on specific standards. This approach to educational reform is not uncommon, with most districts initiating changes in grading practices prior to aligning those changes to current learning goals or instructional methods (Guskey, 2021). As seen in Belgrade, this decision often "leads to frustration, inconsistent implementation, and eventual abandonment of the entire reform process" because teachers are not given the "why" before the "what," (Guskey, 2021, p. 194).

Administrators and teachers both felt that "poor Tier 1 instruction," including student choice and varied pacing, was the biggest area of weakness in the district's implementation. Although there appears to be a gradual shift, many classroom teachers are giving students all quarterly assessments in the two weeks leading up to the reporting period–meaning they are not being utilized to adjust instruction based on student demonstrations of proficiency. This lack of responsive instruction was compounded by teacher unfamiliarity with the new math resource, meaning many were following unit plans lesson-by-lesson rather than embedding formative assessments to determine pacing and grouping. Veteran and new teachers both shared feelings of overwhelm at the thought of creating "20 individualized learning plans for 20 different students," and pondered how this could be an instructional reality within the confines of a traditional school structure.

Next Steps

It is clear through the analysis of participant interviews in this study that there are pockets in proficiency-based education implementation across curriculum, instruction, and assessment. Some pockets were discussed with more emphasis or frequency than others, and the following recommendations will reflect this.

Within the domain of curriculum, two pockets appeared: availability of vetted standards-aligned resources, and the accountability from administration to use these adopted resources. The district has completed an adoption of a mathematics resource K-4, and will undergo the first year of an ELA resource adoption next school year. It is recommended that principals undergo training from these companies to develop an observation protocol based on the district's expectations of use–something that should additionally be created and communicated by

building principals and other district-level administrators such as the Curriculum Director and Assistant Superintendent. Participants felt that aligned resources in social studies and science were either lacking or missing entirely, so the district should plan for a multi-year adoption plan for each of these. While adopting a resource is one avenue, there should also be an opportunity for teacher leaders to create a culturally-responsive, student-centered social studies curriculum that reflects current events and aligns to grade-level standards. A textbook would likely fall short in meeting this need, as Montana has context-specific standards related to Indian Education for All (IEFA) that would not be found in a resource developed nationally by a large publishing company. One recommendation might be to utilize the C3 Framework created by the National Council for the Social Studies (NCSS) to guide this curriculum development (Swan et al., 2013). Its objectives of enhancing the rigor of the social studies discipline, building students' critical thinking and problem-solving skills to promote civic involvement, and aligning programs to the state standards all align closely with the purpose of PBE and its criteria of implementation (Great Schools Partnership, 2018; Swan et al., 2013). Much like PBE, the intention of the C3 Framework is to prepare students for college, career, and civic life (Swan et al., 2013). Although addressing the curricular needs of PBE implementation is important, it can and should be done concurrently with recommendations relating to instruction.

Overwhelmingly, the domain of assessment appears to be the most effectively implemented in the district, with minimal need for next steps. Participants felt that not all teachers consistently or accurately identified student proficiency on common formative or summative assessments–leaving some room for subjectivity or concerns for grade validity. This could be addressed in a workshop model, where teachers are given brief definitions of

proficiency and a rationale for this approach to grading, followed by hands-on examples and practice assessing student work with their grade-level team. This could be led by principals or coaches during a staff meeting or staff-wide PLC at the beginning of the year. During this time, new teachers should be directed to the district's bank of assessments and proficiency-scales.

As a result of this research, it is clear that Belgrade School District should focus professional learning on instruction–providing teachers with the knowledge and skills to deliver instruction that is student-centered, varied in pace, differentiated, and rigorous. Hess et al. (2020) provide a blueprint for schools moving toward a proficiency or competency-based model and recommend making organizational shifts, shifts in teaching and learning structures, and shifts to student-centered classrooms. Embedded within each of these are specific action steps that would be relevant for Belgrade based on the results of this study.

The first organizational shift that would apply to this context is focused on addressing the professional culture, which is difficult within the confines of a fixed, traditional school schedule. Hess et al. (2020) recommend "creating a master schedule that is based on student needs and not the needs of the adults in the building," (p. 47). Through creation of a district-aligned schedule that embeds dedicated time for flexible student grouping, intervention, and enrichment, it is likely that teachers would feel encouraged to build in more opportunities for student-choice projects or varied pacing. The second organizational shift relates to professional learning–making sure there is dedicated time for collaboration among teachers (Hess, et. al., 2020). Professional development was the most prominent barrier identified by participants, and I believe that this should be the area of emphasis for the district moving forward. Firstly, the leadership team should identify 1-2 mandatory, in-contract, professional learning dates in the

coming school year that will specifically target proficiency-based instruction. It would be valuable to mimic the principles of PBE in their approach to these days and consider how this professional development could provide opportunity for teacher choice in content, be based on teacher self-assessment of PBE implementation in their classroom, and be differentiated based on previous experience or background knowledge. Providing teachers with a checklist of the criteria from this study would be a way to encourage self-reflection, and move Belgrade away from a centralized, one-size-fits-all approach to adult learning (Hess et al., 2020). If the district were unable to provide this training within the contracted school year, administrators should consider compensating staff using Transformational Learning grant money that Belgrade was awarded, or allow teachers to exchange this training time for annual personal leave.

The next categorical shift that would need to happen in Belgrade is related to student-centered classrooms. A recommendation under this umbrella is the application of instructional practices to proficiency-based learning cycles (Hess et al., 2020). One way to accomplish this would be to provide time for teachers to learn about and develop self-navigation tools (Appendix C). This could be an ongoing project done with support from teacher leaders, principals, and coaches over the course of the school year. One way to accomplish this during contract days could be to commit 1-2 PLC or staff meetings each quarter to this work. These documents could act as students' individualized learning plans, and could include student-friendly progressions through learning targets, opportunities to self-assess, and student choice in content or strategy (Hess et al., 2020).

Making the shift toward student-centered classrooms would also promote intrinsic motivation for students through timely feedback on assessments (Hess et al., 2020). This

recommendation would address the concerns cited in participant interviews related to the role of formative assessments in some classrooms across the district. Currently, many of these assessments are given at the end of a quarter for the purposes of reporting to parents. Hess et al. (2020) state that formative assessments should "always inform instruction and learning," (p. 151) and should actively involve students in the process–two areas of perceived weakness in Belgrade. One way to accomplish this shift would be to assign the first PLC meeting each quarter to the creation of assessment calendars at each grade level. By doing this, it will ensure that teachers are giving assessments throughout the quarter, are using this feedback to adjust their instruction, and are engaging in discussions as a team. This process needs to be intensively supported and guided by the principal and instructional coaches to ensure that it is completed and that teachers understand the purpose or logistics. Committing this time each quarter would systematize ongoing weekly PLC meetings at each grade level and give teams the opportunity to compare similar data needed to address the four guiding questions of a PLC (DuFour & Dufour, 2013). Engaging in more meaningful and focused PLC conversations will allow teams to intentionally plan differentiation and support students in their individualized learning progressions (Hess et al., 2020).

Future Research

In light of new state legislation and expectations surrounding proficiency-based education nationally and in Montana, there is a substantial need for future research as it relates to implementation. This case study is one of few that specifically examines the elementary sector, and it is my hope that researchers will continue this work in other socioeconomic or geographic contexts across the United States to more broadly support PBE implementation K-12.

I envision this research being the first phase in a series of case studies within Belgrade, and believe there are specific next steps that the district should consider when conducting future research. Once action steps have been taken in the district to more comprehensively implement the PBE structures analyzed here, it will be valuable to quantitatively examine the ways in which this impacts student achievement. This research is not only lacking in BSD, but more importantly, is lacking on a national level within the realm of proficiency and competency-based education models. Variables to consider might be the overall impact of PBE on student reading and math achievement, as well as the impact of this model on opportunity gaps for students in various racial or ethnic groups.

An additional study should look qualitatively at the "Learning Environment" section of the "Beliefs and Practices" document (Great Schools Partnership, 2018). These criteria were left out of this study in order to specifically analyze the curricular, instructional, and assessment structures, but that should not convey to the reader that these criteria are less important, or not necessary for a full implementation of PBE. The criteria under this category target the culture of a school and examine a student's experience–operating under the belief that "all students can and will learn when they feel included, respected, and valued by their learning community," (Great Schools Partnership, 2018, p. 2). Conducting this study would provide the district with an essential lens into student perspectives, and could potentially elucidate the ways in which various student groups experience school differently. Applying the Equity Framework from Casey and Sturgis (2018) as a conceptual framework for this analysis would bring to light the inequities of vestigial traditional models that are intentionally overlooked by districts–a task that feels much more daunting than adjusting instruction or assessment.

Finally, the district would benefit from repeating this case study in grades 5-12 as the middle school and high school make adjustments in compliance with new accreditation laws and state legislation. It could provide a practical "picture of reality" from which they could create and execute a long-term strategic plan related to PBE.

Access to equitable, culturally-responsive, high-quality education should be a universal human right for all students—a concept that has been overpromised and underdelivered for centuries in the United States. Schools should prepare students for college, career, and adult life through rigorous and authentic learning experiences created within the context of proficiency-based educational models. Classrooms that provide students multiple opportunities to demonstrate proficiency and encourage self-reflection more closely mimic the conditions of life outside of school and produce learners who are both intrinsically motivated and resilient.

Far too often, top-down pushes for educational reform lose momentum as policymakers lead with the "what," rather than the "why" or "how." Particularly in Montana, where many of the schools face the specific challenge of rurality, legislators must support the implementation of proficiency-based education in a more pragmatic, less theoretical way. How can we get experts in the field of PBE to all school districts? How can we create opportunities for isolated schools to collaborate with each other? Although funding and policy are excellent first steps in the right direction, like our students, we need to scaffold this process for districts differently based on their current reality of instruction and assessment, geographical constraints, and levels of understanding. The most important work is often the most difficult, and adopting a proficiency-based education model in all schools across the state is no exception.

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APPENDICES

APPENDIX A

INTERVIEW PROTOCOL

Table A1. Interview protocol organized by research question.

Research Question	Interview Questions
How does a Montana elementary school district currently implement Proficiency-Based Education?	I am going to read some characteristics of proficiency-based education models, and I'd like you to provide your opinion on the district's implementation (if any) of these features. Feel free to include examples or non-examples of these, as well as changes we'd need to make if we wanted to implement this model more effectively: 1. All learning pathways (courses, materials, etc.) are aligned to a common set of standards. 2. Learning in different ways and at varied paces is expected and planned for in all settings, requiring differentiation, student choice, and personalized learning options to meet common outcomes. 3. All forms of feedback and assessment are used to adjust instruction and learning, to inform academic interventions, and identify extensions of learning. 4. Students are given multiple opportunities to improve their work when they fail to meet expected standards. 5. All forms of assessment are aligned to a common set of standards. 6. Continual use of formative assessment provides opportunities for students to practice, self-assess, and give/receive feedback. 7. Summative assessments, evaluated against common scoring criteria, are used to evaluate a student's level of achievement on competencies and performance indicators at a given point in time. 8. Students regularly reflect on their learning progress and are taught to evaluate and use feedback.

Table A1 Continued.

What do teachers and administrators view as the facilitators and barriers that affect a comprehensive implementation of a proficiency-based education model in a Montana elementary school district?	What has BSD done to support the comprehensive implementation of PBE? How has this support led to daily implementation of PBE in every classroom and every subject? What have been challenges/obstacles that have affected the comprehensive implementation of PBE in Belgrade? How have these obstacles prevented daily implementation of PBE in every classroom and every subject? Or, how have these obstacles prevented specific components of PBE from being implemented?
What action steps are needed in order to advance the implementation of a proficiency-based education model in this context?	In your opinion, considering the definition of PBE we've discussed and the supports/obstacles/ challenges you've mentioned, what does Belgrade School District need (or, need to do) in order to advance its implementation of PBE?

APPENDIX B

CODEBOOK

Table B1. “Current implementation” raw data, codes, and code clusters.

CURRENT IMPLEMENTATION		
Quotation(s)	**Codes**	**Code Clusters**
“We’ve only improved now by getting common resources (in ELA and Math).” (Admin) “(Our math program) aligns really well with our math standards.” (New Teacher) “We don’t really have much for resources at all…I’ve got all these little chunks and pieces…but I still feel like there’s a lot of holes.” (Teacher) “Teacher Pay Teachers” (New/Veteran Teacher/Admin)	NEW ALIGNED, DISTRICT-ADOPTED RESOURCES (10) SOME SUBJECTS LACKING ALIGNED RESOURCES (5) TEACHERS USING RESOURCES THAT AREN’T VETTED (5)	RESOURCES
“I think various paces are happening in that reteach-enrich model…and there may be pockets of varied pacing happening in core, but I think it’s a majority of the time in reteach-enrich.” (Admin) “It’s kind of daunting.” (Admin) “We’re not looking to go beyond.” (Admin) “I’d be differentiating 20 different ways…so you kind of have to do it to the mass majority.” (New Teacher) “I would say that students are moving as a group through the standards, but there are little pockets of pausing points where it’s like ‘okay let’s go deeper with this standard with enrichment.’” (Admin)	WHOLE GROUP INSTRUCTION SAME STANDARD FOR ALL (5) MINIMAL OPPORTUNITIES TO GO ABOVE STANDARD (3) STUDENTS NOT GIVEN THE CHANCE TO MOVE AT OWN PACE (8)	LACKING VARIED PACES

Table B1 Continued.

"Your assessments that you do as you're doing your everyday work. And you're like, 'oh so-and-so was struggling with this part.' Then you try to do some targeted quick little interventions with them. And then if that's not picking up steam, you go to a more formalized plan." (Teacher) "For those kids who are not understanding, we're doing small group stuff during our intervention times." (New Teacher) "What probably varies most is the teachers' reaction to what happens if a student doesn't show evidence of standard." (Admin) "But something we're running into is new teachers, and even not new teachers, are assessing everything right before the end of the quarter….I think it is a byproduct of traditional teaching…like 'they need to know all of this before I can assess it." (Teacher) "I feel like all we're using (formative assessments) for is just reporting on a report card, and then we move on and never come back to them…there was no circling back or spiraling of any kind happening for a while." (Teacher) "For teachers that are giving all assessments at the end of the quarter, I think (they have multiple opportunities to improve their work) if it comes up on the report card again…Or maybe it comes up in the resource again, and you're teaching it again, you know, out of pure luck. But it's not as intentional." (Admin)	FORMATIVE ASSESSMENTS USED TO FORM INTERVENTION/ RETEACH GROUPS, ADJUST INSTRUCTION (7) INSTRUCTIONAL DECISIONS BASED ON REPORT CARD STRUCTURE (5) ASSESSMENT CALENDAR (3) GIVING ALL ASSESSMENTS AT END OF QUARTER (2) LACKING INTENTIONALITY (2)	FORMATIVE ASSESSMENT, TIER 1 INSTRUCTION
"At one point…the district was like, 'here are these programs, you're doing this, you're teaching this day.' There wasn't a lot of room for adaptation. And so now I think there's people that are stuck in that." (Teacher) "Being flexible with resources to an extent…without being like, 'I can't use this resource at all.'" (Admin) "Reading groups" (New Teacher)	FLEXIBILITY WITH RESOURCE DIFFICULT IN FIRST YEAR (3) SMALL GROUPS (5) SHARED STUDENTS WITHIN GRADE LEVELS (3)	DIFFERENTIATION

Table B1 Continued.

"We have a group of teachers that are really excited about self-navigation tools." (Admin)	SELF-NAVIGATION TOOLS A GOAL, NOT PRESENT (4)	STUDENT CHOICE
"We came up with assessments early on…and we're constantly re-evaluating now that we have a more advanced understanding of those standards, we know what those verbs mean." (Teacher) "I think our CFAs help (with alignment). Trying to get all of those completed, and revamping those because we used to just have one assessment for a standard, and now we have multiple 2.0 assessments for a standard, and 3.0s." (Admin) "Maybe they're not all developed to the same degree." (Admin)	DISTRICT CREATED "CFAs" (10) REVIEWED/REVISED CONSISTENTLY (4)	CONSISTENT FORMATIVE ASSESSMENTS ACROSS DISTRICT
"I think in younger grades, people will be like 'they're too little, they can't do that.' Where, you could put a picture on there about how they're feeling about it. So there's other avenues, I just don't know that people realize that's something they can do." (Teacher) "At this grade, it's kind of tough to find the appropriate language for kids to be able to self-assess. I feel like sometimes they're not thinking of themselves critically in that way….But I've done it in the past…and once students kind of find their footing, and they (start to) understand 'I'm doing this because I need to understand where I'm at.'" (New Teacher) "I think them learning the skill of how to evaluate (themselves) has to happen before they're able to do that." (New Teacher) General feedback "is not as prescriptive as anything else." (Admin)	SELF-ASSESSMENT DIFFICULT IN YOUNGER GRADE LEVELS (7) SELF-ASSESSING NOT EXPLICITLY TAUGHT (3) TEACHER FEEDBACK TO STUDENTS NOT SPECIFIC ENOUGH (2) SELF-NAVIGATION TOOLS (2)	LACKING SELF-ASSESSMENT

Table B1 Continued.

“I’m getting all the information that I need (from formative assessments). I don’t need it all lumped together, and it might be harder to differentiate what they know and don’t know (in a summative assessment.” (Teacher) “(Formative assessments) are more diagnostic, more prescriptive (than a summative assessment)...and teachers know which piece they’re missing and how to fix that.” (Admin) “There’s not a common set of summative assessments. There’s a lot of formative assessments and stuff that we’re working on.” (Teacher)	FORMATIVE IS MORE VALUABLE INSTRUCTIONAL TOOL (4) UNCLEAR DEFINITON OF SUMMATIVE (6) NO SUMMATIVE ASSESSMENTS PRESENT (3)	SUMMATIVE NOT CONSISTENTLY DEFINED/PRESENT
“I feel like scoring is based off professional perspective. And I know that there’s a lot of teachers that have different perspectives on how things should look and what they might come off as.” (New Teacher) “It’s a group of teachers that are interpreting the standard to create the assessment. And that’s why we have a team…but it just feels a little bit like there's room for our interpretation of it.” (Admin)	LACK OF UNDERSTANDING OF PROFICIENCY (2) SUBJECTIVITY IN ASSESSMENT (3) NO CLEAR SCORING CRITERIA (5)	INCONSISTENT ASSESSMENT SCORING
“Not always aligned with the curriculum we’re teaching, but you’re aligned with the standards.” (Teacher)	CURRICULUM-BASED VS. STANDARDS-BASED ASSESSMENTS (2)	NOT ALL SUBJECTS’ ASSESSMENTS ALIGNED TO STANDARDS

Table B2. “Facilitators” raw data, codes, and code clusters.

FACILITATORS		
Quotations	**Codes**	**Code Clusters**
“Having time as an SBI team to collaborate and try to better align (has been helpful).” (Teacher)	COMMITTEE OF TEACHER LEADERS (3) PROFESSIONAL DEVELOPMENT OFFERED EVERY YEAR (10)	ONGOING PROFESSIONAL DEVELOPMENT
“I feel like from an administrator standpoint, they’re all on board with ‘this is what we want, and this is our vision,’ which is great.” (Teacher) “Teachers who are involved with professional development are more likely to be doing those things.” (Admin) “I do think there’s new teachers who are willing and want to do those things and think that they’re good for kids.” (Teacher) “I think their excitement around SBI. They get the picture…and they also understand and see the value in it. So then they’re going to do these things in their classrooms.” (Admin)	TEACHER BUY-IN (7) ADMINISTRATOR BUY-IN (2)	BUY-IN
“Having the coaches the last couple years has been huge.” (Teacher) “My coach has helped me understand what’s expected and what we can do to implement different interventions…so we’re all on the same page.” (New Teacher) “Another new teacher on my grade-level and I have talked about how many times we would not have been on it, or understood half of the information that was given to us at the beginning of the year had it not been for the coaches. Having a sort of one-on-one follow up of big picture things was huge.” (New Teacher)	COACHES PROVIDE IMPLEMENTATION SUPPORT RELATED TO INITIATIVE (4) COACHES CREATE CONSISTENCY IN MESSAGING (2) MENTORSHIP FOR NEW TEACHERS (2)	INSTRUCTIONAL COACHES
“Designated teacher time to talk with your team about standards-based instruction… ‘Here's some ideas on how to implement it in the classroom.’ That has been extremely helpful as a new teacher.” (New Teacher)	PROFESSIONAL LEARNING COMMUNITIES (3)	

Table B2 Continued.

"All of that was a lot of front loading work before we even got to (start the instruction)." (Admin)	BANK OF STANDARDS-ALIGNED RESOURCES/STRUCTURES (3)	
"The fact that it has not gone away. Every year, we have some sort of SBI component, the SBI teams are still going strong, and we're still getting continuing support throughout the year…It's been eight plus years of a full implementation and a big piece of it is the consistency." (Admin) "It's not like 'oh we did 3, 2, 1, and now we're going back to ABCD.' Those things aren't going away." (Admin)	HAS BEEN IN DISTRICT FOR 5-6 YEARS (3) ONGOING PROFESSIONAL DEVELOPMENT (10)	CONSISTENCY, STAYING POWER

Table B3. “Barriers” raw data, codes, and code clusters.

BARRIERS		
Quotations	**Codes**	**Code Clusters**
“Some teachers aren’t going to PD if it’s not during their contract.” (Admin) “Ongoing PD for everyone, not just a select group of them that are bought in.” (Admin) “New staff, if they’re just coming in and not getting any training, that’s problematic.” (Admin) “Our challenge now is getting the information back from the SBI team to the grade levels effectively.” (Teacher) “Everyone should have gone to SBI training…it shouldn’t have been put on people having to go back and say things…that needs to come from one source.” (Teacher) “I’m the go-between between these people and one is saying something, and the other one is saying something entirely different…there’s definitely information that’s been interpreted differently.” (Teacher) “From conversations I’ve heard with veteran teachers, if it’s not mandatory, and they feel like they know it well enough, or they’re doing a good job, they don’t feel the need to be there.” (New Teacher) “We’ve been doing this so long, there are misconceptions that their teammates will just catch them up.” (Admin)	PD TO SUPPORT NEW TEACHERS (2) PS IS OPTIONAL (7) Disproportionate knowledge/buy-in (3) Messages miscommunicated between team members (3) PD NOT DIFFERENTIATED (3)	PROFESSIONAL DEVELOPMENT

Table B3 Continued.

"I am lucky if I can plan a half day of PD…it's always a fight between other priorities. Building priorities, teacher prep…" (Admin) "Checking a box" (Admin) "Teachers that don't understand the 'why' feel like this is an added thing that doesn't make a lot of sense." (Admin) "Teachers are having to create their own materials, and time is spent creating those materials and not necessarily on totally differentiating." (Teacher)	NO TIME FOR PROFESSIONAL DEVELOPMENT (10) FEELS LIKE ADDED WORK (5) TIME SPENT MAKING OWN RESOURCES (2) NOT ENOUGH TIME TO COLLABORATE WITH TEAM (2)	TIME
"We have these standards that we are supposed to (assess) in science, social studies, and writing...but there's really nothing for our grade level to teach." (Teacher) "Teachers are having to create their own materials, and time is spent creating those materials and not necessarily on totally differentiating." (Teacher) "At the beginning of our implementation, we really pulled back from all resources…and that created a misconception that we can't use a problem and be SBI." (Admin) "We were told that standards were the curriculum. So, they kind of got away from using any common resources…and teachers are just kind of doing their own thing." (Teacher) "Differentiation is a whole other step that comes after you have solid tier one instruction. And I'm not sure we have had that in our district, especially when we don't have common resources." (Teacher)	LACKING ALIGNED RESOURCES IN ALL SUBJECTS (4) TIME SPENT CREATING RESOURCES MEANS TIME TAKEN FROM INSTRUCTION FOCUS (2)	TIER 1 INSTRUCTION

Table B3 Continued.

"There are some teachers who do have experience, but this is a switch from how they always taught. Even though we've been doing this a while, that is still a struggle. Because it does require you to be open to having situations where something doesn't work out." (Teacher) "Teachers might be forgetting their 'why' in a way, or they're in it for the wrong reasons." (New Teacher) "I think a lot of the people who are bought in have come from other districts." (Teacher) "They're just not understanding the value of assessments." (Admin)	ACCEPTANCE/OPENNESS TO CHANGE (5) UNDERSTANDING THE RATIONALE (4)	TEACHER BUY-IN
"That's how school is set up, or has been, in a traditional model. You go to the next grade level." (Teacher) "I think the (lack of varied pacing) is more of a systems piece, like a scheduling component. There are some schools that have times where it's expected that everybody is doing this." (Admin) "We have to get through this stuff." (Admin)	STUDENTS MOVE THROUGH GRADES EACH YEAR REGARDLESS OF PERFORMANCE (5) TRADITIONAL GRADE LEVELS (3) TIME IN DAY/SCHEDULING (2)	TRADITIONAL SCHOOL STRUCTURE

Table B3 Continued.

"I think they think it is more of a choice." (New Teacher) "I think (the support) is really inconsistent based on the principal's knowledge of SBI and their ability to get in the classroom." (Admin) "I think lack of accountability is also huge. Not requiring teachers to do things, and not facilitating the support that teachers need to successfully do that…but I think our strategy has been, 'oh if you don't feel comfortable, do what you want.'" (Teacher) "At a certain point, I'm like 'if you're not doing what you're supposed to do, if you don't think that this is what's best for kids, if you don't buy into this, if you aren't doing what the district is expecting you to do…' there has to be a line at which point people are like, 'you're on an improvement plan.'" (Teacher)	TEACHER CHOICE (4) PRINCIPALS NOT ACTIVELY INVOLVED (3)	LACKING ACCOUNTABILITY FROM ADMINISTRATION (5)
"There's not an understanding of…we know more about how kids learn, we know more about the brain. (Teachers) are just like 'no, they said this.'" (Teacher) "I know a lot of teachers are struggling just being present at school. We have a sub shortage, and a lot of people I just feel like are tapping out. And that affects assessments and interventions and all of these things…. I think teachers are just exhausted." (New Teacher) "It takes a certain degree of training and maturity as a teacher." (Admin)	FREQUENT CHANGES TO IMPLEMENTATION EXPECTATIONS/MESSAGING (5) TEACHER EXPERTISE/CAPACITY (2) CHANGING APPROACH (2)	TEACHER BURNOUT

APPENDIX C

FOURTH-GRADE SELF NAVIGATION TOOL

Below is an example of a fourth-grade self-navigation tool created by a teacher participant in this study based on a template from Dr. Marie Alcock. This tool addresses grade-level math standard 4.NBT.2, and students complete this table independently or with support from their teacher. Learning strategies identified in the "Next Steps" section of the document can be modified to reflect curricular resources available within specific classrooms or schools.

Table C1. Self-navigation tool for 4.NBT.2: Self-assessment of proficiency

Learning Targets:	**GOT IT**	**NOT YET**	**COMMENTS**
I can read multi-digit whole numbers using base-ten numerals			
I can read multi-digit whole numbers using number names			
I can read multi-digit whole numbers using expanded form.			
I can write multi-digit whole numbers using base-ten numerals			
I can write multi-digit whole numbers using base-ten number names			
I can write multi-digit whole numbers using expanded form			
I can compare two multi-digit numbers based on the meaning of the digits in each place			
I can use >, =, and < symbols to record the results of comparisons			

I am good at
I need to practice
I need to learn

Table C.2: Self-navigation tool for 4.NBT.2: Learning strategies for next steps.

Learning Targets:	**Learning Strategies:**
A1. I can read multi-digit numbers.	• Guess the unknown number (20 questions) with a partner • SNT NBT.2 Practice Reading Large Numbers - in School and District Seesaw Library. Assign and add your own link.
A.2 I can use base ten numerals.	• Base Ten Form - Video and Practice • Build numbers with base ten blocks and write base ten numerals - videos to check answers
A.3 I can use expanded form.	• Khan Academy Writing Numbers in Expanded Form - Video and Practice (Assign to your students and embed link) • Play Tic Tac Toe Numbers in Different Forms (Link to game in shared district 4th grade folder under place value games)
A4. I can use number names.	• Khan Academy Writing Whole Numbers in Written Form - Video and Practice (Assign to your students and embed link) • Play Trap it In Game with a partner (Link to game in shared district 4th grade folder under place value games)
A5. I can compare two multi-digit whole numbers.	• Khan Academy Comparing Multi-Digit Numbers (Assign to your students and embed link) • NBT.2 Compare Large Numbers - Video and Practice
A6. I can use >, =, and < symbols.	