

A Comparative Study of Accessibility to Professional Supports and Instructional
Strategies in Select Schools in Northeast Tennessee

By

Brooke R. Drinnon

A dissertation submitted in partial fulfillment
of the requirements for the degree of Doctor of Education

Department of Education
School of Sciences and Education
Milligan University, Tennessee

2023

Dissertation Committee Chair: Dr. Mark Dula

Dissertation Committee Member: Dr. Angela Hilton-Prillhart

Dissertation Committee Member: Dr. Lyn Howell

© 2023

Brooke Drinnon

ALL RIGHTS RESERVED

Milligan University Dissertation Defense Approval Form

Candidate Name: Brooke Drinnon

Date of Defense: April 13, 2023

Dissertation Title: A Comparative Study of Accessibility to Professional Supports and Instructional Strategies in Select Schools in Northeast Tennessee

Final Approval of Dissertation Defense:

A signature Below indicates committee members agree with the following:

- 1) Agreement that the dissertation meets with the committee's approval.
- 2) Agreement that the oral defense of the dissertation was successful.

Dissertation Chair Signature/Date: Angela Hiltner-Pritchard 04/13/2023

Committee Member Signature/Date: Matt DeL... 4/13/23

Committee Member Signature/Date: L Howell 4/13/23

Research Director Signature/Date: Matt DeL... 4/13/23

Area Chair Signature/Date: Angela Hiltner-Pritchard 04/13/2023

Dedication

"The beautiful thing about learning is that nobody can take it away from you."

— *B.B. King*

For my parents, you have been a source of encouragement and support throughout my entire life. You have always believed in me and pushed me to do my best, even when I doubted my own abilities.

For Matt, you have offered unwavering support and encouragement and have given me the confidence to take on new challenges and explore new avenues of knowledge.

For my beloved nieces and nephews—Rylen, Benji, Rory, Wyatt, Ada, and Evan—you inspire me to help make the world a better place for you to grow and flourish. You constantly remind me that the pursuit of knowledge should never end and that we can continue learning and growing throughout our lives. I hope this piece serves as a testament to the value of education and that you will always remember the importance of seeking new knowledge and insights. May you continue to follow your passions and achieve great things, and always remember that I am here to support you in all your endeavors.

Thank you all for being a constant source of inspiration.

With Love,

Brooke

Acknowledgements

I would like to say thank you to all of the teachers, mentors, and friends who have contributed to my academic and personal growth along the way. I am grateful to have a professional support network spanning many school districts, beginning with my friends and mentors in Hancock and Hamblen Counties and reaching across northeast Tennessee. Your insights, guidance, and friendship have made an indelible impact on my life and have helped me become the person and educator I am today. It has been said that the influence of a good teacher can never be erased, and I have been lucky enough to experience the reality of that time and time again.

I owe a special thank you to Ms. Charlotte Mullins, Dr. Danita Dodson, Dr. Richard Kitzmiller, Dr. Richard Bales, Dr. Bethany Fillers, and Theresa Gibson. You gave me an invaluable opportunity to learn, grow, and gain confidence as a leader and challenged me to become an agent for change.

I would not have survived this program without my cohort, my Girl Gang of Doctors, who have constantly supported, encouraged, and inspired me to improve.

Finally, thank you to my committee, Dr. Dula, Dr. Hilton-Prillhart, and Dr. Howell, for all your help with this project. I could not have completed this work without your insight and guidance.

Abstract

Schools and districts spend a great deal of time and money on teacher professional development each year. Previous studies have indicated that the quality and type of support teachers receive may vary from school to school, based on factors such as geographic location and school funding. The purpose of this study is twofold: To determine which teachers are receiving effective professional development supports and to examine whether or not those supports make a difference in teachers' instructional practice and student achievement. This study analyzes survey responses from teachers and administrators (N=1293) from 65 schools from 18 districts across the northeast Tennessee region who were involved in a 2018-2022 Education Innovation and Research grant. This study's findings point to several similarities and differences between rural and non-rural teachers, Title 1 and non-Title 1 teachers, and elementary and secondary teachers. The most significant findings indicate that there may be gaps in access to certain professional development supports depending on a school's locale, the socioeconomic status of its students, or the grade level taught. Other significant findings of this study reveal a relationship between certain professional development supports and teachers' instructional practices, access to and use of student data, and, ultimately, student achievement. According to this research, some professional development supports have a greater impact than others.

Chapter 1

Introduction

Teacher professional development is an essential part of any teacher's job and is designed to help educators stay up-to-date with new methods, technologies, and knowledge to continue to be successful in the classroom. Professional development opportunities come in various forms and are designed to help teachers become more knowledgeable, better equipped to handle classroom challenges, and more effective at teaching their students. With proper professional development, teachers can become agents of transformation in their schools and districts. Students will benefit from the increased knowledge, skills, and resources that their teachers acquire through professional development activities (Garrett et al., 2021). This study will examine teachers' access to six different professional development supports and analyze the effectiveness of the supports on teachers' instructional practice and student learning.

U.S. Secretary of Education Miguel Cardona recently announced a strategic nationwide plan for public education. Within the plan, Cardona details a vision for supporting teachers nationwide to elevate the teaching profession. Cardona's vision focuses on three primary areas—recruiting diverse, highly qualified teachers; supporting educators' professional development; and investing in strategies to help retain high-quality teachers (U.S. Department of Education, 2022). Cardona underscores the importance of building the capacity of the teaching force: "It's not only our responsibility but our commitment at the Department of Education to encourage, invest in, and lift up teachers across America. The future of our country and our children's futures depend on it" (U.S. Department of Education, 2022). To aid these efforts, the Department's fiscal

year 2023 budget request included nearly \$600 million in new funds to recruit, support, and retain a talented, diverse workforce (U.S. Department of Education, 2022). This call to invest in teachers for the good of all learners echoes a long-established national commitment to quality education and equal opportunity for all students. It is also a formal recognition that the classroom teacher is the most critical school-based factor in ensuring student success.

In 1965, President Lyndon B. Johnson signed the Elementary and Secondary Education Act (ESEA) into law, ensuring access to quality education for low-income and minority children. Before the official passing of ESEA, President Johnson's speech at the University of Michigan addressed the importance of high-quality instructional opportunities for all students:

[...] we must give every child a place to sit and a teacher to learn from. Poverty must not be a bar to learning, and learning must offer an escape from poverty. But more classrooms and more teachers are not enough. We must seek an educational system which grows in excellence as it grows in size. This means better training for our teachers. (1964)

According to President Johnson, simply having *a seat* in *a classroom* with *a teacher* was not enough; students deserved consistent learning opportunities from excellent teachers. This belief has been reinforced by many of the leaders who have followed Johnson. ESEA was reauthorized by the No Child Left Behind (NCLB) Act in 2002 and the Every Student Succeeds Act (ESSA) in 2015. For decades, U.S. schools have undertaken significant reform efforts to improve student learning, and teacher professional development has been an integral part of this work.

Cardona's strategic focus on building the teaching force through recruitment, professional development, and retention builds on years of research that tells us that teacher quality matters. Teacher effectiveness is the most important school-based factor influencing student achievement (Hattie, 2003). As Cardona emphasizes, the stakes are high when it comes to staffing schools and developing teachers: *the future of our country and our children's futures depend on it*. And as President Johnson pointed out nearly sixty years ago, and research now supports, for many students, especially those from at-risk populations, education is a means to an end: it is a pathway to escape generational poverty and rise above their circumstances (Awan et al., 2011; UNESCO, 2017). Students' well-being and economic and social mobility depend significantly on their access to education and the quality of the teacher placed before them. Teacher quality is a matter of equity—where students reside should not determine the caliber of their education. All students deserve access to knowledgeable, competent, caring, and passionate teachers.

Cardona and the Biden administration are not the first to recognize the need for investing in, developing, and sustaining a quality teaching force. Each year, public schools invest billions of dollars of taxpayers' money in teachers via employee salaries and benefits; about 80 percent of public school expenditures went to salaries and benefits combined in 2018–19 (National Center for Education Statistics, 2022). Another investment districts make in teachers comes in the form of teacher professional development. In 2015, TNTP estimated that schools spend around \$18,000 per teacher annually (or \$8 billion) on professional development alone. This year, Tennessee allocated \$56.5 million of its federal stimulus funding toward K-12 open-source

readiness coursework and statewide professional development. In addition to funding, districts also dedicate significant time to teacher professional development. TNTP (2015) found that teachers spend twenty-four hours per year on average participating in some form of professional development. The time and money districts set aside for teacher training indicate that schools understand the need for high-quality and ongoing professional learning and are willing to invest.

Statement of the Problem

A wealth of research supports certain best practices to help guide how districts should spend their time and money to ensure optimal benefits for teachers and students (Darling-Hammond et al., 2009; Darling-Hammond et al., 2017; Learning Forward, 2011; Joyce & Showers, 1988; Garrett et al., 2021). Gone are the days of “one and done” professional development. As Norton (2015) points out, “Effective staff development is not a single event; rather, it is an ongoing and planned human resources process” (p. 66). Effective staff development depends mainly on the vision communicated by the school principal, effective planning by school leadership, and consideration of individual teachers’ needs, interests, and strengths. It is content-based, collaborative, scaffolded, ongoing, job-embedded, and student-focused (Darling-Hammond et al., 2017).

Despite the growing body of research that supports best practices in implementing professional development to support teachers and despite districts’ willingness to invest precious time and resources, research continues to reveal that professional development practices are quite inconsistent in their effectiveness and delivery (Darling-Hammond et al., 2017). Simply put professional development only sometimes leads to changes in teacher practice or student learning (Darling-Hammond

et al., 2017). According to the Bill & Melinda Gates Foundation (2015), teachers are mostly unsatisfied with the professional development provided by their districts. There is often a disconnect between what professional development districts think teachers should spend more time on and what teachers think is most effective. While we have a sustained national focus on improving teachers through increased professional development opportunities and provision of instructional support, it is questionable whether this is happening, and if it is, whether it is happening equitably.

Rural schools, for example, may have even more work to ensure that teachers have equitable access to high-quality professional learning. According to SCORE (2011), "Although recruiting and retaining highly effective teachers is a challenge for all schools, it is particularly difficult in rural areas. Geographic isolation, lower wages, and professional isolation make recruiting and retaining effective teachers in rural areas more difficult" (p. 3). In addition to struggling to attract and retain teachers, professional development opportunities may vary significantly across rural districts. Rural schools often struggle with three significant barriers to providing high-quality professional development: lack of human capital, insufficient financial resources, and geographical isolation are all barriers to optimizing professional development opportunities for teachers in rural areas (Cadero-Smith, 2020).

Providing effective teacher professional development is a complex task. No two districts approach this task in the same way. It is reasonable to assume there may be differences in how teachers across the region access professional learning based on variables such as location, funding, and district/school leadership decisions. Learning Forward, the nation's largest nonprofit membership association focused solely on

effective professional learning, recently revised its Standards for Professional Learning to reflect the ever-changing education landscape and teachers' evolving needs. In an introduction to the justification for the revision of the Standards, Elizabeth Foster (2022) says that the revision "supports the longstanding idea that there are multiple, interconnected aspects of professional learning that together positively impact teacher and student outcomes" (p.2). Foster acknowledges that many changes have occurred over the past decade concerning professional development. While there is exciting and emerging research, including "real-time information about whether professional learning strategies are having their intended effect in a range of contexts and whether the changes are actual improvements for educators or students," there is still a need to fill some gaps in knowledge regarding how states and districts implement professional learning.

The Purpose of the Study

As we increase our focus and spending on teacher professional development nationwide, there should also be a heightened focus on ensuring resources and supports are distributed effectively and equitably. The purpose of this study is twofold: To determine which teachers are receiving effective professional development supports and to examine whether or not those supports make a difference in teachers' instructional practice and student achievement. A growing body of research has helped us define the overarching qualities of effective teacher professional development (Darling-Hammond et al., 2009; Darling-Hammond et al., 2017; Learning Forward, 2011; Joyce & Showers, 1988; Garrett et al., 2021). Using Learning Forward's (2022) standards for effective professional development grounded in adult learning theory, this

study compares teachers' access to effective professional support based on various contextual factors. The study of accessibility to support will be based on 1293 participant responses to a 2018 Teacher Practice Survey administered to teachers and administrators across 65 schools across northeast Tennessee that were part of a federal Education Innovation and Research grant facilitated by a regional consortium.

Upon determining who has access to given instructional supports, the study will also seek to determine the impact of receiving them. The study will use 2018-2019 school achievement data to determine how instructional supports translate to individual school achievement.

Research Questions/Hypotheses

The following research questions guided the data analysis in this study.

1. Is there a significant difference between rural and non-rural teachers' access to and perceptions of professional supports?
 - a. formally assigned mentor or coach
 - b. informal mentor
 - c. release time to observe other teachers
 - d. observation of and feedback on lessons by administrators
 - e. common planning time (formally scheduled) with other teachers
 - f. professional learning communities where they can discuss concerns or engage in instructional planning with other teachers
2. Is there a significant difference between teachers at Title I schools and non-Title I schools and their access to and perceptions of professional supports?
 - a. formally assigned mentor or coach

- b. informal mentor
 - c. release time to observe other teachers
 - d. observation of and feedback on lessons by administrators
 - e. common planning time (formally scheduled) with other teachers
 - f. professional learning communities where they can discuss concerns or engage in instructional planning with other teachers
3. Is there a significant difference in grades K-5, 6-8, and 9-12 teachers and their access to and perceptions of professional supports?
- a. formally assigned mentor or coach
 - b. informal mentor
 - c. release time to observe other teachers
 - d. observation of and feedback on lessons by administrators
 - e. common planning time (formally scheduled) with other teachers
 - f. professional learning communities where they can discuss concerns or engage in instructional planning with other teachers
4. Is there a relationship between teachers' access to professional supports and the likelihood that they use certain instructional practices?
- a. facilitating teacher-led large-group or whole-class (more than 10 students) instruction
 - b. facilitating teacher-led small group (2 to 10 students) instruction
 - c. incorporating small-group collaboration (such as team projects, partner work, peer-to-peer instruction)

- d. providing a variety of materials or instructional approaches to accommodate individuals' needs and interests
 - e. having students keep track of their own learning progress using technology (for example, by using an online grade book or portfolio)
 - f. frequently adapting course content to meet students' needs by providing additional assignments, resources, and activities for remediation or enrichment
5. Is there a relationship between teachers' access to professional supports and the likelihood that they have greater access to student data?
6. Is there a relationship between teachers' access to professional supports and the likelihood that they use student data in instructional decision-making?
7. Is there a relationship between teachers' access to professional supports and school achievement data?

Significance of the Study

Professional development continues to be a major focus in today's schools. Much highly impactful research has been conducted on high-quality professional development.

Experts have agreed on what makes professional development meaningful and effective (Foster, 2022). Nevertheless, studies such as the Gates Foundation's (2015) in-depth examination of the current state of professional development continue to reveal a disconnect between what research says is best practice and what kind of professional development is occurring within schools and districts.

This study will glimpse current professional development practices within select northeastern Tennessee schools. It will allow us to identify which teachers have access to professional development and how helpful teachers feel these supports are. Several studies have examined teachers' access to professional development in other places. For example, Yuejin (2016) found that teachers' attitudes toward their professional development statistically significantly predicted select Kentucky schools' overall performance at the elementary and middle school levels but not at the high school level. McElearny et al. (2019) found that almost all teachers in select Northern Ireland schools reported engaging with professional development; however, respondents were most likely to access forms of development that are less associated in research with improved teaching practice and student outcomes (courses, workshops, conferences). Teachers often preferred more effective models of professional development, but only a minority had access. This study will examine how professional development opportunities in northeast Tennessee compare to the models of professional development offered to teachers.

A growing body of research on rural professional development has been established within the past few years. These studies have identified many challenges, obstacles, and opportunities for rural schools concerning providing adequate teacher support. Several interesting qualitative studies have identified which professional development practices rural teachers have access to and perceive to be effective. One such study focusing on rural Missouri elementary teachers was conducted by Quinn (2021). Quinn provides insight into professional development teachers' views but does not quantify the results in the way this study will. Wallace (2014) compared rural and

urban high schools in Kentucky and determined that characteristics of effective professional development are not being fully implemented in either group of schools.

Knowing how access to effective models of professional development varies from school to school based on location, socioeconomic status, and grade level can help us plan for more effective and equitable teacher support in the northeast Tennessee region (Learning Forward, 2018; Wei et al., 2010; Garrett et al., 2019). School districts involved in this study are part of an ongoing regional collaborative. This creates the potential for direct impact—findings could raise awareness of how professional development varies and what methods are proven more effective in raising student achievement.

Definition of Terms

The following definitions are provided to ensure uniformity and understanding of these terms throughout the study. The researcher developed all definitions not accompanied by a citation.

Common Planning Time (CPT): “In schools, common planning time refers to any period of time that is scheduled during the school day for multiple teachers, or teams of teachers, to work together.

In most cases, common planning time is considered to be a form of professional development since its primary purpose is to bring teachers together to learn from one another and collaborate on projects that will lead to improvements in lesson quality, instructional effectiveness, and student achievement.” (Great Schools Partnership, 2013)

Instructional Coaching: “Instructional coaches partner with teachers to analyze current reality, set goals, and provide support until the goals are met.” (Knight, 2018)

Professional development: “The term ‘professional development’ means activities that—

(A) are an integral part of school and local educational agency strategies for providing educators (including teachers, principals, other school leaders, specialized instructional support personnel, paraprofessionals, and, as applicable, early childhood educators) with the knowledge and skills necessary to enable students to succeed in a well-rounded education and to meet the challenging state academic standards; and

(B) are sustained (not stand-alone, 1-day, or short-term workshops), intensive, collaborative, job-embedded, data-driven, and classroom-focused” (Learning Forward, 2015)

PLC: (Professional Learning Community) “an ongoing process in which educators work collaboratively in recurring cycles of collective inquiry and action research to achieve better results for the students they serve. Professional learning communities operate under the assumption that the key to improved learning for students is continuous job-embedded learning for educators.” (Solution Tree, 2022)

Title I: “The purpose of the Title I, Part A program is to provide federal dollars to supplement educational opportunities for students who attend schools with high numbers or percentages of children from low-income families and are most at risk of failing to meet the state’s challenging academic achievement standards. Title I, Part A funds are to be used to provide all students significant opportunity to receive a fair,

equitable, and high-quality education, and to close educational achievement gaps.”
(TDOE, 2018)

Limitations

The following limitations apply to this study:

1. Data gathered from the survey is considered teacher-reported data, which has inherent limitations on validity.
2. Knowledge of professional development best practices is rapidly increasing. This survey was administered four years ago, and schools may have improved professional development practices since then.
3. The quantitative research method employed by this study involves a structured questionnaire with close-ended questions, which leads to limited outcomes.
4. The findings of this study may only be generalizable to some populations due to the nature of the organization of the education system.
5. Survey data was collected in 2018; schools' Title 1 classifications are based on 2019-2020 data (Title 1 classifications may have varied in 2018).
6. Districts have recently received an infusion of ESSER funds (ESSER, ESSER II, and ARP ESSER) which must be used to address the impact COVID-19 has had and continues to have on elementary and secondary schools. Districts can use the ESSER funds on any "activity authorized by the Elementary and Secondary Education Act," including assessments, instructional materials, software, hardware, professional development, connectivity, teacher pay, and summer

school activities (ASCD, 2023). This increase in funding may have altered teachers' access to professional development supports.

Chapter 2

Literature Review

Teacher quality matters. Teacher effectiveness is the single most important school-based factor influencing student achievement today. For many students, especially those in rural areas, education is a means to an end: it is a pathway to escape generational poverty and rise above their circumstances. Students' well-being and economic and social mobility depend upon the quality of the teacher placed in front of them. Teacher quality is a matter of equity—where students reside should not determine the caliber of their education. All students deserve access to knowledgeable, competent, caring, and passionate teachers. Recruiting and retaining the best teachers may be difficult for schools in certain areas, such as rural districts, that often struggle to fill vacant positions. While educator recruitment is critical, schools can also take strategic steps to develop and retain the existing teaching force and to reduce teacher attrition.

Each year, public schools invest in teachers through teacher salaries and benefits to recruit teachers. Another investment districts can make in teachers comes in the form of teacher professional development. In 2015, TNTP estimated that schools spend around \$18,000 per teacher annually (or \$8 billion) on PD alone. This year, Tennessee allocated \$56.5 million of its federal stimulus funding toward K-12 open-source readiness coursework and statewide PD. In addition to funding, districts also dedicate a significant amount of time to teacher PD. TNTP (2015) found that teachers spend twenty-four hours per year on average participating in some form of PD. The time and money districts set aside for teacher training indicate that schools

understand the need for high-quality and ongoing professional learning and are willing to invest.

A wealth of research supports certain best practices that can help guide how districts should spend their time and money to ensure optimal benefits for teachers and students (Garrett et al., 2021; Darling-Hammond et al., 2021). Gone are the days of “one and done” professional development. As Norton (2015) points out, “Effective staff development is not a single event; rather, it is an ongoing and planned human resources process” (p. 66). Effective staff development depends mainly on the vision communicated by the school principal, effective planning by school leadership, and consideration of individual teachers’ needs, interests, and strengths. It is content-based, collaborative, scaffolded, ongoing, job-embedded, and student-focused (Darling-Hammond et al., 2017).

Despite the growing body of research that supports best practices in implementing PD to support teachers and despite districts’ willingness to invest precious time and resources, research continues to reveal that PD practices are quite inconsistent in their effectiveness and delivery. According to the Bill & Melinda Gates Foundation (2015), teachers are mostly unsatisfied with the PD provided by their districts. There is often a disconnect between what PD districts think teachers should spend more time on and what teachers think is most effective. This is a problem that leaders should strategically address nationwide. Rural schools, however, may have even more work to ensure that teachers have equitable access to high-quality professional learning. According to SCORE (2011), “Although recruiting and retaining highly effective teachers is challenging for all schools, it is particularly difficult in rural

areas. Geographic isolation, lower wages, and professional isolation make recruiting and retaining effective teachers in rural areas more difficult” (p. 3). In addition to struggling to attract and retain teachers, PD opportunities may vary significantly across rural districts. Rural schools often struggle with three major barriers to providing high-quality PD: lack of human capital, insufficient financial resources, and geographical isolation are all barriers to optimizing PD opportunities for teachers in rural areas (Cadero-Smith, 2020).

Adult Learning Theory

To define effective professional development, looking at some of the basic theoretical structures that have historically guided learning is essential. Often, when people consider education, the learning children do in K-12 schools automatically comes to mind. When they exit teacher preparation programs, teachers are well-versed in *pedagogy*. Pedagogy is derived from the Greek words *paid* (meaning ‘child’) and *agogus* (meaning ‘leading’). Today, pedagogy generally refers to the methods and practices of a teacher or the art and science of teaching children. Modern pedagogy encompasses ideas and practices from constructivism, behaviorism, and connectivism. Educators base their curricula and teaching practices on their chosen model of assumptions about learning and the characteristics of the learners in their classrooms. However, since this study is focused on the ongoing education and professional development of teachers, or adult learners, a different framework is required. A growing body of research tells us that teaching adults differs from teaching children.

Adult learning theory, or “andragogy,” has dictated teachers' professional learning development for many years. Even though the roots of the word “pedagogy” refer to teaching children, it was used to describe all learning, regardless of the learner’s age, until 1968, when Malcolm Knowles defined the concept of adult learning theory and termed it “andragogy.” Knowles (1968) called andragogy “a new label and a new technology” (p. 351) to distinguish adult learning from pedagogy. Initially, he perceived the two concepts to be mutually exclusive; however, in later publications, Knowles began to see the two models as “two alternative models” or “not as dichotomous but rather as two ends of a spectrum” (1980). Knowles asserted that “lifelong education requires a new theory that considers physical, mental, emotional, social, spiritual, and occupational development through the lifespan” (1975, p. 87). According to Knowles (1975), educating adults requires learning to be a process of inquiry—adult learners are problem-solvers who learn by doing. Knowles dictated a new approach to adult learning that would continue to evolve for several decades.

Along with a new approach to learning came guidelines for performing the new roles required to facilitate the process for adult learners. The four core concepts of andragogical theory introduced by Knowles (1975) are that adults have a psychological need to be self-directive; that their richest resource for learning is the analysis of their own experience; that they become ready to learn as they experience the need to learn in order to confront developmental tasks; and that their orientation toward learning is one of concern for immediate application (Knowles, 1975). The best learning experiences for educators are designed around the following key assumptions. The teacher, or adult learner:

- Moves from dependency to increasing self-directedness as he/she matures and can direct his/her own learning
- Draws on his/her accumulated reservoir of life experiences to aid learning
- Is ready to learn when he/she assumes new social or life roles
- Is problem-centered and wants to apply new learning immediately
- Is motivated to learn by internal, rather than external, factors.

To sum up, teachers need learning experiences that allow them to be autonomous, connect to their own rich experiences, immediately apply new knowledge, and bring their own motivation.

These assumptions provide several implications for planning and facilitating teacher professional development. Knowles (1984) suggests that adult educators allow for a collaborative environment in which learning may take place. It is also critical to assess the learner's specific needs and interests and develop learning objectives alongside learners. Adult learners need to know the *why* behind their learning experience. They also need to have the opportunity to provide input on the learning design. When planning, the adult educator should design sequential activities to achieve the identified objectives and work collaboratively with the learner to select methods, materials, and resources for instruction. Evaluation is another critical component of adult education. Learners should be allowed to evaluate the quality of the learning experience, and the adult educator should make adjustments as needed while assessing the need for further learning.

Effective Professional Development

A study conducted by the National Center for Education Statistics (2000), part of the U.S. Department of Education Office of Educational Research and Improvement, used data from a national sample of math and science teachers to analyze the state of PD across the nation and address concerns about the quality of the nation's public education system, specifically teacher effectiveness. This study is considered the first empirical study of the effects of different characteristics of PD on teachers' learning. This study was conducted at the beginning of the No Child Left Behind era (2001) and is considered a turning point in teacher PD. The research was prompted by the premise that teachers were not prepared to implement teaching practices based on more rigorous standards due to a lack of efficient PD and claim that much previous research failed to connect characteristics of effective PD to actual student achievement. The authors established the need for more systematic research on alternative methods of PD. As a result, they developed a set of criteria describing the "best practices" of PD. They gathered data from a survey given to teachers participating in the Eisenhower Professional Development Program. They differentiated research between structural and core professional development features and connected specific PD practices to better teacher outcomes.

Of their suggestions, a few stand out. First, "the number of hours teachers spent in professional development activities was related to the extent to which they believed that participation improved their teaching" (Garet et al., 2001, p. iv). Increased opportunities for professional development around the same skill or topic increased

teachers' feelings of efficacy. Next, "frequency of participation in a collaborative activity was generally positively related to teachers' beliefs about the extent to which the activity improved their classroom teaching" (Garet et al., 2001, p. v). More opportunities for collaboration with other teachers also increased teacher confidence in their own professional skills. These findings had long-term implications for how school leaders would conduct professional development.

Learning Forward (2011) asserts that "improvement is a continuous process without a beginning or end. Because professional learning is at the core of every effort to increase educator effectiveness and results for all students, its quality and effectiveness cannot be left to chance" (p. 4). Darling-Hammond et al. (2017) indicate several key factors that make for more high-quality PD experiences that are effective for increasing teacher capability:

1. They are typically content-focused and help build teacher knowledge around subject materials.
2. They incorporate active learning strategies.
3. They engage teachers in collaboration.
4. They use models and/or modeling.
5. They provide coaching and expert support.
6. They include time for feedback and reflection.
7. They are of sustained duration.

Previous and subsequent research highlights these key practices as critical to high-quality, effective PD.

A growing body of evidence suggests that current PD practices fail to successfully incorporate the tenets listed above. According to the Bill & Melinda Gates Foundation (2015), Few teachers (29 percent) are highly satisfied with current professional development offerings. In addition, few teachers (34 percent) think professional development has improved. Simply put, “professional development formats strongly supported by district leadership and principals, such as professional learning communities and coaching, are currently not meeting teachers’ needs” (Bill & Melinda Gates Foundation, 2015, p. 3). Even if these elements exist within PD programs, they may not necessarily be implemented effectively. For example, professional learning communities, or PLCs, are one common way teachers are asked to collaborate. Many PLCs are poorly implemented and superficial in their design (Darling-Hammond et al., 2017). There is evidence, though, that when implemented well, PLCs can support improvements in practice through active collaboration and reflection and will lead to gains in student learning (Darling-Hammond et al., 2017).

While there appear to be various factors at play in sustaining the teaching force, leadership stands out as one of the most important. As stated previously, a great deal of research indicates that the leader’s role in developing and implementing a program to grow and sustain teachers is at the very core of this issue. Darling-Hammond et al. (2017) further support the need for more high-quality professional development and point toward conditions created by the school leadership as being instrumental to its effectiveness. Providing successful professional development requires a positive school culture, adequate resources, and responsiveness to the needs of educators and learners (Darling-Hammond et al., 2017; Mohan et al., 2017). Research has also proven

that professional development is more effective when leaders and teachers learn together (Pharis et al., 2019).

Suggestions for Improving Professional Learning

Within their report, Darling-Hammond et al. suggest a long list of implications for policymakers and administrators, beginning with adopting standards for professional development to guide schools' professional learning plans. Learning Forward has already developed such standards. In their Standards for Professional Learning, Learning Forward indicates a shift from traditional professional development and an increased focus on teachers taking an active role in their professional learning. The core standards include learning communities, leadership, resources, data, learning design, implementation, and outcomes. In the overview of the standards, Learning Forward (2011) states that "the standards make explicit that the purpose of professional learning is for educators to develop the knowledge, skills, practices, and dispositions they need to help students perform at higher levels." Districts could easily modify and adopt these existing and widely accepted standards for professional development.

Darling-Hammond et al. (2017) also suggest that policymakers and administrators could create more flexible time within school schedules in order to increase opportunities for job-embedded professional learning and collaboration, such as "participation in professional learning communities, peer coaching and observations across classrooms, and collaborative planning" (p. vi). Other recommendations include personalizing professional development by utilizing data from teacher surveys to identify areas of need, developing expert teachers to be mentors and coaches, and using

federal funds to provide technology-facilitated professional learning opportunities and coaching (especially to meet the needs of rural schools) (Darling-Hammond et al., 2017).

Dagen and Bean (2020) also address a need for a shift in teacher development practices. They highlight the importance of leaders who implement research-based professional learning practices and outline the ways in which schools can ensure that professional learning supports overall improvement, boosts student achievement, and encourages teachers to grow as lifelong learners. Like Darling-Hammond et al., they focus on distinguishing between professional development in the traditional sense and professional learning, a newer model of support for teachers who take a more active role in their learning. Much emphasis is placed on effective professional learning as outlined by Learning Forward's Standards for Professional Learning (2011) and ILA's Standards for the Preparation of Literacy Professionals (2017). Dagen and Bean (2020) state: "ILA describes PD as something done to teachers, by experts, or organizations, in short duration, reflecting what is commonly known in the field as an isolated 'hit and run' or 'one-shot' approach" (p. 417). They echo what previous research indicates--this type of professional development "leaves teachers feeling less confident, more isolated, and less supported" (Dagen & Bean, 2020, p. 418). The shift that must occur and is beginning to occur across the nation is one toward professional learning, "which considers the teachers' own expertise and background, personal goals for growth, and agency experiences" (Dagen & Bean, 2020, p. 418). Schools can accomplish this by providing teachers more choices in professional learning opportunities, designing with active participant engagement in mind, making connections to prior knowledge,

co-constructing knowledge with teachers, connecting learning to daily work, and including many opportunities for teacher reflection and collaboration (Dagen & Bean, 2020, p. 418).

Types of Professional Development Supports

This study will focus on six methods of professional development support: mentoring, coaching, release time to observe other teachers, observation and feedback by administrators, common planning time, and professional learning communities. An overview of the research surrounding these six supports is included in this section.

Mentoring

Mentoring is an important and growing field in professional development, as veteran teachers are often called upon to provide guidance and support and serve as role models for beginning teachers. Beginning teachers typically participate in a formal mentoring program organized by school leadership. Principals may assign veteran teachers who teach the same grade level or content area to mentor new teachers. Mentors serve as guides for new teachers and provide a picture of professional expertise that new teachers may emulate. While mentoring programs are present in most districts, they vary significantly in structure and content (Ingersoll & Strong, 2011; Israel, Kamman, McCray & Sindelar, 2014; Polikoff, Desimone, Porter, & Hochberg, 2015; & Radford, 2018).

The selection, pairing, and training of veteran teacher mentors are essential to the mentoring program's success. According to Whitaker et al. (2019), "If mentors are well-skilled, they can provide a solid foundation for the new staff member that can be very beneficial. But this isn't likely to happen if the quality of the mentor is not the basis

of the selection” (p. 52). Teachers who act as mentors have an excellent opportunity to help shape the success of new teachers through meaningful relationships and interactions if chosen carefully and not based on trivial conditions, such as the convenience of having the same planning period as the beginning teacher (Whitaker et al., 2019). Effective mentoring programs require a systematic approach to training, pairing, and professional development (Schwan et al., 2020). A 2020 qualitative study by Schawn et al. examined the impact of mentor and new teacher pairings on the self-reported benefits of a statewide mentoring program for new teachers. The study’s results indicated that the most similar pairings, i.e., same district and same position, reported the most positive mentoring experience. The themes the mentors and new teachers identified as benefits of the experience included reflection, positive interactions, collaboration, improved instruction, and improvement (Schwan et al., 2020).

While research on teacher mentoring is relatively new, there is evidence that mentors can make a difference. Gray and Taie (2015) examined the benefits of mentorship programs and found that 92 percent of first-year teachers who had mentors returned to the classroom for a second year. National studies indicate that mentoring may be an effective intervention for improving teacher retention and performance (Gray & Taie, 2015; Ingersoll & Strong, 2011; Ingersoll & Smith, 2004). Research also indicates that mentoring new teachers for at least two years can positively affect student academic gains (Glazerman et al., 2010; Strong, 2006).

The association between mentoring and teacher retention is important, especially for rural and hard-to-staff schools. According to Ingersol and Tran (2023), rural school

student population and teaching force has dramatically shrunk in recent decades compared to urban and suburban schools. Rural schools often face serious difficulties filling open positions, and these teacher staffing problems are perpetuated by high levels of pre-retirement teacher turnover (Ingersol & Tran, 2023). Ingersol and Tran also indicate that teacher turnover is exceptionally high in high-poverty rural schools. As a result of high teacher turnover, schools with high-poverty and high-minority populations were 1.5 times more likely to have teachers who were new to the school or new to the profession (Gagnon & Mattingly, 2012; Simon & Johnson, 2015).

Most states have adopted state-level policies that set general requirements and rules of formal mentoring and induction support to be met by local school districts (Zembytska, 2016). This means that most beginning teachers receive some formal mentoring support, although research has indicated that the quality and structure of these programs vary (DeCesare et al., 2016). Emerging evidence shows that starting teachers prefer to choose their mentors (Colognesi et al., 2019). In a 2019 study, Colognesi et al. (2019) found that beginning teachers prefer their mentor not to be a superior but a close colleague whom they trust who has a similar teaching assignment. The study indicated that social, informal learning (e.g., through exchanging feedback with colleagues) benefits novice teachers. The administration needs to create a safe and welcoming environment where collaboration can occur.

Instructional Coach

Instructional coaching is an effective teaching model focusing on working with and guiding teachers to improve their pedagogy and classroom management practices. This allows them to implement and apply the latest educational research to improve

student outcomes in the classroom. Schools and districts employ several different types of coaches. For example, schools may employ literacy coaches, data coaches, content-focused coaches, technology coaches, behavior coaches, and general instructional coaches (Knight, 2018). Instructional coaching involves observing and reflecting on classroom lessons, setting goals, providing individualized support and feedback, and providing professional development sessions. Instructional coaching provides teachers with tailored strategies to facilitate instruction, manage challenging behaviors, utilize technology, and support students' social and emotional learning.

Just as there are various types of instructional coaches, coaches can utilize many different methods to provide support. Knight (2018) identifies three approaches to coaching: facilitative, dialogical, and directive. Facilitative coaches see the teachers they collaborate with as equals and allow them to make most decisions during coaching. Facilitative coaches listen, paraphrase, and ask powerful questions. Directive coaching is the opposite of facilitative coaching. Directive coaching involves the coach employing a master-apprentice approach to help the teacher master a particular skill. This method involves heavy modeling, observation, and feedback. Dialogical coaching balances advocacy with inquiry. Coaches who employ this method use questioning, active listening, and conversational strategies to help teachers unlock the knowledge they already possess. Coaches may use a combination of these methods depending on the circumstances.

Coaching has traditionally been closely linked with mentoring since “both coaching and mentoring are complex activities deeply associated with the support of individual learning” (Rhodes & Beneicke, 2002). Knight (2011) refers to this

collaboration and peer-to-peer support as a “partnership approach.” Knight (2011) outlines characteristics of good coaches in what he refers to as the “Seven Partnership Principles”: equality, choice, voice, reflection, dialogue, praxis, and reciprocity. Knight summarizes the impact of the partnership principles:

The partnership approach builds on an old idea—that we should treat others the way we'd like them to treat us. Chances are we'll want someone who will help us by giving us choices about what and how we learn. We'll likely want a say in our learning, and we'll likely get more out of back-and-forth conversations than one-way lectures. Chances are we'll want our conversations to help us address real-life issues, and we'll be more open to new ideas if the person helping us respects us, has faith in us, considers us educated and capable of making good decisions, and sees us as an equal. Chances are we'll want to be treated like a partner.

If they adopt the philosophy supported by Knight's partnership principles, coaches truly act as coachees' mentors through listening, encouraging, and supporting them to improve. According to survey data, teachers prefer coaches who know what it is like to be in their shoes and are experts in their subject area (Bill & Melinda Gates Foundation, 2015). Similar to the mentor/mentee relationship, the success of a coaching relationship appears to depend significantly upon the pairing of coach and coachee and the coach's interpersonal and professional skills.

While there is evidence that coaches who are experienced and well-trained to facilitate coaching may be more effective (Booker & Russell, 2022), there is also evidence that effective coaching is not happening in most schools. According to a study

by the Bill & Melinda Gates Foundation (2015), “survey data suggest that intensive coaching for teachers is relatively rare and that most coaching is focused on new and struggling teachers. Only about half of teachers report receiving coaching in the last year, and less than a quarter receive it on an intensive basis (weekly or more)” (p. 6). Coaching programs can vary significantly from school to school. Booker & Russell (2022) explain that coaches often spend less time coaching than intended. Since the actual time spent coaching is important, they encourage district administrators to position coaches as district-level rather than school-level support to help reduce this problem. The 2018 meta-analysis revealed that comparing across coaching models, the quality of coaching sessions matters more than quantity. The authors theorize, though, that for a program at a certain level of quality, it is probably better to have more coaching sessions, not fewer (Kraft et al., 2018).

The goal of instructional coaching is to increase teacher effectiveness, which can lead to higher student achievement (Kraft et al., 2018). Research suggests that instructional coaching can be a powerful tool in improving instruction and leading to greater student success (Joyce & Showers, 1988; Darling-Hammond et al., 2017; Kraft et al., 2018; Booker & Russell, 2022). Kraft’s 2018 meta-analysis of 60 causal studies found that the difference in effectiveness between teachers with instructional coaches and those without was equivalent to the difference between novice teachers and teachers with five to 10 years of experience. However, the coaching meta-analysis finds no evidence that more total hours of coaching were associated with stronger instruction or achievement outcomes. Booker & Russell (2022) postulate that instructional coaching programs that incorporate the essential features of high-quality professional

development are more likely to improve teacher practice and that new teachers who receive coaching support may be more likely to improve student outcomes and remain in the profession. Booker & Russell (2022) also cite several studies indicating that teachers who are less experienced and more open to being coached benefit most from coaching.

Despite these promising studies, research directly linking instructional coaching to student achievement is still emerging and is not currently abundant. According to the Bill & Melinda Gates Foundation (2015), coaching has been shown to improve teachers' ability to adopt and implement new practices and strategies, but "there is little evidence to support which model of coaching (e.g., technical coaching, team coaching, peer coaching) is most effective" (p. 14). More research is needed around specific coaching practices and the reality of coaching programs within schools and districts.

Release Time to Observe other teachers

Release time can be used to observe other teachers as part of professional learning and development. Research suggests that this can be an effective method for teachers to improve their teaching practice by learning from each other. A 2017 study involving graduate teaching assistants (TAs) who were part of a peer observation program revealed that "TAs considered peer observation to be beneficial for their professional growth, allowing them to learn new instructional practices and build collegial relationships" (Todd, 2017, p. 1). However, participants also identified many obstacles to peer observation, "such as anxieties about being observed, the time involved, and uncertainties about its purpose, including whether the teacher being observed was meant to receive feedback on their instruction" (Todd, 2017, p.1).

Growing evidence suggests that, when part of a regular cycle or schedule, this kind of job-embedded and ongoing professional development not only makes teachers more confident about their practice, but it also may result in gains for students as teachers become more willing and capable of adopting new strategies (Darling-Hammond et al., 2017). Creating a culture of collaboration in which teachers can continually learn from one another is likely to affect greater student achievement, especially for those for whom education is the only pathway to success and social mobility.

In addition, this type of collaborative learning environment helps to promote a culture of open dialogue and mutual respect between teachers. Release time to observe other teachers can help to facilitate a stronger sense of unity and collaboration between teachers in different classrooms or buildings. By providing opportunities for these meaningful collaborations, release time can foster a culture of professional learning and growth among educators (Hendry & Oliver, 2012).

Observation and feedback on lessons by administrators

The practice of formal teacher observation by administrators has become increasingly common as a means to provide feedback on a teacher's performance. Administrators typically observe classrooms through direct observation and often use a rubric, such as Tennessee's TEAM rubric, to comment on the teacher's instructional techniques, classroom management strategies, student engagement, and other factors that can affect learning. Observation is an important tool used by administrators to measure the effectiveness of their teaching staff and to identify areas for improvement. Additionally, it is beneficial for teachers to receive feedback through observation by administrators as it allows them to recognize and reflect on their strengths and

weaknesses, enabling them to build on them for future success in the classroom. According to Darling-Hammond et al. (2017), “Professional development models associated with gains in student learning frequently provide built-in time for teachers to think about, receive input on, and make changes to their practice.” Effective PD programs involve administrators and coaches observing teachers, providing feedback, and supporting reflection and often include opportunities to share both positive and constructive feedback in response to lesson plans, live observation of instruction, or videos of instruction (Darling-Hammond et al., 2017). Observation and feedback by administrators may be especially beneficial for new teachers. A 2021 study by Maready et al. found that “novice teachers expressed they were less likely to request transfers in schools where they received much support from their mentors and administrators in the area of curriculum and instruction, and constructive feedback” (p. 96).

Similar to mentoring and coaching, the quality of feedback matters. According to survey data collected by the Bill & Melinda Gates Foundation (2015), teachers do not always have positive perceptions of or experiences with the observation and feedback process:

While the advent of new teacher evaluation systems means that teachers are getting observed more than they were in the past, many teachers say observations rarely lead to true coaching about what they could do differently. As one teacher put it, “We all get observed by the administration. There’s written feedback that comes with it. But not mentoring, coaching, pairing.” (p. 6).

This survey data indicates that coaching conversations between administrators and teachers may be more important than the number of observations and feedback instances.

Common Planning Time

Common planning time (CPT) is a valuable resource for teachers to collaborate and discuss teaching strategies and student learning. One study by researchers at the University of Washington found that CPT was associated with higher student achievement on standardized tests in math and reading (Legters et al., 2010). In addition, teachers reported improved morale and engagement among their colleagues when engaging in collaborative planning (Legters et al., 2010). Teacher collaboration during CPT was also linked to increased teacher satisfaction, job satisfaction, and overall job performance (Legters et al., 2010; Darling-Hammond et al., 2017). Furthermore, dedicating time to common planning allowed teachers to benefit from the expertise and insight of their colleagues, which resulted in innovative and creative teaching strategies (Legters et al., 2010). A 2014 study by Hunter et al. determined that CPT is especially beneficial for special and general educators who can use the time to address the needs of students with special needs and plan for differentiated instruction. Ultimately, CPT has the potential to transform teaching practices, improve student learning, and create stronger relationships between educators. Darling-Hammond et al. (2017) state that “high-quality PD creates space for teachers to share ideas and collaborate in their learning, often in job-embedded contexts. By working collaboratively, teachers can create communities that positively change the culture and instruction of

their entire grade level, department, school, and/or district” (p. v). Simply put, common planning time provides the time and space for effective collaboration.

Providing the time in the daily schedule may not be sufficient for effective collaboration to occur, however. According to teacher survey data, “teachers recognize the value of collaboration, but they say that their current experience of collaborative professional development falls far short of the ideal” (Bill & Melinda Gates Foundation, 2015, p. 7). Teacher focus groups offered ways for administrators to help improve in-school collaborative time. These include having more structured agendas and objectives, more mutual accountability for those who participate so everyone is invested in the work, and protocols for giving and receiving feedback (Bill & Melinda Gates Foundation, 2015). Teachers who found time for collaboration most helpful saw “strong benefits to their day-to-day work in key areas, such as planning specific lessons, developing teaching skills and content, and aligning curriculum and expectations” (Bill & Melinda Gates Foundation, 2015, p. 8). Of the more than 1,300 teachers surveyed, only 7 percent reported that their schools have strong collaboration models (Bill & Melinda Gates Foundation, 2015).

PLCs

Professional Learning Communities (PLCs) are teams of educators that meet regularly to collaborate on best practices, discuss ideas, analyze student data, and create strategies for learning in the classroom. Through PLC participation, teachers share ideas, provide feedback on instructional strategies, and focus on improving their practice. Additionally, by engaging in meaningful conversations with peers, teachers can reflect on their practice, identify areas of improvement, and learn from other teachers’

successes. PLCs provide an innovative way to develop effective teaching practices and create an environment conducive to student learning (Darling-Hammond et al., 2017). Research indicates that PLCs can lead to increased student achievement and improved instructional practices, providing evidence that when implemented correctly, PLCs can be powerful tools for teacher development and student success (Darling-Hammond et al., 2017).

As with other professional development models, how schools implement PLCs makes a difference. For example, according to the Bill & Melinda Gates (2015) study, PLCs exhibited one of the lowest teacher satisfaction scores. According to teachers' responses, how structured is important for making the most of collaboration:

Much of what systems consider professional development, teachers perceive as wasted time. But learning activities that directly support teacher practice, such as planning and reflecting on instruction, are valued much more positively by teachers, as they tap into their motivation to help students learn. (Bill & Melinda Gates Foundation, 2015, p. 11)

Darling-Hammond et al. (2017) also address the reality that many PLCs have been “poorly implemented and superficial in their design”; however, the authors go on to discuss the potential for real gains in student achievement if implemented correctly (p. 17). Specifically, Darling-Hammond et al. highlight PLCs as excellent opportunities for “ongoing, job-embedded learning, that is active, collaborative, and reflective” (p. 17). PLCs offer many benefits, including time for teachers to analyze student data and work samples, reflect on their practices, and learn from one another (Darling-Hammond et al., 2017). According to Richard DuFour, a notable expert on PLCs (2014), “Research

shows that professional learning communities (PLCs) provide the best environment for powerful professional development and that the best professional development builds staff capacity to function as members of a high-performing PLC.” PLCs provide opportunities for two critical factors that may increase student success: timely monitoring of student performance and collaborative planning for intervention (DuFour, 2014).

Barriers to Effective Professional Development

Even with the wealth of research on effective professional development, studies such as the Bill & Melinda Gates (2015) survey provide evidence that many barriers exist in providing teachers with the best professional development opportunities. The (2015) survey revealed that teachers often lack the time and financial resources to participate in the professional development they feel they need most (Bill & Melinda Gates Foundation). Teachers express that learning is not personalized enough to the content they teach and the skills they need to develop and that there is too much inconsistency for professional development to be ongoing (Bill & Melinda Gates Foundation, 2015). Administrators cite a lack of time, training, and resources as key barriers (Bill & Melinda Gates Foundation, 2015). While this is only one study, Darling-Hammond et al. (2017) also note that tracking the implementation of professional development to determine what is effective and what is not can be a challenge. The authors state:

Few schools, districts, or state education agencies have created good systems of tracking PD, let alone systems for analyzing the quality and impact of PD. Without a sense of what is working and why, it is hard to

adopt and implement professional learning for teachers that is evidence based and designed to address potential obstacles. (p. 22)

More research is needed to determine the actual state of professional development across schools in the U.S.

The Rural Struggle

Rural districts continue to express frustration with the barriers that make some professional development supports virtually impossible. Cadero-Smith (2020) found that six components of effective teacher professional development were particularly difficult to deliver in rural environments: (a) content-focused training, (b) collaborative opportunities, (c) models of effective practice, (d) coaching and expert support, (e) feedback and reflection, and (f) training of sustained duration. When compared to research-based best practices for effective PD, one can see that rural schools struggle to implement many of those that have been deemed most critical to teacher and student success. Rural schools are often less likely to align PD to their school's or district's improvement goals, school data, and teachers' instructional needs (Howley & Howley, 2004, p. 3).

One barrier to implementing effective PD commonly identified by rural leaders is a need for more human capital (Cadero-Smith, 2020). Rural leaders and teachers are often asked to wear multiple hats and handle workloads that exceed those of their non-rural counterparts. Rural leaders cite "inadequate support for superintendents, difficulties recruiting and retaining teachers, challenges securing substitute teachers, and limitations of one teacher per grade level or course" as obstacles to effective PD (Cadero-Smith, 2020, p. 51). These challenges make it difficult for teachers to

collaborate, participate in mentoring/coaching programs, or find time to observe other teachers (Glover et al., 2016). In fact, “the largest differences between rural and non-rural schools are for collaborative learning activities and formal coaching or mentoring,” according to Peltola et al. (2017, p. 4). For example, collaborating with another 7th-grade science teacher is not very feasible when there is only one 7th-grade science teacher in a district. Petola et al. (2017) also found that “non-rural schools generally provide more peer-based support than their rural counterparts” (p. 1). They also identified that nonrural schools are more likely to implement collaborative learning activities and formal coaching or mentoring (Peltola et al., 2017).

Organizations like SCORE (2011) have proposed interesting ideas for navigating this issue. For example, it may make sense for rural schools to partner with nearby districts to recruit and retain highly effective teaching candidates who can serve as content specialists in critical subjects like reading and math across district lines. Rural schools can also call on effective teachers to lead professional learning communities at the school level and to support new teachers in implementing lessons learned from high-quality professional development opportunities. Peltola et al. (2017) found that online professional development has the potential to supplement local, in-person professional development in rural schools; however, overall, rural schools do not use online resources extensively.

Insufficient resources, including funding and time, are additional barriers rural schools identify in their efforts to support teachers’ professional growth and development (Cadero-Smith, 2020; Mohan et al., 2017). Rural districts often serve low-density populations and suffer the effects of lower tax bases and diminishing

populations. Superintendents say they often do not have the necessary financial resources, for example, to hire the essential administrative team to attend to the multiple responsibilities required to run a school district and support teachers' professional development (Cadero-Smith, 2020). Rural schools that serve predominantly low-income populations often receive additional funding from the federal government through Title funds; however, sometimes the extra funding may not be enough to make up for the added barriers to finding and developing high-quality teachers in rural areas.

Another major obstacle to effective PD in rural areas is geographic isolation (Cadero-Smith, 2020). Rural schools are often remote and situated long distances from resources, other schools, and educational institutions. Rural superintendents also cited high travel costs to attend training in metropolitan areas, difficulties hiring professional development consultants, and challenges securing substitutes to cover classrooms when discussing struggles created by geographic isolation (Cadero-Smith, 2020). This may explain why “a lower percentage of rural schools than of nonrural schools offer professional conferences, live workshops or seminars, and formal coaching or mentoring offsite,” according to Peltola et al. (2017, p. 6). To overcome the obstacles associated with geographic isolation, districts may need additional tools and resources. For example, given the availability of the correct tools, districts could harness the power of technology as a powerful medium for teacher professional development and student learning in remote areas (Cadero-Smith, 2020, p. 33).

In addition to being remote, populations served by rural schools often struggle with poverty and poverty-related issues like trauma. According to the USDA (2021),

“Across all races and ethnicities, U.S. poverty rates in 2019 were higher at 15.4 percent in non-metro (rural) areas than in metro (urban) areas at 11.9 percent.” Because of this, rural teachers may need even more PD and support to meet the specific needs of the communities they serve in addition to other learning around basic instructional improvements and enhanced content knowledge. Mohan et al. (2017) found that rural teachers needed PD relating to student learning and teaching, community partnership, school culture, and how to manage with minimum teaching resources.

Rural districts have unique needs when planning and implementing high-quality professional development. Overcoming the challenges faced by rural schools is often a difficult task. However, school administrators owe it to students to do all they can to eliminate as many barriers as possible to build and grow excellent teachers who will ultimately help them improve their trajectory and set them up for optimal learning and success.

Professional Development and Teacher Retention

For quite some time, experts have recognized the problem of the high rate of attrition among elementary and secondary school teachers. Research has found that teachers leave the profession at much higher rates than other respected professionals, such as nurses, lawyers, and engineers (Ingersoll et al., 2018). According to recent data, as many as 13.8 percent of teachers either leave their schools or leave teaching altogether (Garcia & Weiss, 2019). These rates are even higher among certain subgroups of teachers, such as beginning teachers, teachers in hard-to-staff schools, teachers of Color, and teachers with alternative licenses. As a result, the problem of teacher retention affects specific school populations disproportionately (Ingersoll et al.,

2018). Often, high-poverty schools and some of our most at-risk students are hit the hardest by the effects of teacher attrition (Garcia & Weiss, 2019). As Norton (2015) points out, “high teacher turnover in a school is not only costly monetarily but is also damaging to the continuity of school programming” (p. 52). Teacher shortages and failure to find qualified, effective teachers to fill the vacancies left by those who choose to leave the profession result in loss of resources, damage to the teaching profession, and, most importantly, negative student outcomes (Garcia & Weiss, 2019).

This leaves many people asking the question: Why do good teachers leave? Most often, teachers cite a lack of support from administrators as their primary reason for leaving a school (Norton, 2015). While administrator support can take many forms, Norton (2015) states that, according to research, “the key to keeping good teachers was effective staff development” (p. 39). Staff development is critical for job satisfaction, teacher effectiveness, and retention (Norton, 2015). This information warrants a deeper look at which teachers are leaving, why they are leaving, and the role the support of a school leader paired with a high-quality professional development plan can play in ensuring schools retain talented teachers.

The implications of this issue are monumental from the school and district leader's perspective. With over 44 percent of new teachers in public and private schools leaving the profession within five years of entry, teacher attrition's toll on districts cannot be underestimated (Ingersoll, 2018). As a result of teacher attrition, districts often scramble to find teachers to fill positions, dedicate precious time and resources to new teacher recruitment and training, and lose momentum for critical initiatives aimed at student success. Unfortunately, the problem only seems to be increasing. Ingersoll et al.

(2018) compared data from the 1980s with more current teacher data. They found that after the 1987-88 school year, about 7,500 first-year public school teachers left teaching. In comparison, just after the 2008-09 school year, about 13,500 first-year public school teachers left the occupation (p.20). These trends indicate that there are more new teachers in today's teaching force, and these newcomers are consistently less likely to remain in the profession than others (Ingersoll et al., 2018). A fear exists that if school leaders do not find a way to stop or decrease this trend, they may be trapped in an endless cycle of hiring, training, and repeating. This wastes time and precious resources, and students suffer academically.

Research indicates that the weak professional development identified by Garet et al. (2001) is of particular concern in hard-to-staff schools (Holmes et al., 2019). In a synthesis of research on the topic, Holmes et al. (2019) postulated that “teachers are exiled by fractious decision-making systems, lack of support by school leaders and by policy priorities that do not focus on student learning and developing professional learning communities” (p. 27). This is a problem the authors identify as being directly related to the leadership of the principal. For example, Chinn (2007) “found that when school building administrators focused on authentic student success and were supportive of teachers’ professional growth and development, teachers were more likely to stay at the school” (as cited in Holmes et al., 2019, p. 29). Other studies, such as Wynn (2009) “also found that focus on growth and development as opposed to evaluation and punishment is a cornerstone of supportive leadership” (as cited in Holmes et al., 2019, p. 29). Holmes et al. (2019) go on to cite another study conducted by Kimball (2011) that “found that a well-defined system devoted to management of

performance, which also includes formal setting of goals, easy access to support and mentoring, ongoing feedback, and recognition of accomplishments, as well as repercussions for poor performance, were critical indicators of teachers' attitudes toward the nexus of leadership support and retention decisions (p. 29). The authors of this report wrap up by indicating that there is not a one-size-fits-all approach to finding a solution to teacher attrition and outlining how individual schools and systems may consider planning targeted professional development to retain high-quality teachers (Holmes et al., 2019).

In addition to new teachers and teachers in hard-to-staff schools, teachers of Color are also leaving the teaching profession disproportionately. Kohli (2019) conducted a narrative inquiry to better understand the professional experiences of teachers of color and what makes some teachers remain in the profession while others choose to leave. She interviewed eleven women of Color who identify as being justice-oriented, currently work in the K-12 school system, and are considered veteran teachers. The article focuses on two factors influencing teacher of Color retention: teacher preparation and critical professional development. Kohli's (2019) research supports the greater implementation of collectivized teacher-led spaces of racial literacy development—framed as critical professional development (CPD). This work further supports the idea that teacher professional development is not one-size-fits-all. Teachers may need additional support outside of the realm of traditional professional development in order to remain in the teaching profession.

Similarly, other subgroups of teachers, such as alternatively licensed educators, express a strong need for personalized professional development. A study by Rose and

Sughrue (2020) supports the idea that, in order to be effective, professional development must not be standardized. In order to increase the retention of teachers in this subgroup, “alternative certified teachers need increased, differentiated professional development opportunities that support classroom performance, resulting in retention and student achievement” (Rose & Sughrue, 2020). This study found that professional development for alternatively certified teachers did not differ much from that intended for veteran teachers, even though teachers with alternative licenses expressed the need for differentiated learning to compensate for differences in content knowledge and lack of teaching experience. Rose and Sughrue (2020) recommend that “school leaders should offer professional development to alternatively certified teachers that is of a nature and scope that has a positive influence on the teacher’s classroom performance, which may positively affect their decision to remain in the profession.”

While public schools have been making great strides over the past 20 years in working toward improving professional development, there is still more work to be done. Holmes et al. (2019) insist that “change must occur with solid leadership” (p. 30). Research overwhelmingly supports the role of the principal as key to teacher development and improvement, and Holmes et al. (2019) assert that “principals in low-achieving or high poverty, minority schools tend to have a greater impact on student outcomes than principals at less challenging schools” (p. 30). The evidence is overwhelming: Principals must lead the way in providing effective professional development to prevent higher teacher attrition rates.

Darling-Hammond et al. (2017) further support the need for more high-quality professional development and point toward conditions created by the school leadership

as being instrumental to its effectiveness. Providing successful professional development requires a positive school culture, adequate resources, and responsiveness to the needs of educators and learners (Darling-Hammond et al., 2017). Within the report, the authors suggest a long list of implications for policymakers and administrators, beginning with adopting standards for professional development to guide schools' professional learning plans (Darling-Hammond et al., 2017).

Learning Forward has already developed such standards. In their Standards for Professional Learning, Learning Forward indicates a shift from traditional professional development and an increased focus on teachers' active role in their professional learning. The core standards include learning communities, leadership, resources, data, learning design, implementation, and outcomes. In the overview of the standards, Learning Forward (2011) states that "the standards make explicit that the purpose of professional learning is for educators to develop the knowledge, skills, practices, and dispositions they need to help students perform at higher levels." Districts could easily modify and adopt these existing and widely accepted standards for professional development.

Darling-Hammond et al. (2017) also suggest that policymakers and administrators could create more flexible time within school schedules in order to increase opportunities for job-embedded professional learning and collaboration, such as "participation in professional learning communities, peer coaching and observations across classrooms, and collaborative planning" (p. vi). Other recommendations include personalizing professional development by utilizing data from teacher surveys to identify areas of need, developing expert teachers to be mentors and coaches, and using

federal funds to provide technology-facilitated professional learning opportunities and coaching (especially to meet the needs of rural schools) (Darling-Hammond, 2017).

Dagen and Bean (2020) also address a need for a shift in teacher development practices. They highlight the importance of leaders who implement research-based professional learning practices and outline the ways in which schools can ensure that professional learning supports overall improvement, boosts student achievement, and encourages teachers to grow as lifelong learners. Like Darling-Hammond, they focus on distinguishing between professional development in the traditional sense and professional learning, a newer support model for teachers in which teachers take a more active role in their learning. Much emphasis is placed on effective professional learning as outlined by Learning Forward's Standards for Professional Learning (2011) and ILA's Standards for the Preparation of Literacy Professionals (2017).

Dagen and Bean (2020) state: "ILA describes PD as something done to teachers, by experts, or organizations, in short duration, reflecting what is commonly known in the field as an isolated 'hit and run' or 'one-shot' approach" (p. 417). They echo what previous research indicates--this type of professional development "leaves teachers feeling less confident, more isolated, and less supported" (Dagen & Bean, 2020, p. 418). The shift that must occur and is beginning to occur across the nation is one toward professional learning, "which considers the teachers' expertise and background, personal goals for growth, and agency experiences" (Dagen & Bean, 2020, p. 418). Schools can accomplish this by providing teachers more choice in professional learning opportunities, designing with active participant engagement in mind, making connections to prior knowledge, co-constructing knowledge with teachers, connecting

learning to daily work, and including many opportunities for teacher reflection and collaboration (Dagen & Bean, 2020, p. 418).

Gaps in Existing Literature

As Darling-Hammond et al. remind us, “It is certainly true that PD does not always lead to professional learning, despite its intent” (2017, p. 1). However, there is great potential for improving teacher practice and changing student outcomes if professional development is successful. An overarching theme of existing research on effective professional development is a need for a more streamlined and targeted approach to determining the quality of implemented professional development supports. For example, no research could be found to support which coaching methods are most effective in improving teachers’ practice and student achievement. There is also a need for more studies to provide a direct link between professional development supports such as coaching and mentoring and student achievement. While the Bill & Melinda Gates (2015) study provides great insight into teachers’ perceptions of support, it is not the most current research. It does not explicitly address gaps in teachers’ access to supports based on demographic information such as geographic location or grade level taught. There is still much to discover regarding the effectiveness of different professional development models, equity, and student achievement.

Summary

In a constantly changing world, school leaders must also learn to evolve. A one-size-fits-all approach to professional development does not support the diverse needs of today’s educators. It may be contributing to an increased number of teachers

leaving the profession. In order to grow and sustain a highly-qualified, highly-effective, stable teaching force, school and district leaders must adopt new methods of teacher support. Professional development plans should be strategic, differentiated to meet the needs of diverse teachers, and designed with the success of all stakeholders in mind. As Darling-Hammond et al. (2017) summarize, “In the end, well-designed and implemented PD should be considered an essential component of a comprehensive system of teaching and learning that supports students to develop the knowledge, skills, and competencies they need to thrive in the 21st century” (vii).

Chapter 3

Research Design and Methods

Introduction

This secondary data analysis was conducted using a Quantitative Comparative Research Design comparing teachers' accessibility to professional supports and instructional strategies in literacy education in selected schools in northeast Tennessee.

The sample population which was compared in this study consisted of 1293 teachers and administrators from 65 schools from 18 districts across the northeast Tennessee region who were involved in a 2018-2022 Education Innovation and Research grant.

The purpose of this study was twofold. The initial purpose of the study was to determine how teachers' access to professional development supports varied based on their school's location, grade level, and socioeconomic status. A secondary purpose was to determine how teachers' access to professional development supports impacted their instructional decisions and, ultimately, student achievement so that effective models of professional development could be implemented effectively and equitably in K-12 schools.

This chapter details the design, methods, and procedures used to analyze the seven research questions used in this study. The research questions, population, sample, and instrumentation used in the study were examined. Additionally, the data analysis process was discussed.

Research Questions and Null Hypotheses

The following research questions were used to guide the analysis of data for this study.

1. Is there a significant difference between rural and non-rural teachers' self-reported access to and perceptions of professional supports?
 - a. formally assigned mentor or coach
 - b. informal mentor
 - c. release time to observe other teachers
 - d. observation of and feedback on lessons by administrators
 - e. common planning time (formally scheduled) with other teachers
 - f. professional learning communities where they can discuss concerns or engage in instructional planning with other teachers

2. Is there a significant difference between teachers at Title I schools and teachers at non-Title I schools and their self-reported access to and perceptions of professional supports?
 - a. formally assigned mentor or coach
 - b. informal mentor
 - c. release time to observe other teachers
 - d. observation of and feedback on lessons by administrators
 - e. common planning time (formally scheduled) with other teachers
 - f. professional learning communities where they can discuss concerns or engage in instructional planning with other teachers

3. Is there a significant difference in elementary and secondary teachers and their self-reported access to and perceptions of professional supports?
 - a. formally assigned mentor or coach
 - b. informal mentor
 - c. release time to observe other teachers
 - d. observation of and feedback on lessons by administrators
 - e. common planning time (formally scheduled) with other teachers
 - f. professional learning communities where they can discuss concerns or engage in instructional planning with other teachers
4. Is there a relationship between teachers' self-reported access to professional supports and the likelihood that they use certain instructional practices?
 - a. facilitating teacher-led large-group or whole-class (more than 10 students) instruction
 - b. facilitating teacher-led small group (2 to 10 students) instruction
 - c. incorporating small-group collaboration (such as team projects, partner work, peer-to-peer instruction)
 - d. providing a variety of materials or instructional approaches to accommodate individuals' needs and interests
 - e. frequently adapting course content to meet students' needs by providing additional assignments, resources, and activities for remediation or enrichment
5. Is there a relationship between teachers' self-reported access to professional supports and the likelihood that they have greater access to student data?

- a. Information about student performance on specific concepts or skills
 - b. Identification of specific students who need extra assistance
 - c. Identification of students who have achieved mastery
 - d. Nonachievement outcomes (for example, student behavior, attitudes, or motivation)
6. Is there a relationship between teachers' self-reported access to professional supports and the likelihood that they use student data in instructional decision-making?
- a. Tailoring the pace of instruction to individual students' needs
 - b. Tailoring the content of instruction to individual students' needs
 - c. Developing recommendations for tutoring or other educational support services for particular students
 - d. Assigning or reassigning students to groups within classes
 - e. Assigning students to extended learning opportunities (for example, extended-day programs, Saturday classes, or an extended school year)
 - f. Identifying topics requiring more or less emphasis in instruction
 - g. Identifying areas where teacher needs to strengthen their own content knowledge or teaching skills
 - h. Reflecting on and discussing teaching and learning with other teachers
 - i. Reflecting on and discussing learning with students
7. Is there a relationship between teachers' self-reported access to professional supports and school achievement data in ELA?
- a. formally assigned mentor or coach

- b. informal mentor
- c. release time to observe other teachers
- d. observation of and feedback on lessons by administrators
- e. common planning time (formally scheduled) with other teachers
- f. professional learning communities where they can discuss concerns or engage in instructional planning with other teachers

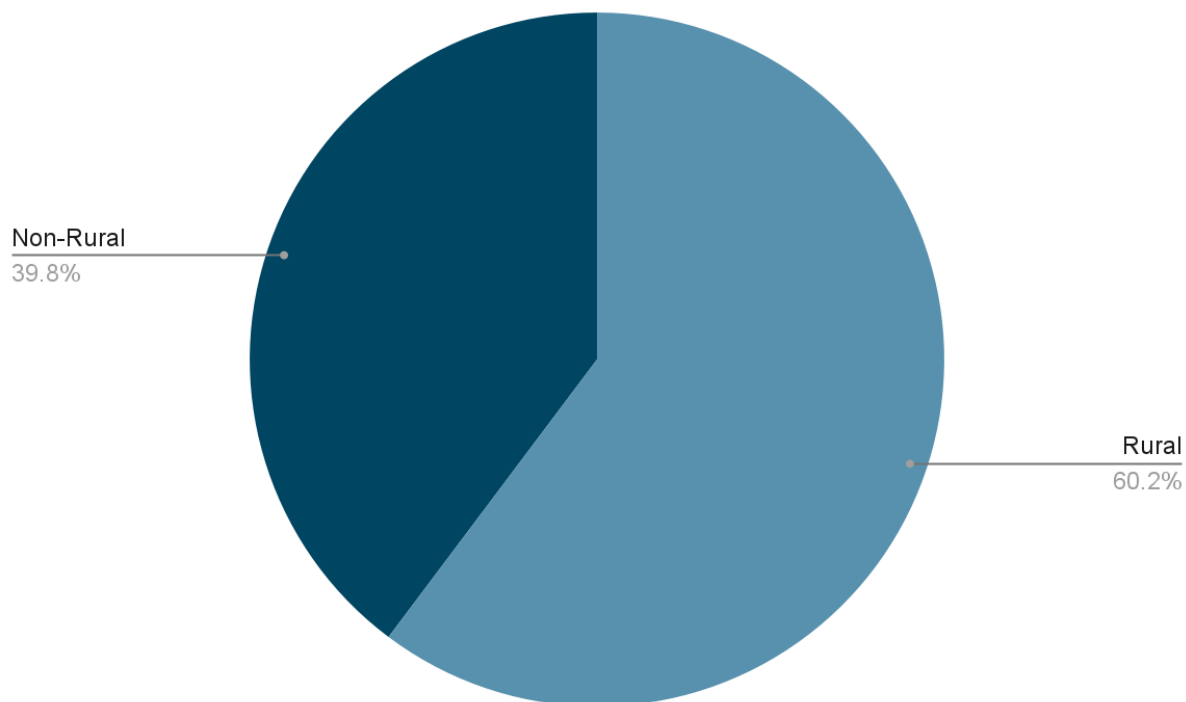
Population and Sample

The sample for this study was chosen from a population of K-12 teachers in northeast Tennessee. The sample consisted primarily of middle grades teachers and administrators from schools involved in a 2018-2022 Education Innovation and Research grant.

The study involved teachers and administrators at 65 schools in eighteen school systems in northeast Tennessee. Of the 65 schools represented in this survey, 40 of the schools represented in survey responses are designated rural (779 individual responses, or 60.2% of respondents); 25 of the schools represented in the survey responses are designated non-rural (514 individual responses, or 39.8% of respondents). Figure 1 displays the percentage of participants by school locale.

Figure 1

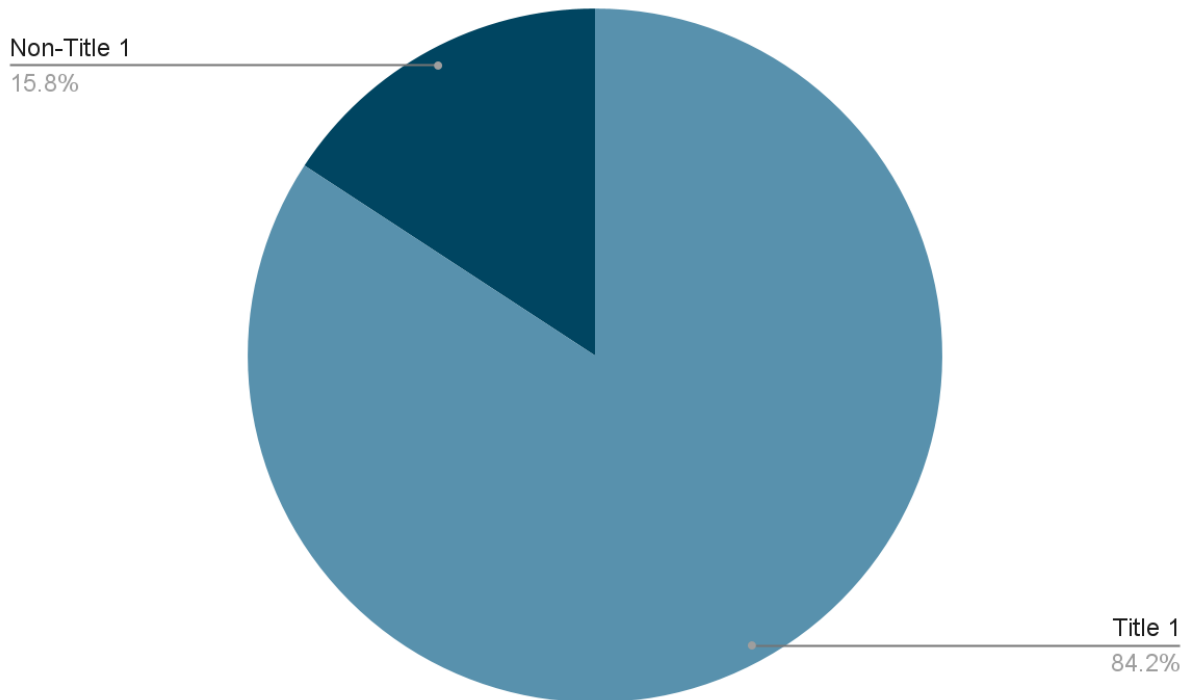
Percentage of Respondents by School Locale.



Fifty-seven of the schools involved in the survey were designated Title 1 schoolwide in 2019-2020 according to data retrieved from PublicSchoolReview.com and The National Center for Education Statistics. A school is classified as Title 1 if at least 40 percent of its students are “directly certified,” i.e., identified for free meals through means other than household applications (for example, students directly certified through SNAP). These schools represented 84% of survey responses, or 1089 individual respondents. Eight schools were not designated Title 1. These schools represented 15.7% of survey responses, or 203 individual respondents. Figure 2 displays the percent of participants by school Title 1 eligibility.

Figure 2

Percentage of Respondents by School Title 1 Eligibility.

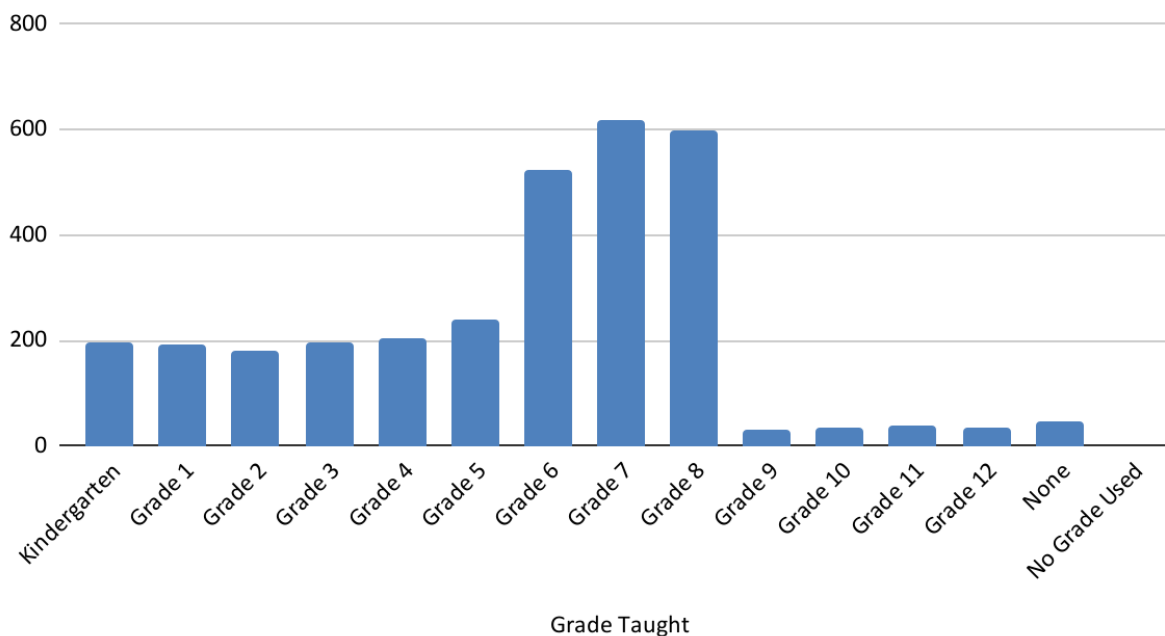


This study was primarily focused on middle grades schools; however, schools served students in grades K-8, 6-8, 6-12, and other configurations. Roughly 32% of survey respondents taught primarily elementary students. Sixty-four percent of survey respondents taught primarily secondary students. Figure 3 summarizes survey responses by grade level taught.

Figure 3.

Number of survey Responses by Grade Level Taught.

Survey Responses by Grade Level



Instrumentation

The organization that facilitated this study contracted an outside research company to evaluate the grant program. At the beginning of the 2018-2019 school year, a Teacher Practice Survey (Appendix A) was sent to all teachers and administrators involved in the program. This survey was adapted from [one developed by RAND Corporation](#) and used in their national study of personalized learning. The original instrument contained 40 items, including sections on professional training and support, access to resources, quality of instructional materials, use of different models of classroom instruction, use of technology in the classroom, use of data to assess student progress, and obstacles to implementation. RAND researchers used data from their

national study of personalized learning conducted to create several scales related to personalized learning strategies: student choice and engagement, technology for personalization, competency-based learning, flexible learning environments, and learner profiles. The scales have a range of 1 to 4, where higher values represent greater teacher agreement with the components of the scale. The main purpose of the original instrument was to investigate how schools were implementing personalized learning, understand some of the challenges and facilitators, and consider these alongside achievement findings to discern patterns that may be informative.

Questionnaire

The survey was adapted from one developed by RAND Corporation and used in their national study of personalized learning to include 14 questions. The 14 questions were subdivided into 10 sections: Demographics (school, treatment/control, locale, grade span, role, content, and grade level taught), Classroom/School Components, Curriculum and Instruction, Modes of Instruction, Professional Supports, Obstacles, Access to Student Data, Use of Student Data, Learner Profiles, and Networking with Other Teachers. Contact with the organization yielded express written permission for the to use the instrument in this research.

Administration

Administration of the survey took place through Google Forms across X time period at the beginning of the 2018-2019 school year. The researcher conducted a secondary analysis of that data. Data collected from the survey were then transferred to SPSS statistics for analysis.

Scoring

The adapted instrument used for this research included 14 items, including a Likert scale which varied based on section. The Demographics section included the participant's school (which was used to determine treatment/control and locale), school grade span, participant role, content taught by the participant, and grade level taught by the participant.

For each item in the Classroom / School Components subsection, participants rated whether or not a layout or physical characteristic existed in their school and indicated the extent to which it hindered or facilitated personalized learning. Frequency is rated from 1-5 where 1=Does not exist in my school, 2=Exists in my school and hinders personalized learning, 3=Exists in my school and has no impact on personalized learning, 4=Exists in my school and facilitates personalized learning.

Each item in the Curriculum and Instruction subsection ranges from 1-4 describing the extent to which teachers agreed with statements about their curriculum and instruction where 1=Not at all, 2=To a small extent, 3=To a moderate extent, and 4=To a great extent.

Each item in the Modes of Instruction subsection ranges from 1-5 describing how often, on average, teachers used different modes of instruction where 1=Daily, 2=Several times per week, 3=Once per week, 4=Less than once per week, and 5=Never.

Each item in the Professional Supports subsection ranges from 1-4 describing whether, in the 2018 school year, teachers received different kinds of supports and the extent to which they found it helpful for improving their instruction where 1=I did not

receive this support, 2=I received this support and found it unhelpful, 3=I received this support and found it somewhat helpful, 4=I received this support and found it very helpful.

Each item in the Obstacles subsection ranges from 1-3 describing the extent to which teachers perceived different things as obstacles to implementing personalized instruction where 1=not an obstacle, 2=minor obstacle, 3=major obstacle.

Each item in the Access to Student Data subsection ranges from 1-8 describing how frequently teachers received different types of information about the performance of their students where 1=Never, 2=Once a year, 3=A few times a year, 4=Approximately monthly, 5=A few times a month, 6=Approximately weekly, 7=A few times a week, and 8=At least daily.

Each item in the Use of Student Data subsection ranges from 1-5 describing the extent to which teachers used student achievement/mastery data for various purposes where 1=My school doesn't do this, 2=Did not use data for this at all, 3=Used data to a small extent, 4=Used data to a moderate extent, and 5=Used data to a large extent.

Each item in the Learner Profiles subsection ranges from 1-4 describing to what extent schools' learner profiles included various attributes where 1=Not at all, 2=To a small extent, 3=To a moderate extent, 4=To a great extent.

Each item in the Networking With Other Teachers subsection ranges from 1-5 describing how often teachers discussed literacy with various groups or individuals where 1=Daily, 2=Several times per week, 3=once per week, 4=Less than once per week, and 5=Never.

Reliability and Validity

The original instrument has been tested for reliability and validity in previous research conducted by RAND Corporation for the Next Generation Learning Challenges (NGLC) program in the 2014-2015 school year. The NGLC survey was administered to a sample of 330 teachers across 40 schools; the response rate was 74 percent.

To provide comparative data for the NGLC teacher and student surveys, the Bill & Melinda Gates Foundation engaged Grunwald Associates to administer the surveys to a national sample (Pane et al., 2015). Those surveys were administered during the summer after the 2014–15 school year. The questions on the survey were nearly identical to those on the NGLC surveys, although the language was adapted to refer in the past tense to the 2014–15 school year. Pane’s research demonstrated scale reliabilities for the NGLC and national sample surveys with the following alpha values: quality and usefulness of professional development ($\alpha = 0.88$); perceptions of the quality and usefulness of data and data systems ($\alpha = 0.91$); extent of practices to support competency-based learning ($\alpha = 0.81$); student choice and engagement ($\alpha = 0.77$) (Pane et al., 2015).

Data Collection and Procedures

Permission to conduct this study was obtained from Milligan University’s Institutional Review Board (IRB). Once permission was given, the researcher reviewed the data collected by the organization from the instrument (found in Appendix B). The researcher compiled the data within Google Sheets. Statistical Package for the Social Sciences (SPSS) was used to compare data for statistical significance. All data were reviewed to ensure accuracy before and after the transition from platform to platform.

Data for this study were originally collected using the web-based Google platform, Google Forms. Surveys were administered through school/district email services. Email invitations were sent to all school employees from ANLAR at each treatment and control school involved in the EIR Grant.

Participants voluntarily completed the survey and were given the opportunity to withdraw from the research at any time. No incentive was offered to encourage participation in the survey. Names were not indicated, and personally identifiable information in regard to the teacher was eliminated from the documentation. Measures were in place to ensure that all participants understood that all information remained confidential.

Data Analysis

The following research questions guided the analysis of data in this study.

1. Is there a significant difference between rural and non-rural teachers' self-reported access to and perceptions of professional supports?
 - a. formally assigned mentor or coach
 - b. informal mentor
 - c. release time to observe other teachers
 - d. observation of and feedback on lessons by administrators
 - e. common planning time (formally scheduled) with other teachers
 - f. professional learning communities where they can discuss concerns or engage in instructional planning with other teachers

2. Is there a significant difference between teachers at Title I schools and teachers at non-Title I schools and their self-reported access to and perceptions of professional supports?
 - a. formally assigned mentor or coach
 - b. informal mentor
 - c. release time to observe other teachers
 - d. observation of and feedback on lessons by administrators
 - e. common planning time (formally scheduled) with other teachers
 - f. professional learning communities where they can discuss concerns or engage in instructional planning with other teachers
3. Is there a significant difference in elementary and secondary teachers and their self-reported access to and perceptions of professional supports?
 - a. formally assigned mentor or coach
 - b. informal mentor
 - c. release time to observe other teachers
 - d. observation of and feedback on lessons by administrators
 - e. common planning time (formally scheduled) with other teachers
 - f. professional learning communities where you can discuss concerns or engage in instructional planning with other teachers
4. Is there a relationship between teachers' self-reported access to professional supports and the likelihood that they use certain instructional practices?
 - a. facilitating teacher-led large-group or whole-class (more than 10 students) instruction

- b. facilitating teacher-led small group (2 to 10 students) instruction
 - c. incorporating small-group collaboration (such as team projects, partner work, peer-to-peer instruction)
 - d. providing a variety of materials or instructional approaches to accommodate individuals' needs and interests
 - e. frequently adapting course content to meet students' needs by providing additional assignments, resources, and activities for remediation or enrichment
5. Is there a relationship between teachers' self-reported access to professional supports and the likelihood that they have greater access to student data?
- a. Information about student performance on specific concepts or skills
 - b. Identification of specific students who need extra assistance
 - c. Identification of students who have achieved mastery
 - d. Nonachievement outcomes (for example, student behavior, attitudes, or motivation)
6. Is there a relationship between teachers' self-reported access to professional supports and the likelihood that they use student data in instructional decision-making?
- a. Tailoring the pace of instruction to individual students' needs
 - b. Tailoring the content of instruction to individual students' needs
 - c. Developing recommendations for tutoring or other educational support services for particular students
 - d. Assigning or reassigning students to groups within classes

- e. Assigning students to extended learning opportunities (for example, extended-day programs, Saturday classes, or an extended school year)
 - f. Identifying topics requiring more or less emphasis in instruction
 - g. Identifying areas where teacher needs to strengthen their own content knowledge or teaching skills
 - h. Reflecting on and discussing teaching and learning with other teachers
 - i. Reflecting on and discussing learning with students
7. Is there a relationship between teachers' self-reported access to professional supports and school achievement data?
- a. formally assigned mentor or coach
 - b. informal mentor
 - c. release time to observe other teachers
 - d. observation of and feedback on lessons by administrators
 - e. common planning time (formally scheduled) with other teachers
 - f. professional learning communities where they can discuss concerns or engage in instructional planning with other teachers

The first research question, "Is there a significant difference between rural and non-rural teachers' self-reported access to and perceptions of professional supports?" was tested based on responses to the "Professional Supports" section of the survey. Respondents were asked to describe whether they received six different kinds of professional supports, and rate the extent to which they found the supports helpful for improving their instruction using a Likert scale ranging from 1-4 where 1 = I did not receive this support, 2 = I received this support and found it unhelpful, 3 = I received this

support and found it somewhat helpful, 4 = I received this support and found it very helpful. The mean score for each respondent was used to conduct an independent samples *t*-Test comparing the answers for respondents located in rural school settings and non-rural school settings to determine whether there was a statistically significant difference between the groups in their self-reported access to and perceptions of the following professional supports: formally assigned mentor or coach; informal mentor; release time to observe other teachers; observation of and feedback on lessons by administrators; common planning time (formally scheduled) with other teachers; professional learning communities where you can discuss concerns or engage in instructional planning with other teachers.

The second research question, “Is there a significant difference between teachers at Title I schools and teachers at non-Title I schools and their self-reported access to and perceptions of professional supports?” was tested based on responses to the “Professional Supports” section of the survey. Respondents were asked to describe whether they received six different kinds of professional supports, and rate the extent to which they found the supports helpful for improving their instruction using a Likert scale ranging from 1-4 where 1 = I did not receive this support, 2 = I received this support and found it unhelpful, 3 = I received this support and found it somewhat helpful, 4 = I received this support and found it very helpful. The mean score for each respondent was used to conduct an independent samples *t*-Test comparing the answers for respondents located in Title 1 school and non-title 1 school settings to determine whether there was a statistically significant difference between the groups in their self-reported access to and perceptions of the following professional supports: formally

assigned mentor or coach; informal mentor; release time to observe other teachers; observation of and feedback on lessons by administrators; common planning time (formally scheduled) with other teachers; professional learning communities where you can discuss concerns or engage in instructional planning with other teachers.

The third research question, “Is there a significant difference in elementary and secondary teachers and their self-reported access to and perceptions of professional supports?” was tested based on responses to the “Professional Supports” section of the survey. Respondents were asked to describe whether they received six different kinds of professional supports, and rate the extent to which they found the supports helpful for improving their instruction using a Likert scale ranging from 1-4 where 1 = I did not receive this support, 2 = I received this support and found it unhelpful, 3 = I received this support and found it somewhat helpful, 4 = I received this support and found it very helpful. The mean score for each respondent was used to conduct an independent samples *t*-Test comparing the answers for respondents based on grade level taught to determine whether there was a statistically significant difference between the two groups in their self-reported access to and perceptions of the following professional supports: formally assigned mentor or coach; informal mentor; release time to observe other teachers; observation of and feedback on lessons by administrators; common planning time (formally scheduled) with other teachers; professional learning communities where you can discuss concerns or engage in instructional planning with other teachers.

The fourth research question, “Is there a relationship between teachers' self-reported access to professional supports and the likelihood that they use certain

instructional practices?” was tested based on responses to the “Professional Supports” and “Modes of Instruction” sections of the survey. Respondents were asked to describe whether they received six different kinds of professional supports, and rate the extent to which they found the supports helpful for improving their instruction using a Likert scale ranging from 1-4 where 1 = I did not receive this support, 2 = I received this support and found it unhelpful, 3 = I received this support and found it somewhat helpful, 4 = I received this support and found it very helpful. Respondents were also asked to describe how often, on average, they used various modes of instruction using a Likert scale ranging from 1 = Daily, 2 = Several times per week, 3 = Once per week, 4 = Less than once per week, 5 = Never. A Spearman’s Rho correlation coefficient was computed to test the bivariate correlation among the variables in the study (teachers’ access to selected professional supports and the likelihood that they use certain instructional practices). The test compared the answers for respondents based on access to professional supports and whether there was a statistically significant difference between the groups in their self-reported use of the five following instructional strategies: teacher-led large-group or whole-class (more than 10 students) instruction; teacher-led small group (2 to 10 students) instruction; small-group collaboration (such as team projects, partner work, peer-to-peer instruction); providing a variety of materials or instructional approaches to accommodate individuals’ needs and interests; frequently adapt course content to meet students’ needs by providing additional assignments, resources, and activities for remediation or enrichment.

The fifth research question, “Is there a relationship between teachers’ self-reported access to professional supports and the likelihood that they have greater

access to student data?” was tested based on responses to the “Professional Supports” and “Access to Student Data” sections of the survey. Respondents were asked to describe whether they received six different kinds of professional supports, and rate the extent to which they found the supports helpful for improving their instruction using a Likert scale ranging from 1-4 where 1 = I did not receive this support, 2 = I received this support and found it unhelpful, 3 = I received this support and found it somewhat helpful, 4 = I received this support and found it very helpful. Respondents were also asked to rate the frequency at which they received various types of information about the performance of their students using a Likert scale ranging from 1-8 where 1 = Never and 8 = At least daily. A Spearman’s Rho correlation coefficient was computed to test the bivariate correlation among the variables in the study (teachers’ access to selected professional supports and access to student data). The test compared the answers for respondents with higher access to supports vs. respondents with less access to supports to determine whether there was a statistically significant difference between the groups in their self-reported access to student data.

The sixth research question, “Is there a relationship between teachers’ self-reported access to professional supports and the likelihood that they use student data in instructional decision-making?” was tested based on responses to the “Professional Supports” and “Use of Student Data” sections of the survey. Respondents were asked to describe whether they received six different kinds of professional supports, and rate the extent to which they found the supports helpful for improving their instruction using a Likert scale ranging from 1-4 where 1 = I did not receive this support, 2 = I received this support and found it unhelpful, 3 = I received this support and found it

somewhat helpful, 4 = I received this support and found it very helpful. Respondents were also asked to rate the extent to which they used student achievement/mastery data for various purposes using a Likert scale ranging from 1-5 where 1 = My school doesn't do this, 2 = Did not use data for this at all, 3 = Used data to a small extent, 4 = Used data to a moderate extent, 5 = Used data to a large extent. A Spearman's Rho correlation coefficient was computed to test the bivariate correlation among the variables in the study (teachers' access to selected professional supports and the extent to which they used student data). The test compared the answers for respondents with higher access to supports vs respondents with less access to supports to determine whether there was a statistically significant difference between the groups in their self-reported use of student data for each of the following purposes: tailoring pace of instruction to individual students' needs; tailoring the content of instruction to individual students' needs; developing recommendations for tutoring or other educational support services for particular students; assigning or re-assigning students to groups within class(es); assigning students to extended learning opportunities (for example, extended-day programs, Saturday classes, or an extended school year); identifying topics requiring more or less emphasis in instruction; identifying areas where they need to strengthen content knowledge or teaching skills; reflecting on and discussing teaching and learning with other teachers; reflecting on and discussing learning with students.

The seventh research question, "Is there a relationship between teachers' self-reported access to professional supports and school achievement data?" was tested based on responses to the "Professional Supports" section of the survey and

TNRReady achievement data for each school. Respondents were asked to describe whether they received six different kinds of professional supports, and rate the extent to which they found the supports helpful for improving their instruction using a Likert scale ranging from 1-4 where 1 = I did not receive this support, 2 = I received this support and found it unhelpful, 3 = I received this support and found it somewhat helpful, 4 = I received this support and found it very helpful. The mean score for each respondent was used to conduct an independent samples *t*-Test comparing the answers for respondents to determine whether there was a statistically significant difference in student achievement between the groups and their self-reported access to and perceptions of the following professional supports: formally assigned mentor or coach; informal mentor; release time to observe other teachers; observation of and feedback on lessons by administrators; common planning time (formally scheduled) with other teachers; professional learning communities where you can discuss concerns or engage in instructional planning with other teachers.

Summary

This chapter presented the methodology used in this quantitative research study. A brief introduction to the methodology followed by the research questions, null hypotheses, and the sample was examined. Additionally, the instrumentation and its validity and reliability were discussed. Data collection procedures were introduced along with the process for examining each research question. Statistical procedures which were used in the research were also presented.

Chapter 4

Research Question 1

RQ: Is there a significant difference between rural and non-rural teachers' self-reported access to and perceptions of professional supports?

- a. formally assigned mentor or coach
- b. informal mentor
- c. release time to observe other teachers
- d. observation of and feedback on lessons by administrators
- e. common planning time (formally scheduled) with other teacher
- f. professional learning communities where they can discuss concerns or engage in instructional planning with other teachers

An independent samples *t*-test was computed to compare the difference between rural and non-rural teachers' self-reported access to and perceptions of professional supports. No significant difference was found between the two groups' access to and perceptions of formally assigned mentor or coach $t(1075) = -.591$, $p = .555$, informal mentor $t(1063) = 1.118$, $p = .264$, release time to observe other teachers $t(954) = -.449$, $p = .654$, and observation of / feedback on lessons by administrators $t(895) = -.219$, $p = .827$. A significant difference was found between the two groups' access to and perceptions of two variables: common planning time, $t(1057) = 3.435$, $p = <.001$, and access to professional learning communities $t(898.3) = 4.291$, $p = <.001$.

Cohen's *d* was used to determine the nature of the differences between the two

groups. Teachers in non-rural schools reported greater access to and more positive perceptions of common planning time ($M = 2.78$, $SD = 1.3$) and greater access to and perceptions of professional learning communities ($M = 2.80$, $SD = 1.163$). There was a modest effect size for both variables. Teachers in non-rural areas have greater access to and more positive perceptions of common planning time and professional learning communities than teachers in rural settings. The results are displayed in Table 1.

Table 1

Independent Samples t-Test on Self-reported Access to and Perceptions of Professional Supports: Rural and Non-Rural

	Non-Rural		Rural		Df	t	p	d
	M	SD	M	SD				
Formal Mentor	2.35	1.289	2.40	1.323	1075	-.59	.555	ns
Informal Mentor	1.83	1.128	1.75	1.105	1063	1.12	.264	ns
Release Time	1.89	1.120	1.92	1.103	954	-.45	.654	ns
Observation	2.71	1.135	2.72	1.209	895.1	-.219	.827	ns
CPT	2.78	1.300	2.49	1.309	1057	3.44	<.001**	.217
PLC	2.80	1.163	2.48	1.244	898.3	4.29	<.001**	.266

Note. M = Mean. SD = Standard Deviation. Df = Degrees of freedom. t = t-test value. p = Significance. d = Cohen's d. ns = Not Significant. Teacher's access to/perceptions of

supports range from 1 (Did not receive this support) to 4 (Received this support and found it very helpful).

** $p < .001$

Research Question 2

RQ. Is there a significant difference between teachers at Title I schools and teachers at non-Title I schools and their self-reported access to and perceptions of professional supports?

- a. formally assigned mentor or coach
- b. informal mentor
- c. release time to observe other teachers
- d. observation of and feedback on lessons by administrators
- e. common planning time (formally scheduled) with other teachers
- f. professional learning communities where they can discuss concerns or engage in instructional planning with other teachers

An independent samples *t*-test was computed to compare the difference between teachers at Title I schools and teachers at non-Title I schools and their self-reported access to and perceptions of professional supports. No significant difference was found between the two groups' access to and perceptions of formally assigned mentor or coach $t(1084) = .724$, $p = .469$, informal mentor $t(1072) = .647$, $p = .518$, observation and feedback from administrators $t(257) = 1.246$, $p = .214$, and common planning time $t(1066) = .927$, $p = .354$. A significant difference was found between the two groups' access to and perceptions of two variables: release time to

observe other teachers, $t(222) = -2.465$, $p = .014$, and access to professional learning communities $t(253) = 2.378$, $p = .018$.

Cohen's d was used to determine the nature of the differences between the two groups. Teachers in Title 1 schools reported greater access to and more positive perceptions of release time to observe other teachers ($M = 1.95$, $SD = 1.12$). Teachers in non-Title 1 schools reported greater access to and perceptions of professional learning communities ($M = 2.8$, $SD = 1.132$). There was a weak effect size for both variables. Teachers in Title 1 schools have slightly more access to and more positive perceptions of release time to observe other teachers. Teachers in non-Title 1 schools have slightly more access to and more positive perception of professional learning communities than teachers in non-Title 1 schools. The results are displayed in Table 2.

Table 2

Independent Samples t-Test on Self-reported Access to and Perceptions of Professional Supports: Title 1 and non-Title 1

	non-Title 1		Title 1		Df	t	p	d
	M	SD	M	SD				
Formal Mentor	2.44	1.37	2.36	1.3	1084	.72	.098	ns
Informal Mentor	1.84	1.16	1.78	1.11	1072	.65	.518	ns
Release Time	1.72	1.06	1.95	1.12	222.4	-2.47	.014*	-.209
Observation	2.82	1.1	2.70	1.2	256.6	1.25	ns	.214

CPT	2.69	1.31	2.59	1.31	1066	.93	ns	.354
PLC	2.80	1.13	2.57	1.23	252.5	2.378	.018*	.187

Note. M = Mean. SD = Standard Deviation. Df = Degrees of freedom. *t* = t-test value. *p* = Significance. *d* = Cohen's *d*. ns = Not Significant. Teacher's access to/perceptions of supports range from 1 (Did not receive this support) to 4 (Received this support and found it very helpful).

* $p < .05$

Research Question 3

RQ: Is there a significant difference between elementary and secondary teachers and their self-reported access to and perceptions of professional supports?

- a. formally assigned mentor or coach
- b. informal mentor
- c. release time to observe other teachers
- d. observation of and feedback on lessons by administrators
- e. common planning time (formally scheduled) with other teachers
- f. professional learning communities where they can discuss concerns or engage in instructional planning with other teachers

An independent samples *t*-test was computed to compare the difference

between elementary and secondary teachers' self-reported access to and perceptions of professional supports. No significant difference was found between the two groups' access to and perceptions of formally assigned mentor $t(1067) = 1.612, p = .107$, informal mentor $t(1055) = -1.816, p = .070$, release time to observe other teachers $t(948) = 1.472, p = .141$, observation and feedback by administrators $t(674) = -.672, p = .502$, and professional learning communities $t(698) = -1.821, p = .069$. A significant difference was found between the two groups' access to and perceptions of common planning time, $t(678) = -3.171, p = .002$.

Cohen's d was used to determine the nature of the differences between the two groups. Secondary teachers reported greater access to and more positive perceptions of common planning time ($M = 2.70, SD = 1.28$). There was a modest effect size. Secondary teachers have slightly greater access to and more positive perceptions of common planning time than elementary teachers. The results are displayed in Table 3.

Table 3

Independent Samples t-Test on Self-reported Access to and Perceptions of Professional Supports: Elementary and Secondary

	Elementary		Secondary		Df	t	p	d
	M	SD	M	SD				
Formal Mentor	2.47	1.33	2.33	1.30	1067	1.61	.107	ns
Informal Mentor	1.70	1.10	1.83	1.13	1055	-1.82	.070	ns
Release Time	1.99	1.09	1.88	1.12	948	.094	.141	ns

Observation	2.69	1.25	2.74	1.14	673.9	-.67	.502	ns
CPT	2.42	1.34	2.70	1.28	677.9	-3.171	.002	.210*
PLC	2.51	1.25	2.65	1.21	697.7	-1.82	-.146	ns

Note. M = Mean. SD = Standard Deviation. Df = Degrees of freedom. *t* = t-test value. *p* = Significance. *d* = Cohen's *d*. ns = Not Significant. Teacher's access to/perceptions of supports range from 1 (Did not receive this support) to 4 (Received this support and found it very helpful).

**p* < .05

Research Question 4

RQ: Is there a relationship between teachers' self-reported access to professional supports and the likelihood that they use certain instructional practices?

- a. facilitating teacher-led large-group or whole-class (more than 10 students) instruction
- b. facilitating teacher-led small group (2 to 10 students) instruction
- c. incorporating small-group collaboration (such as team projects, partner work, peer-to-peer instruction)
- d. providing a variety of materials or instructional approaches to accommodate individuals' needs and interests

- e. frequently adapting course content to meet students' needs by providing additional assignments, resources, and activities for remediation or enrichment

A Spearman's Rho correlation coefficient was computed to test the bivariate correlation among the variables in the study (teachers' access to selected professional supports and the likelihood that they use certain instructional practices).

There were modest positive and significant correlations between having a formally assigned mentor or coach and large group/whole-class instruction [$r_s = .291$, $n = 1082$, $p < .001$], and small group instruction [$r_s = .184$, $n = 1084$, $p < .001$]. There were modest negative and significant correlations between having a formally assigned mentor and small group collaboration [$r_s = -.115$, $n = 1082$, $p < .001$], and providing a variety of materials or instructional approaches to accommodate individuals' needs and interests [$r_s = -.115$, $n = 1082$, $p < .001$]. There was no significant correlation between having a formally assigned mentor or coach and teachers frequently adapting course content to meet students' needs [$r_s = .030$, $n = 1080$, $p = .328$].

In general, the results suggest that having a formally assigned mentor or coach demonstrated a significant relationship with large/group/whole-class instruction, small group instruction, small group collaboration, and providing a variety of materials or instructional approaches to accommodate individuals' needs and interests. As formally assigned mentor increases, large group/whole-class instruction and small group instruction responses also increase (this means they use this method less frequently—1=daily; 5=never). As formally assigned mentor increases, small group collaboration and providing a variety of materials or instructional approaches decrease (small group

collaboration is more frequent—1 = daily, 5 = never; variety of materials is to a lesser extent 1 = not at all, 4 = to a great extent). The results are displayed in Table 4.

There was a modest positive and significant correlation between having an informal mentor and providing a variety of materials or instructional approaches to accommodate individuals' needs and interests [$r_s = .225$, $n = 1066$, $p = <.001$]. There were modest negative and significant correlations between having an informal mentor and large group/whole class instruction [$r_s = -.147$, $n = 1067$, $p = <.001$] and small group instruction [$r_s = -.241$, $n = 1069$, $p = <.001$]. There was no significant correlation between having an informal mentor and small group collaboration [$r_s = .025$, $n = 1068$, $p = .423$] or frequently adapting course content to meet students' needs [$r_s = .007$, $n = 1065$, $p = .812$].

In general, the results suggest that having an informal mentor demonstrated a significant relationship with large group/whole-class instruction, small group instruction, and providing a variety of materials or instructional approaches to accommodate individuals' needs and interests. As informal mentoring increases, large group/whole-class instruction and small group instruction responses decrease (this means they use this method more frequently— 1 = daily; 5 = never). As informal mentoring increases, providing a variety of materials or instructional approaches also increases (variety of materials is to a greater extent— 1 = not at all, 4 = to a great extent). The results are displayed in Table 4.

There were weak to modest positive and significant correlations between release time to observe other teachers and large group/whole-class instruction [$r_s = .197$, $n = 961$, $p = <.001$] and frequently adapting course content to meet students' needs [$r_s = .066$, $n = 958$, $p = .046$]. There were weak to modest negative and

significant correlations between release time to observe other teachers and small group collaboration [$r_s = -.093$, $n = 961$, $p = <.004$] and providing a variety of materials or instructional approaches to accommodate individuals' needs and interests [$r_s = -.142$, $n = 959$, $p = <.001$]. There was no significant correlation between release time to observe other teachers and small group instruction [$r_s = .061$, $n = 963$, $p = .060$].

In general, the results suggest that having release time to observe other teachers demonstrated a significant relationship with large group/whole-class instruction, frequently adapting course content to meet students' needs, small group collaboration, and providing a variety of materials or instructional approaches to accommodate individuals' needs and interests. As release time to observe other teachers increases, large group/whole-class instruction and frequently adapt course content increase responses also increase (this means they use large group less frequently 1 = daily, 5 = never; and they adapt course content to a greater extent 1 = not at all, 4 = to a great extent). The results are displayed in Table 4.

There was a moderate positive and significant correlation between observation and feedback by administrators and providing a variety of materials or instructional approaches to accommodate individuals' needs and interests [$r_s = .411$, $n = 1074$, $p = <.001$]. There were moderate negative and significant correlations between observation and feedback by administrators and large group/whole-class instruction [$r_s = -.330$, $n = 1075$, $p = <.001$], and small group instruction [$r_s = -.306$, $n = 1076$, $p = <.001$]. There was no significant correlation between observation and feedback by administrators and small group collaboration [$r_s = -.015$, $n = 1075$, $p = .624$] or frequently adapting course content to meet students' needs [$r_s = .030$, $n = 1072$, $p = .332$].

In general, the results suggest that observation and feedback from administrators demonstrated a significant relationship with large group/whole-class instruction, small group instruction, and providing a variety of materials or instructional approaches to accommodate individuals' needs and interests. As observation and feedback by administrators increases, providing a variety of materials or instructional approaches to accommodate individuals' needs and interests responses also increase (this means teachers provide a variety of materials and instructional approaches to a greater extent—1 = not at all, 4 = to a great extent). As observation and feedback by administrators increases, large group/whole-class instruction and small group instruction responses decrease (this means teachers use these methods more frequently 1 = daily, 5 = never). The results are displayed in Table 4.

There was a modest positive and significant correlation between teachers' self-reported access to and perceptions of common planning time and providing a variety of materials or instructional approaches to accommodate individuals' needs and interests [$r_s = .296$, $n = 1063$, $p = <.001$]. There were modest negative and significant correlations between teachers' self-reported access to and perceptions of common planning time and large group/whole-class instruction [$r_s = -.248$, $n = 1066$, $p = <.001$] and small group instruction [$r_s = -.158$, $n = 1067$, $p = <.001$]. There was no significant correlation between common planning time and small group collaboration [$r_s = -.047$, $n = 1065$, $p = -.047$] or frequently adapting course content to meet students' needs [$r_s = .029$, $n = 1062$, $p = .351$].

In general, the results suggest that common planning time demonstrated a significant relationship with large group/whole-class instruction, small group instruction, and providing a variety of materials or instructional approaches to accommodate

individuals' needs and interests. As common planning time increases, providing a variety of materials or instructional approaches also increases (this means teachers provide a variety of materials and instructional approaches to a greater extent—1 = not at all, 4 = to a great extent). As common planning time increases, large group/whole-class instruction and small group instruction responses decrease (this means teachers use these methods more frequently 1 = daily, 5 = never). The results are displayed in Table 4.

There were weak to moderate positive and significant correlations between teachers' self-reported access to and perceptions of professional learning communities and providing a variety of materials or instructional approaches to accommodate individuals' needs and interests [$r_s = .370$, $n = 1069$, $p = <.001$] and frequently adapting course content to meet students' needs by providing additional assignments, resources, and activities for remediation or enrichment [$r_s = .106$, $n = 1068$, $p = <.001$]. There were weak to modest negative and significant correlations between teachers' self-reported access to and perceptions of professional learning communities and large group/whole-class instruction [$r_s = -.228$, $n = 1072$, $p = <.001$], small group instruction [$r_s = -.235$, $n = 1073$, $p = <.001$], and small group collaboration [$r_s = -.065$, $n = 1070$, $p = <.033$].

In general, the results suggest that teachers' self-reported access to and perceptions of professional learning communities demonstrated a significant relationship with all five instructional practices. As teachers' access to professional learning communities increases, providing a variety of materials or instructional approaches and adapting course content to meet students' needs responses also increase (this means teachers use these practices to a greater extent 1 = not at all, 5 =

to a great extent). As teachers' access to professional learning communities increases, large group/whole-class instruction, small group instruction, and small group collaboration decrease (this means teachers use these methods more frequently 1 = daily, 5 = never). The results are displayed in Table 4.

Table 4

Correlations of Access to Professional Supports and Teachers' Instructional Practices

	A	B	C	D	E
Formal Mentor	.291**	.184**	-.115**	-.275**	.328
Informal Mentor	-.147**	-.241**	.423	.225**	.812
Release Time	.197**	.060	-.093**	-.142**	.066*
Observation/Feedback	-.330**	-.306**	.624	.411**	.332
Common Planning	-.248**	-.158**	.127	.296**	.351
PLC	-.228**	-.235**	-.065*	.370**	.106**

Note. p = Significance. A = Facilitating teacher-led large-group or whole-class (more than 10 students) instruction. B = facilitating teacher-led small group (2 to 10 students) instruction. C = incorporating small-group collaboration (such as team projects, partner work, peer-to-peer instruction). D = providing a variety of materials or instructional approaches to accommodate individuals' needs and interests. E = Frequently adapting course content to meet students' needs by providing additional

assignments, resources, and activities for remediation or enrichment.

**p < .05 **p < .001*

Research Question 5

RQ: Is there a relationship between teachers' self-reported access to professional supports and the likelihood that they have greater access to student data?

- a. Information about student performance on specific concepts or skills
- b. Identification of specific students who need extra assistance
- c. Identification of students who have achieved mastery
- d. Non-achievement outcomes (for example, student behavior, attitudes, or motivation)

A Spearman's Rho correlation coefficient was computed to test the bivariate correlation among the variables in the study (teachers' access to selected professional supports and teachers' access to student data).

There were modest negative and significant correlations between having a formally assigned mentor or coach and access to data regarding students performance on specific concepts or skills [$r_s = -.245$, $n = 1056$, $p = <.001$], identification of specific students who need assistance [$r_s = -.245$, $n = 1054$, $p = <.001$], and identification of students who have achieved mastery [$r_s = -.180$, $n = 1050$, $p = <.001$]. There was no significant correlation between having a formally assigned mentor or coach and access to student data for non-achievement outcomes [$r_s = .032$, $n = 1040$, $p = .301$].

In general, the results suggest that having a formally assigned mentor or coach

demonstrated a significant relationship with teachers' access to student data for achievement outcomes. As formally assigned mentor increases, teacher access to student data for achievement outcomes decreases (this means teachers less frequently receive student data 1 = Never; 8 = At least Daily). The results are displayed in Table 5.

There were modest positive and significant correlations between having an informal mentor and teachers' access to data regarding students performance on specific concepts or skills [$r_s = .258$, $n = 1042$, $p = <.001$], identification of specific students who need assistance [$r_s = .244$, $n = 1039$, $p = <.001$], and identification of students who have achieved mastery [$r_s = .246$, $n = 1036$, $p = <.001$]. There was no significant correlation between having an informal mentor and access to student data for non-achievement outcomes [$r_s = .052$, $n = 1050$, $p = .096$].

In general, the results suggest that having an informal mentor demonstrated a significant relationship with teachers' access to student data for achievement outcomes. As informal mentoring increases, teacher access to student data for achievement outcomes also increases (this means teachers receive student data more frequently 1 = Never; 8 = At least Daily). The results are displayed in Table 5.

There was a weak positive and significant correlation between release time to observe other teachers and teachers' access to student data regarding non-achievement outcomes [$r_s = .092$, $n = 927$, $p = .005$]. There was no significant correlation between release time to observe other teachers and teachers' access to data regarding students performance on specific concepts or skills [$r_s = -.063$, $n = 942$, $p = .053$]; identification of specific students who need assistance [$r_s = -.050$, $n = 940$, $p = .124$]; and identification of students who have achieved mastery [$r_s = .008$, $n = 937$, $p = .124$].

= .796] .

In general, the results suggest that release time to observe other teachers demonstrated a significant relationship with teachers' access to student data regarding non-achievement outcomes. As release time to observe other teachers increases, teacher access to student data for non-achievement outcomes also increases (this means teachers receive student data more frequently 1 = Never; 8 = At least Daily). The results are displayed in Table 5.

There were modest to moderate positive and significant correlations between observation and feedback by administrators and teachers' access to data regarding students performance on specific concepts or skills [$r_s = .419$, $n = 1058$, $p = <.001$], identification of specific students who need assistance [$r_s = .380$, $n = 1055$, $p = <.001$], identification of students who have achieved mastery [$r_s = .343$, $n = 1052$, $p = <.001$], and nonachievement outcomes (for example, student behavior, attitudes, or motivation) [$r_s = .116$, $n = 1042$, $p = <.001$].

In general, the results suggest that observation and feedback by administrators demonstrated a significant relationship with teachers' access to student data for both achievement and non-achievement outcomes. As observation and feedback by administrators increases, teacher access to student data for achievement and non-achievement outcomes also increases (this means teachers receive student data more frequently 1 = Never; 8 = At least Daily). The results are displayed in Table 5.

There were modest to moderate positive and significant correlations between common planning time and teachers' access to data regarding students performance on specific concepts or skills [$r_s = .357$, $n = 1046$, $p = <.001$], identification of specific students who need assistance [$r_s = .331$, $n = 1044$, $p = <.001$], identification of students

who have achieved mastery [$r_s = .319$, $n = 1041$, $p = <.001$], and nonachievement outcomes (for example, student behavior, attitudes, or motivation) [$r_s = .161$, $n = 1033$, $p = <.001$].

In general, the results suggest that common planning time demonstrated a significant relationship with teachers' access to student data for both achievement and non-achievement outcomes. As common planning time increases, teacher access to student data for achievement and non-achievement outcomes also increases (this means teachers receive student data more frequently 1 = Never; 8 = At least Daily). The results are displayed in Table 5.

There were modest to moderate positive and significant correlations between professional learning communities and teachers' access to data regarding students performance on specific concepts or skills [$r_s = .379$, $n = 1052$, $p = <.001$], identification of specific students who need assistance [$r_s = .368$, $n = 1050$, $p = <.001$], identification of students who have achieved mastery [$r_s = .353$, $n = 1046$, $p = <.001$], and nonachievement outcomes (for example, student behavior, attitudes, or motivation) [$r_s = .157$, $n = 1037$, $p = <.001$].

In general, the results suggest that professional learning communities demonstrated a significant relationship with teachers' access to student data for achievement and non-achievement outcomes. As professional learning communities increases, teacher access to student data for achievement and non-achievement outcomes also increases (this means teachers receive student data more frequently 1 = Never; 8 = At least Daily). The results are displayed in Table 5.

Table 5*Correlations of Access to Professional Supports and Teachers' Access to Student Data*

	A	B	C	D
Formal Mentor	-.245**	-.245**	-.180**	.032
Informal Mentor	.258**	.244**	.246**	.052
Release Time	-.063	-.050	.008	.092**
Observation/Feedback	.419**	.380**	.343**	.116**
Common Planning	.357**	.331**	.319**	.161**
PLC	.379**	.368**	.353**	.157**

Note. p = Significance. A = Information about student performance on specific concepts or skills. B = Identification of specific students who need extra assistance. C = Identification of students who have achieved mastery D = Non-achievement outcomes (for example, student behavior, attitudes, or motivation).

**p < .001

Research Question 6

RQ: Is there a relationship between teachers' self-reported access to professional supports and the likelihood that they use student data in instructional decision-making?

- a. Tailoring the pace of instruction to individual students' needs
- b. Tailoring the content of instruction to individual students' needs

- c. Developing recommendations for tutoring or other educational support services for particular students
- d. Assigning or reassigning students to groups within classes
- e. Assigning or reassigning students to extended learning opportunities (for example, extended-day programs, Saturday classes, or an extended school year)
- f. Identifying topics requiring more or less emphasis in instruction
- g. Identifying areas where teacher needs to strengthen their own content knowledge or teaching skills
- h. Reflecting on and discussing teaching and learning with other teachers
- i. Reflecting on and discussing learning with students

A Spearman's Rho correlation coefficient was computed to test the bivariate correlation among the variables in the study (teachers' access to selected professional supports and teachers' use of student data in instructional decision making).

There were weak to modest positive and significant correlations between having a formally assigned mentor or coach and teachers' use of student data to tailor the pace of instruction to individual students' needs [$r_s = .126$, $n = 1021$, $p = <.001$], to tailor the content of instruction to individual students' needs [$r_s = .083$, $n = 1020$, $p = <.001$], to develop recommendations for tutoring or other educational support services for particular students [$r_s = .178$, $n = 1020$, $p = <.001$], and to assign or reassign students to groups within classes [$r_s = .249$, $n = 1017$, $p = <.001$].

There was a modest negative and significant correlation between having a formally assigned mentor or coach and teachers' use of student data to reflect on and discuss teaching and learning with other teachers [$r_s = -.168$, $n = 1012$, $p = <.001$].

There was no significant correlation between having a formally assigned mentor or coach and teachers' use of student data to assign or reassign students to groups [$r_s = .027$, $n = 1016$, $p = .384$]; to identify topics requiring more or less emphasis in instruction [$r_s = -.007$, $n = 1016$, $p = .819$]; to identify areas to strengthen teacher content knowledge or teaching skills [$r_s = .006$, $n = 1010$, $p = .842$]; and to reflect on and discuss learning with students [$r_s = .034$, $n = 1012$, $p = .278$].

In general, the results suggest that having a formally assigned mentor or coach demonstrated a significant relationship with teachers' use of student data to tailor both the pace and content of instruction to meet students' needs and to recommend students for additional support or extend learning opportunities. As formally assigned mentor increases, teachers' use of student data for these purposes also increases (this means teachers use data to a greater extent– 1=my school doesn't do this, 5=used data to a large extent). Alternatively, as formally assigned mentor increases, teachers' use of student data to reflect on data with other teachers decreases. This suggests that teachers who have a formal mentor or coach may reflect on data with other teachers to a lesser extent. The results are displayed in Table 6.

There was a weak negative and significant correlation between having an informal mentor and teachers' use of student data to develop recommendations for tutoring or other educational support services for particular students [$r_s = -.092$, $n = 1009$, $p = .003$].

There was a modest positive and significant correlation between having an informal mentor and teachers' use of student data to reflect on and discuss teaching and learning with other teachers [$r_s = .160$, $n = 1001$, $p = <.001$].

There was no significant correlation between having an informal mentor and

teachers' use of student data to tailor the pace of instruction to individual students' needs [$r_s = -.052$, $n = 1010$, $p = .097$]; to tailor the content of instruction to individual students' needs [$r_s = -.046$, $n = 1011$, $p = .143$]; to assign or reassign students to groups [$r_s = .036$, $n = 1006$, $p = .257$]; to assign students to extended learning opportunities [$r_s = -.011$, $n = 1007$, $p = .739$]; to identify topics requiring more or less instruction [$r_s = .011$, $n = 1005$, $p = <.736$]; to identify areas where teachers need to strengthen their content knowledge or skills [$r_s = .007$, $n=999$, $p = .818$]; and to reflect on or discuss learning with students [$r_s = .035$, $n=1001$, $p = .274$].

In general, the results suggest that having an informal mentor demonstrated a significant relationship with teachers' use of student data to develop recommendations for tutoring or other educational support services and teachers' reflection on and discussion of teaching and learning with other teachers. As informal mentoring increases, teachers' use of student data to develop recommendations for tutoring decreases (this means teachers use data to a lesser extent– 1=my school doesn't do this, 5=used data to a large extent). Alternatively, as informal mentor increases, teachers' reflection on data with other teachers also increases. This suggests that teachers who have an informal mentor may reflect on data with other teachers to a slightly greater extent. The results are displayed in Table 6.

There were modest positive and significant correlations between release time to observe other teachers and teachers' use of student data to tailor the pace of instruction to individual students' needs [$r_s = .167$, $n = 907$, $p = <.001$], to tailor the content of instruction to individual students needs [$r_s = .141$, $n = 906$, $p = <.001$], to develop recommendations for tutoring or other educational support services for particular students [$r_s = .183$, $n = 908$, $p = <.001$], to assign or reassign students to

groups within my classes [$r_s = .123$, $n = 906$, $p = <.001$], and to assign students to extended learning opportunities [$r_s = .227$, $n = 908$, $p = <.001$].

There were weak positive and significant correlations between release time to observe other teachers and teachers' use of student data to identify topics requiring more or less emphasis in instruction [$r_s = .096$, $n = 903$, $p = .004$], to identify areas where teachers need to strengthen their content knowledge or teaching skills [$r_s = .096$, $n = 903$, $p = .004$] to reflect on and discussing learning with my students [$r_s = .111$, $n = 903$, $p = <.001$].

There was no significant correlation between release time to observe other teachers and teachers' use of student data to reflect on and discuss teaching and learning with other teachers [$r_s = -.001$, $n = 904$, $p = .974$].

In general, the results suggest that release time to observe other teachers demonstrated a significant relationship with teachers' use of student data to tailor the pace of instruction to individual students' needs; to tailor the content of instruction to individual students' needs; to develop recommendations for tutoring or other educational support services; to assign or reassign students to groups; to assign students to extended learning opportunities; to identify topics requiring more or less emphasis in instruction; and to reflect on and discuss learning with students. As release time to observe other teachers increases, teachers' use of student data for these purposes increases (this means teachers use data to a greater extent— 1 = my school doesn't do this, 5 = used data to a large extent). This suggests that teachers who have release time to observe other teachers may use student data to a slightly greater extent. The results are displayed in Table 6.

There were modest to moderate positive and significant correlations between

observation and feedback by administrators and teachers' use of student data to assign or reassign students to groups [$r_s = .154$ $n = 1017$, $p = <.001$], to identify topics requiring more or less emphasis in instruction [$r_s = .111$ $n = 1015$, $p = <.001$], to identify areas where teacher needs to strengthen their content knowledge or teaching skills [$r_s = .155$ $n = 1011$, $p = <.001$], to reflect on and discuss teaching and learning with other teachers [$r_s = .359$ $n = 1014$, $p = <.001$], and to reflect on and discuss learning with students [$r_s = .168$ $n = 1013$, $p = <.001$].

There was a modest negative and significant correlation between observation and feedback by administrators and teachers' use of student data to assign students to extended learning opportunities [$r_s = -.122$ $n = 1018$, $p = <.001$].

There was no significant correlation between observation and feedback by administrators and teachers' use of student data to tailor the pace of instruction to individual students' needs [$r_s = .029$ $n = 1020$, $p = .349$], to tailor the content of instruction to individual students' needs [$r_s = .061$ $n = 1020$, $p = .050$], and to develop recommendations for tutoring or other educational support services [$r_s = -.026$ $n = 1020$, $p = .416$].

In general, the results suggest that observation and feedback by administrators demonstrated a significant relationship with teachers' use of student data to assign or reassign students to groups within classes; to assign students to extended learning opportunities; to identify topics requiring more or less emphasis in instruction; to identify areas where the teacher needs to strengthen their own content knowledge or teaching skills; to reflect on and discuss teaching and learning with other teachers and to reflect on and discuss learning with students. As observation and feedback by administrators increases, teachers' use of student data for these purposes increases

(this means teachers use data to a greater extent– 1 = my school doesn't do this, 5 = used data to a large extent). This suggests that teachers who have more access to and more positive perceptions of observation and feedback by administrators may use student data for these purposes to a slightly greater extent. The results are displayed in Table 6.

As observation and feedback by administrators increases, teachers' use of data to assign students to extended learning opportunities decreases (this means teachers use data to a lesser extent– 1 = my school doesn't do this, 5 = used data to a large extent). This suggests that teachers who have more access to and more positive perceptions of observation and feedback by administrators may use student data for these purposes to a slightly lesser extent. The results are displayed in Table 6.

There were modest positive and significant correlations between teachers' access to and perceptions of common planning time and teachers' use of student data to assign or reassign students to groups [$r_s = .102$ $n = 1008$, $p = .001$], to identify areas where teachers need to strengthen their own content knowledge or teaching skills [$r_s = .118$ $n = 1004$, $p = <.001$], to reflect on and discuss teaching and learning with other teachers [$r_s = .311$ $n = 1006$, $p = <.001$], and reflect on and discuss learning with students [$r_s = .128$ $n = 1005$, $p = <.001$].

There was a weak negative and significant correlation between teachers' access to and perceptions of common planning time and teachers' use of student data to assign students to extended learning opportunities [$r_s = -.092$ $n = 1010$, $p = .004$].

There was no significant correlation between teachers' access to and perceptions of common planning time and teachers use of student data to tailor the pace of instruction to individual students' needs [$r_s = -.010$ $n = 1013$, $p = .754$], to tailor

the content of instruction to individual students' needs [$r_s = .015$ $n = 1012$, $p = .635$], to develop recommendations for tutoring or other educational support [$r_s = -.012$ $n = 1012$, $p = .694$], and identifying topics requiring more or less emphasis in instruction [$r_s = .061$ $n = 1008$, $p = .051$].

In general, the results suggest that common planning time demonstrated a significant relationship with teachers' use of student data to assign or reassign students to groups within classes; to identify areas where teachers need to strengthen their own content knowledge or teaching skills; to reflect on and discuss teaching and learning with other teachers, to reflect on and discuss learning with students. As teachers' access to and perceptions of common planning time increases, teachers' use of student data for these purposes also increases (this means teachers use data to a greater extent– 1 = my school doesn't do this, 5 = used data to a large extent). This suggests that teachers who have more access to and more positive perceptions of common planning time may use student data for these purposes to a slightly greater extent. The results are displayed in Table 6.

In general the data suggests that common planning time demonstrated a significant relationship with teachers' use of data to assign students to extended learning opportunities. As teachers' access to and perceptions of common planning time increases, teachers' use of student data for assigning students to extended learning opportunities slightly decreases. This suggests that teachers who have more access to and positive perceptions of common planning time may use student data for this purpose to a slightly lesser extent. The results are displayed in Table 6.

There were weak to modest positive and significant correlations between teachers' access to and perceptions of professional learning communities and

teachers' use of student data to assign or reassign students to groups [$r_s = .100$ $n = 1012$, $p = .001$], to identify topics requiring more or less emphasis in instruction [$r_s = .116$ $n = 1011$, $p = <.001$], identify areas where teachers need to strengthen their own content knowledge or teaching skills [$r_s = .131$ $n = 1007$, $p = <.001$], reflect on and discuss teaching and learning with other teachers [$r_s = .336$ $n = 1010$, $p = <.001$], and reflect on and discuss learning with students [$r_s = .151$ $n = 1009$, $p = <.001$].

There was a weak negative and significant relationship between teachers' access to and perceptions of professional learning communities and teachers' use of student data to assign students to extended learning opportunities [$r_s = -.080$ $n = 1014$, $p = .011$].

There was no significant correlation between teachers access to and perceptions of professional learning communities and teachers' use of student data to assign students to tailor the pace of instruction to individual students' needs [$r_s = .000$ $n = 1017$, $p = .991$], to tailor the content of instruction to individual students' needs [$r_s = -.040$ $n = 1016$, $p = .208$], and to develop recommendations for tutoring or other educational support services [$r_s = .012$ $n = 1017$, $p = .702$].

In general, the results suggest that teachers' access to and perceptions of professional learning communities demonstrated a significant relationship with teachers' use of student data to assign or reassign students to groups; to identify topics requiring more or less emphasis in instruction; to identify areas where teachers need to strengthen their own content knowledge or teaching skills; to reflect on and discuss teaching and learning with other teachers; and to reflect on and discuss learning with students. As teachers' access to and perceptions of professional learning communities increases, teachers' use of student data for these purposes also

increases (this means teachers use data to a greater extent– 1 = my school doesn't do this, 5 = used data to a large extent). This suggests that teachers who have more access to and more positive perceptions of professional learning communities may use student data for these purposes to a slightly greater extent. The results are displayed in Table 6.

In general the results also suggest that teachers' access to and perceptions of professional learning communities demonstrated a significant relationship with teachers' use of student data to assign students to extended learning opportunities. As teachers' access to and perceptions of professional learning communities increases, teachers' use of student data for this purpose decreases (this means teachers use data to a lesser extent– 1 = my school doesn't do this, 5 = used data to a large extent). This suggests that teachers who have more access to and more positive perceptions of professional learning communities may use student data for this purpose to a slightly lesser extent. The results are displayed in Table 6.

Table 6

Correlations of Access to Professional Supports and Teachers' Use of Student Data in Instructional Decision Making

	A	B	C	D	E	F	G	H	I
Formal Mentor	.126**	.083**	.178**	.027	.249**	-.007	.006	-.168**	.034
Informal Mentc	-.052	-.046	-.092**	.036	-.011	.011	.007	.160**	.035
Release	.167**	.141**	.183**	.123**	.227**	.095**	.096**	-.001	.111**

Observation	.029	.061	-.026	.154**	-.122**	.111**	.155**	.359**	.168**
CPT	-.010	.015	-.012	.102**	-.092**	.061	.118**	.311**	.128**
PLC	.000	.040	.012	.100**	-.080*	.116**	.131**	.336**	.151**

Note. p = Significance. A = Tailoring the pace of instruction to individual students' needs. B = Tailoring the content of instruction to individual students needs C = Developing recommendations for tutoring or other educational support services for particular students. D = Assigning or reassigning students to groups within classes. E= Assigning students to extended learning opportunities (for example, extended-day programs, Saturday classes, or an extended school year). F = Identifying topics requiring more or less emphasis in instruction. G = Identifying areas where teacher needs to strengthen their own content knowledge or teaching skills. H = Reflecting on and discussing teaching and learning with other teachers. I = Reflecting on and discussing learning with students.

*p < .05 **p < .001

Research Question 7

RQ: Is there a relationship between teachers' self-reported access to professional supports and school achievement data in ELA?

An independent samples *t*-test was computed to compare teachers' access to and perceptions of a formal mentor or coach and schoolwide TNReady scores in ELA. Access to and perceptions of formally assigned mentor or coach was the grouping

variable, with group one answering 3 or 4 (3 = I received this support and found it somewhat helpful, 4 = I received this support and found it very helpful) and group two answering 1 or 2 (1 = I did not receive this support, 2 = I received this support and found it unhelpful). Schoolwide TNReady scores in ELA was the test variable. No significant difference was found between the two groups $t(1085) = .112, p = .911$. The results are displayed in Table 7.

An independent samples *t*-test was computed to compare teachers' access to and perceptions of an informal mentor and schoolwide TNReady scores in ELA. Access to and perceptions of an informal mentor was the grouping variable, with group one answering 3 or 4 (3 = I received this support and found it somewhat helpful, 4 = I received this support and found it very helpful) and group two answering 1 or 2 (1 = I did not receive this support, 2 = I received this support and found it unhelpful). Schoolwide TNReady scores in ELA was the test variable. A significant difference was found between the two groups $t(427) = 3.67, p = <.001$.

Cohen's *d* was used to determine the nature of the differences between the two groups. Teachers who reported greater access to and more positive perceptions of an informal mentor had higher schoolwide ELA scores ($M = 32.6, SD = 10.01$) than teachers who reported less access to and more negative perceptions of an informal mentor ($M = 30.2, SD = 8.57$). There was a modest effect size. Teachers with greater access to and more positive perceptions of informal mentors tend to have higher schoolwide ELA scores. The results are displayed in Table 7.

An independent samples *t*-test was computed to compare teachers' access to and perceptions of release time to observe other teachers and schoolwide TNReady scores in ELA. Access to and perceptions of release time to observe other teachers

was the grouping variable, with group one answering 3 or 4 (3 = I received this support and found it somewhat helpful, 4 = I received this support and found it very helpful) and group two answering 1 or 2 (1 = I did not receive this support, 2 = I received this support and found it unhelpful). Schoolwide TNReady scores in ELA was the test variable. No significant difference was found between the two groups $t(964) = -1.23$, $p = .218$. The results are displayed in Table 7.

An independent samples *t*-test was computed to compare teachers' access to and perceptions of an observation and feedback by administrators and schoolwide TNReady scores in ELA. Access to and perceptions of observation and feedback by administrators was the grouping variable, with group one answering 3 or 4 (3 = I received this support and found it somewhat helpful, 4 = I received this support and found it very helpful) and group two answering 1 or 2 (1 = I did not receive this support, 2 = I received this support and found it unhelpful). Schoolwide TNReady scores in ELA was the test variable. A significant difference was found between the two groups $t(764) = 3.27$, $p = .001$.

Cohen's *d* was used to determine the nature of the differences between the two groups. Teachers who reported greater access to and more positive perceptions of an observation and feedback by administrators had higher schoolwide ELA scores ($M = 31.4$, $SD = 9.15$) than teachers who reported less access to and more negative perceptions of observation and feedback by administrators ($M = 29.5$, $SD = 8.58$). There was a modest effect size. Teachers with greater access to and more positive perceptions of observation and feedback by administrators tend to have higher schoolwide ELA scores. The results are displayed in Table 7.

An independent samples *t*-test was computed to compare teachers' access to

and perceptions of common planning time and schoolwide TNReady scores in ELA. Access to and perceptions of an common planning time was the grouping variable, with group one answering 3 or 4 (3 = I received this support and found it somewhat helpful, 4 = I received this support and found it very helpful) and group two answering 1 or 2 (1 = I did not receive this support, 2 = I received this support and found it unhelpful). Schoolwide TNReady scores in ELA was the test variable. A significant difference was found between the two groups $t(1067) = 2.59, p = .010$.

Cohen's d was used to determine the nature of the differences between the two groups. Teachers who reported greater access to and more positive perceptions of common planning time had higher schoolwide ELA scores ($M = 31.4, SD = 9.06$) than teachers who reported less access to and more negative perceptions of common planning time ($M = 29.9, SD = 8.88$). There was a modest effect size. Teachers with greater access to and more positive perceptions of common planning time tend to have higher schoolwide ELA scores. The results are displayed in Table 7.

An independent samples t -test was computed to compare teachers' access to and perceptions of professional learning communities and schoolwide TNReady scores in ELA. Access to and perceptions of a professional learning communities was the grouping variable, with group one answering 3 or 4 (3 = I received this support and found it somewhat helpful, 4 = I received this support and found it very helpful) and group two answering 1 or 2 (1 = I did not receive this support, 2 = I received this support and found it unhelpful). Schoolwide TNReady scores in ELA was the test variable. A significant difference was found between the two groups $t(931) = 5.05, p = <.001$.

Cohen's d was used to determine the nature of the differences between the two

groups. Teachers who reported greater access to and more positive perceptions of professional learning communities had higher schoolwide ELA scores ($M = 31.8$, $SD = 9.25$) than teachers who reported less access to and more negative perceptions of professional learning communities ($M = 29.1$, $SD = 8.33$). There was a modest to moderate effect size. Teachers with greater access to and more positive perceptions of professional learning communities tend to have higher schoolwide ELA scores. The results are displayed in Table 7.

Table 7

Independent Samples t-Test on Self-reported Access to and Perceptions of Professional Supports and Schoolwide ELA scores

	Group 1		Group 2		Df	t	p	d
	M	SD	M	SD				
Formal Mentor	30.78	9.23	30.72	8.75	1085	.112	.911	ns
Informal Mentor	32.62	10.01	30.16	8.57	427	3.667	<.001**	.275
Release Time	30.43	9.20	31.20	8.99	964	-1.232	.218	ns
Observation	31.37	9.15	29.52	8.58	764	3.273	.001**	.207
CPT	31.39	9.06	29.94	8.88	1067	2.592	.010*	.161
PLC	31.81	9.25	29.05	8.33	931	5.053	<.001**	.310

Note. M = Mean. SD = Standard Deviation. Df = Degrees of freedom. t = t-test value. p = Significance. d = Cohen's d. ns = Not Significant. Group 1 = teachers who responded 3 or 4 (Received this support and found it somewhat or very helpful). Group 2 =

teachers who responded 1 or 2 (Did not receive this support/ Received this support and found it unhelpful).

* $p < .05$

** $p < .001$

Chapter Summary

Chapter four presented an analysis of the data related to this research study. In this chapter, data from 1293 teachers across northeast Tennessee were analyzed and presented. The research questions and null hypotheses were addressed. The findings show significant differences or relationships for research questions 1 through 7. Chapter 5 covers the conclusions of the research study, the implications for practice, and the recommendations for future study.

Chapter 5

Summary of Findings, Discussions, Recommendations, and Conclusions

The purpose of this study was twofold: To determine which teachers receive effective professional development supports and to examine whether or not those supports make a difference in teacher instructional practice and student achievement. The study analyzed access to and impact of six different professional development supports: formally assigned mentor or coach, informal mentor, release time to observe other teachers, observation, and feedback on lessons by an administrator, common planning time (formally scheduled) with other teachers, and professional learning communities where teachers can discuss concerns or engage in instructional planning with other teachers. Schools in the United States continue to increase efforts and focus on teacher professional development, and a great deal of time and resources are poured into teacher professional development each year. It is important to determine where schools and districts can best funnel their efforts to have the greatest impact on teaching and learning.

Summary of Findings

This study's findings point to several similarities and differences between rural and non-rural teachers, Title 1 and non-Title 1 teachers, and elementary and secondary teachers. The most significant findings indicate that there may be gaps in access to certain professional development supports depending on a school's locale, the socioeconomic status of its students, or the grade level taught.

Other significant findings of this study reveal a relationship between certain professional development supports and teachers' instructional practices, access to and

use of student data, and, ultimately, student achievement. According to this research, some professional development supports have a greater impact than others.

Discussion of Findings

The first area of interest in the study's findings is the statistically significant difference between rural and non-rural teachers in their self-reported access to and perceptions of two professional development supports: Common planning time (formally scheduled) with other teachers and access to professional learning communities where they can discuss concerns or engage in instructional planning with other teachers. Non-rural teachers reported greater access to and more positive perceptions of both common planning time and professional learning communities than rural teachers. (The difference in access to/perceptions of professional learning communities had the most significant difference with the strongest effect size.) It is unsurprising that the two supports (CPT and PLCs) go hand-in-hand, as the common planning time creates time and space in which professional learning communities can occur during the school day (as opposed to before or after school). The fact that rural teachers have less access to common planning time and professional learning communities is supported by previous research, such as Howley and Howley (2004). To put it simply, teachers in rural schools more often experience professional isolation due to the smaller size of the school and, as a result, the smaller size of the faculty. Rural schools experience more "singletons", or lone teachers who may themselves constitute an entire department or even wear multiple hats. In such cases, professional learning communities may still be achieved if school leaders think outside the box, such as creating a network within several small

schools within a district or region. Some small schools in northeast Tennessee are already adopting this workaround.

There were no significant differences in rural and non-rural teachers' access to the other four professional development supports tested in the study: formally assigned mentor or coach, informal mentor, release time to observe other teachers, and observation and feedback by administrators. These findings also confirm earlier research conducted by Glover et al. (2016) which revealed that "despite obstacles and resource limitations for rural schools identified through previous research (e.g., Lynch, 2000; Marlow & Cooper, 2008; Rude & Brewer, 2003; Weitzenkamp et al., 2003), rural teachers did not appear to be comparatively disadvantaged, at least in terms of their best PD experiences" (p. 11). Rural teachers, on average, seem to have many of the same supports offered to non-rural teachers. It is interesting to note, however, that while there was no significant difference between the two groups, both had relatively low means (in comparison to the other supports) in their access to and perceptions of informal mentors and release time to observe other teachers. According to the research, these supports are less common or perceived as being less effective than the other supports involved in the study.

The study's next significant finding revealed that teachers at Title 1 schools reported having greater access to and more positive perceptions of release time to observe other teachers than teachers at non-Title 1 schools. This may be explained by the increased funding received by Title 1 schools that must be dedicated to supporting activities needed to upgrade the school's educational program, including instructional and support services that benefit all students. Title 1 schools may have more funds to

cover substitute teachers and travel expenses that allow teachers release time to observe other teachers.

Teachers at non-Title 1 schools reported more access to and positive perceptions of professional learning communities where they can discuss concerns or engage in instructional planning with other teachers. Again, this may be due to the size of the school's faculty, or it may be explained by the fact that recent research has found that Title 1 schools, on average, have fewer veteran teachers and more lower-paid, less-experienced teachers (Rivera Rodas, 2019). These new teachers may be less willing to engage in professional learning communities due to their lack of subject-matter expertise and general teaching experience. There was no significant difference between Title 1 and non-Title 1 school teachers in their access to and perceptions of the other four professional supports involved in the study. Again, of the professional supports listed, release time to observe other teachers and informal mentoring had the lowest reported means across the two groups.

The last significant finding concerning access to high-quality professional development supports was the significant difference between elementary and secondary teachers' access to and perceptions of common planning time (formally scheduled) with other teachers. On average, secondary school teachers reported more access to/better perceptions of common planning time. This may be explained by sheer logistics and scheduling due to departmentalization. The middle and high school schedules may make it more feasible for teachers of the same grade/subject area to have common planning. It is interesting that elementary and secondary teachers reported no significant difference in access to and perceptions of professional learning

communities. Despite access to common planning time, elementary teachers appear to be finding time to participate in professional learning communities.

Overall, despite locale, socioeconomic status, and grade level taught, teachers tended to have similar access to formal mentors or coaches, informal mentors, and observation and feedback by administrators. The most significant differences occurred in access to and perceptions of release time to observe other teachers, common planning time, and professional learning communities. This indicates that while administrators identify the importance of formal structures for supports, some may be overlooking (or lack the resources to provide) the opportunities for teacher collaboration that come through release time to observe other teachers, common planning time, and a culture of professional learning communities.

The second layer of this research study focused on the impact on teachers' instructional practices based on whether or not they receive the six professional development supports. The study revealed significant relationships between all six supports and various high-quality instructional strategies.

All of the supports demonstrated a significant relationship with large group instruction and using various materials and instructional strategies to increase student outcomes. The direction of the relationships varied, however. For example, teachers with higher ratings for formal mentors or coaches reported using large-group instruction less often. This may be because they also reported using small group collaboration more often. Teachers who reported higher ratings of release time to observe other teachers also reported using large-group instruction less frequently and small-group collaboration more often.

Professional learning communities, common planning time, and observation and feedback by administrators demonstrated some of the most significant relationships of all the professional development supports with teachers' use of various materials and instructional strategies to meet students' needs. On average, teachers who reported higher ratings of these three supports reported adapting course materials and instructional strategies more frequently.

Three supports (Professional learning communities, common planning time, and observation and feedback from administrators) demonstrated a positive and significant relationship with all data access indicators. Teachers who reported more access to these supports also reported greater access to student data for the purposes of monitoring student performance, identifying both students who are in need of extra assistance and those who have demonstrated mastery. They also reported greater access to student data for non-achievement outcomes.

There is also evidence that teachers with greater access to professional learning communities, common planning time, and observation and feedback by administrators use student data to tailor instruction more often. These three supports demonstrated the most significant relationships with several data usage variables. It is important to point out that these three variables also demonstrated the most significant relationships with reflecting on data with other teachers.

Formal mentoring or coaching demonstrated a negative and significant relationship with three of the data access indicators. Teachers with higher ratings of formal mentors or coaches reported less access to student data for achievement outcomes. On the other hand, teachers who reported higher ratings for informal

mentoring had positive and significant relationships with access to data for achievement outcomes.

Release time to visit other teachers had the least significant relationship with access to student data. It is interesting to note, however, that release time to visit other teachers had the highest number of significant relationships (although the effect sizes were mostly weak to modest) with the use of student data to tailor instruction. Release time had a positive and significant relationship with eight of nine data usage variables (using data to tailor the pace of instruction, tailor the content of instruction, recommend students for tutoring, assign students to groups, refer students to extended learning opportunities, determine topics that need more or less instruction, strengthen teachers' knowledge of content or strategies, and reflect on learning with students).

Though the effect sizes are weak to moderate, this study indicated that greater access to and perceptions of professional supports overall have significant relationships with teachers' use of high-quality instructional practices. The supports that allow teachers more time to collaborate with one another (release time to observe other teachers, common planning time, and professional learning communities) have the most significant impacts on instructional decisions and access to / use of student data for academic purposes.

Observation and feedback by administrators also demonstrated some of the most significant relationships between teachers' use of high-quality instructional practices and access to / use of student data. This support demonstrated some of the study's strongest effect sizes when considering relationships between observation and teachers' instructional practices.

Finally, this study examined the relationship between access to and perceptions of the six supports and overall student achievement in ELA. Four of the supports (informal mentoring, observation, and feedback by administrators, common planning time, and professional learning communities) demonstrated a significant difference when the means for the two groups were compared. Teachers who reported greater access to and more positive perceptions of these supports had higher average ELA scores schoolwide than teachers who reported less access to or less positive perceptions of these supports. Teachers' self-reported access to and perceptions of professional learning communities demonstrated the greatest difference in student achievement (a difference of 2.76), followed by informal mentoring (2.46), observation and feedback by administrators (1.84), and common planning time (1.45). Formal mentoring and release time to observe other teachers did not demonstrate a significant difference in overall achievement in ELA.

Limitations of Study

First, data gathered from the Teacher Practice Survey are considered teacher-reported data, which has inherent limitations on validity. All self-reported data brings forth certain questions about validity.

Next, knowledge of professional development best practices is rapidly increasing. This survey was administered four years ago, and schools may have improved professional development practices since then. Instructional coaching, for example, is a field in which many districts are beginning to invest more rapidly, but variations in coaching models and the effectiveness of coaching programs may vary from district to district. According to the Bill and Melinda Gates Foundation (2015), there is little

evidence to suggest which model of coaching is most effective and survey results suggest that intensive coaching is relatively rare, with a strong emphasis on providing coaching for mostly new teachers being common across many districts. Simply put, the implementation of the selected supports may vary greatly from district to district.

Furthermore, the quantitative research method employed by this study involves a structured questionnaire with close-ended questions, which leads to limited outcomes. A qualitative study may provide more information regarding why teachers found certain professional supports more or less effective or what variables may have increased or prevented teachers' access to certain supports. In addition to discovering more about access to and perceptions of professional development supports, a qualitative study could provide more information about how teachers access and use student data and the ways in which they implement the selected instructional strategies.

The findings of this study may only be generalizable to some populations due to the nature of the organization of the education system. This study was conducted in northeast Tennessee. For example, the differences between rural and non-rural schools may not be the same as those between rural and non-rural schools in larger urban areas.

Another limitation is that survey data was collected in 2018; schools' Title 1 classifications are based on 2019-2020 data. Title 1 classifications may vary from year to year based on student demographics and enrollment. It is not certain that the schools determined to be Title 1 for the purposes of this study were Title 1 at the time of the survey.

In addition, school districts across the U.S. have recently received an infusion of money in the form of ESSER funds (ESSER, ESSER II, and ARP ESSER) which must be used to address the impact COVID-19 has had and continues to have on elementary and secondary schools. Districts have the flexibility to use the ESSER funds on any "activity authorized by the Elementary and Secondary Education Act," including professional development for teachers (ASCD, 2023). This increase in funding may have altered teachers' access to professional development supports since the survey was administered.

Recommendations for Practice

The study found many significant differences and relationships between the six professional development supports and high-impact teacher practices. Professional learning communities and common planning time demonstrated some of the most significant relationships between teacher practice and student achievement. This suggests that building time into the school day for teacher collaboration is highly recommended. Teachers tend to implement more high-impact strategies, access and use student data, and influence student achievement in ELA more when they have time for collaboration. Access to and perceptions of these two supports demonstrated some of the most significant differences between targeted groups. Rural teachers had significantly less access to and less positive perceptions of these supports. Teachers at Title 1 schools reported less access to and perceptions of professional learning communities. This indicates that there may be a gap in equity between teachers at more affluent schools and less affluent schools. District and school leaders and policymakers should consider the positive impacts of common planning time and professional learning

communities and strive to find ways to provide them to underserved groups. While it is true that rural schools often struggle with professional learning communities and common planning time due to certain barriers mentioned above, such as geographic isolation and smaller, less-experienced faculties, there are ways to navigate these barriers. For example, some smaller, more rural districts are beginning to utilize technology to allow teachers the opportunity to participate in professional learning communities with teachers from other schools across the district or region. Districts involved in the regional collaborative which administered this study have begun to collaborate more frequently. This in itself could help mitigate some of the challenges and differences that surfaced in this study.

Observation and feedback by school administrators also demonstrated some of the most significant relationships in the study. Having a model such as Tennessee's TEAM evaluation process for teachers may have affected the results of this study. The TEAM model specifically focuses on many of the high-quality instructional practices involved in this study and the use of student data to make instructional decisions such as grouping and reflecting on student progress. Districts should continue to implement models of teacher evaluation such as TEAM that encourages administrators to provide high-quality feedback on lessons in order to impact teaching practices.

Some of the most interesting and intriguing aspects of this study are the differences between formal mentoring or coaching and informal mentoring. Informal mentoring had more positive and significant effects in some regards, including access to student data and overall ELA scores. Formal and informal mentoring demonstrated less impact on high-quality teacher practices and student achievement than other types of

supports. Districts should review their mentoring and coaching programs and verify they are well-developed and designed around evidence-based practices.

Recommendations for Further Study

This quantitative study focused mostly on teacher-reported access to supports and instructional practices. Future studies should also consider classroom observation data whenever possible. Using teacher-reported data has the natural limitation of accuracy and teachers often overestimate or incorrectly report their performance. Future studies may want to use classroom observations to gather evidence regarding the frequency or quality of specific strategies utilized in the classroom. For example, the amount of time a teacher implements large group instruction versus the amount of time teachers dedicate to small group collaboration may vary. These data may then be used to compare the groups based on actual observed data rather than self-reported data.

A more qualitative approach may also be beneficial to future studies. Because this study was quantitative and involved secondary data analysis, no further information could be obtained from teachers regarding how they implemented certain strategies or why they felt certain supports may have been more or less effective. For example, if a teacher reported a low rating for formal mentoring or coaching, was it due to the fact that the support was not received, the coach was ineffective or poorly trained, the coach was assigned to other administrative duties and had little time for coaching, or the teacher simply did not have a positive relationship with the coach?

Additional research could be conducted around ways rural districts have found success in navigating specific barriers to teacher collaboration and professional learning

communities and whether or not these workarounds produce similar results to schools that are able to implement in-house professional learning communities.

References

- ASCD. (2023). *Use your ESSER funding for professional development*.
<https://professional-development.ascd.org/esser-funding>
- Awan, M.S., Malik, N., Sarwar, H. & Waqas, M. (2011). Impact of education on poverty reduction. (MPRA Paper 31826) University Library of Munich, Germany.
https://mpra.ub.uni-muenchen.de/31829/1/MPRA_paper_31829.pdf
- Bill and Melinda Gates Foundation. (2015). *Teachers know best: Making data work for teachers and students*. Bill & Melinda Gates Foundation.
<https://eric-ed-gov.milligan.idm.oclc.org/?id=ED576976>
- Booker, L.N. & Russell, J.L. (2022, January). Improving teaching practice with instructional coaching. EdResearch for Recovery.
- Cadero-Smith, L. A. (2020). Teacher professional development challenges faced by rural superintendents. Sahin & P. Vu (Eds.). ISTES Organization.
<https://www.istes.org/books/c46546b371db5bcc668ff85e56e9f19g.pdf>
- Colognesi, S., Van Nieuwenhoven, C., & Beusaert, S. (2020) Supporting newly-qualified teachers' professional development and perseverance in secondary education: On the role of informal learning. *European Journal of Teacher Education*, 43(2), 258-276.
<https://doi.org/10.1080/02619768.2019.1681963>
- Dagen, A. & Bean, R. (2020). Schools as places of learning: The powerful role of literacy leaders. In A. Dagen & R. Bean (Eds.), *Best practices of literacy leaders: Keys to school improvement* (Vol. 2, pp. 411-434). The Guilford Press.

Darling-Hammond, L., Wei, R. C., Andree, A., Richardson, N., & Orphanos, S. (2009).

Professional learning in the learning profession. Washington, DC: National Staff Development Council. <https://eric.ed.gov/?id=ED536383>

Darling-Hammond, L., Hyler, M. E., Gardner, M. (2017). Effective teacher professional development. Palo Alto, CA: Learning Policy Institute.

<https://learningpolicyinstitute.org/product/teacher-prof-dev>

DeCesare, D., Workman, S., & McClelland, A. (2016, January). How do school districts mentor new teachers? (REL 2016–125). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Central.

<http://ies.ed.gov/ncee/edlabs>

Foster, E. (2022). Standards for professional learning: The research. Learning Forward.

<https://learningforward.org/wp-content/uploads/2022/05/standards-research.pdf>

Gagnon, D. & Mattingly, M.J., Beginning teachers are more common in rural, high-poverty, and racially diverse schools. (2012). The Carsey School of Public Policy at the Scholars' Repository. 173. <https://scholars.unh.edu/carsey/173>

García, E. and Weiss, E. (2019). U.S. schools struggle to hire and retain teachers:

Report 2 in the “Perfect Storm in the Teacher Labor Market” series. Economic Policy Institute, April 2019. <https://epi.org/164773>

Garet, M.S., Porter, A., Desimone, L., Birman, B. (2001). What makes professional

development effective? Results from a national sample of teachers. *American Educational Research Journal*, Vol. 38, No. 4 (winter), pp. 915–945.

https://www.researchgate.net/publication/237817648_What_Makes_Professional_Development_Effective_Results_From_a_National_Sample_of_Teachers

Garrett, R., Citkowicz, M., & Williams, R. (2019). How responsive is a teacher's classroom practice to intervention? A meta-analysis of randomized field studies. *Review of Research in Education*, 43(1), 106–137.

<https://doi.org/10.3102/0091732X19830634>

Garrett, R., Zhang, Q., Citkowicz, M., & Burr, L. (2021). How learning forward's professional learning standards are associated with teacher instruction and student achievement: A meta-analysis. Washington, DC: Center on Great Teachers and Leaders at the American Institutes for Research.

https://www.air.org/sites/default/files/2022-02/Learning-Forward-Standards-for-Professional-Learning-Meta-Analysis-Report-December-2021_0.pdf

Glazerman, S., Isenberg, E., Dolfin, S., Bleeker, M., Johnson, A., Grider, M., & Jacobus, M. (2010). Impacts of comprehensive teacher induction: Final results from a randomized controlled study. (NCEE 2010-4027). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

<https://ies.ed.gov/ncee/pubs/20104027/pdf/20104028.pdf>

Glover, T. A., Nugent, G. C., Chumney, F. L., Ihlo, T., Shapiro, E. S., Guard, K., Koziol,

- N., & Bovaird, J. (2016). Investigating rural teachers' professional development, instructional knowledge, and classroom practice. *Journal of Research in Rural Education*, 31(3).
<http://jrre.psu.edu/wp-content/uploads/2016/05/31-3.pdf>
- Gray, L., and Taie, S. (2015). Public school teacher attrition and mobility in the first five years: Results from the first through fifth waves of the 2007–08 beginning teacher longitudinal study. (NCES 2015-337). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
<http://nces.ed.gov/pubsearch>
- Great Schools Partnership. (2013). Common planning time. *The Glossary of Education Reform*. <https://www.edglossary.org/common-planning-time>
- Hattie, J.A.C. (2003, October). Teachers make a difference: What is the research evidence? Australian Council for Educational Research.
http://research.acer.edu.au/research_conference_2003/4/
- Hendry, G.D. & Oliver, G.R. (2012). Seeing is believing: The benefits of peer observation. *Journal of University Teaching & Learning Practice*, 9(1).
<http://ro.uow.edu.au/jutlp/vol9/iss1/7>
- Holmes, B., Parker, D., & Gibson, J. (2019) Rethinking teacher retention in hard-to-staff schools. Education Doctorate Faculty Works. 3.
<https://openriver.winona.edu/educationeddfacultyworks/3>
- Howley, A., Howley, C. B. (2004). High-quality teaching: Providing for rural teachers' professional development. *The Rural Educator*, 26(2), 1-5.
<https://files-eric-ed-gov.milligan.idm.oclc.org/fulltext/ED484929.pdf>

- Hunter, W., Jasper, A. D., & Williamson, R. L. (2014). Utilizing Middle School Common Planning Time to Support Inclusive Environments. *Intervention in School and Clinic, 50*(2), 114–120. <https://doi.org/10.1177/1053451214536045>
- International Literacy Association. *Standards for the preparation of literacy professionals*. (2017). International Literacy Association.
- Ingersoll, R.M. & Smith, T.M. (2004). Do teacher induction and mentoring matter? *NASSP Bulletin, 88*(638), 28-40.
- Ingersoll, R.M. and Strong, M. (2011). The impact of induction and mentoring programs for beginning teachers: A critical review of the research. *Review of Educational Research, 81* (2) 201-233.
- Ingersoll, R., Merrill, E., Stuckey, D., & Collins, G. (2018). Seven trends: The transformation of the teaching force--updated October 2018. CPRE Research Reports.
- Ingersoll, R. M., & Tran, H. (2023). Teacher shortages and turnover in rural schools in the US: An organizational analysis. *Educational Administration Quarterly, 0*(0). <https://doi.org/10.1177/0013161X231159922>
- Israel, M., Kamman, M.L., McCray, E.D., & Sindelar, P.T. (2014). Mentoring in actions: The interplay among professional assistance, emotional support, and evaluation. *Exceptional Children, 81* (1), 45-63.
- Johnson, L.B. Remarks at the University of Michigan. (1964). The American Presidency Project. <https://www.presidency.ucsb.edu/documents/remarks-the-university-michigan>
- Joyce, B. & Showers, B. (1988). *Student achievement through staff development*.

New York: Longman.

Kimball, S. (2011). Principals: Human capital managers at every school. *Phi Delta Kappan*, 92(7), 13-18. <http://www.jstor.org/stable/25822832>

Knight, J. (2011). What good coaches do. *Educational Leadership*, 69(2), 18-22.

Knight, J. (2018). *The impact cycle*. Corwin.

Knowles, M.S. (1968). Andragogy, not pedagogy. *Adult Leadership*, 16(10), 350-352, 386.

Knowles, M.S. (1975). Adult education: New dimensions. *Educational Leadership*, 33(2), 85-88. <https://eric.ed.gov/?id=EJ137019>

Knowles, M.S. (1980) *From pedagogy to andragogy*. Cambridge Adult Education.

<https://colllearning.info/wp-content/uploads/2019/03/The-Modern-Practice-of-Adult-Education.pdf>

Knowles, M. S. (1984). *Andragogy in action. Applying modern principles of adult education*. Jossey Bass.

Kohli, R. (2019). Lessons for teacher education: The role of critical professional development in teacher of Color retention. *Journal of Teacher Education*, 70(1), 39–50. <https://doi-org.milligan.idm.oclc.org/10.1177/0022487118767645>

Kraft, M.A., Blazar, D., & Hogan, D. (2018). The effect of teacher coaching on instruction and achievement: A meta-analysis of the causal evidence. *Review of Educational Research*. 88(4), 547-588.

Learning Forward. (2011). Standards for professional learning.

<https://learningforward.org/standards-for-professional-learning>

Learning Forward (2015). Professional learning definition.

<https://learningforward.org/about/professional-learning-definition/>

Learning Forward. (2018). High-quality curricula and team-based professional learning:

A perfect partnership for equity.

learningforward.org/report/high-quality-curricula-and-team-based-professional-learning-a-perfect-partnership-for-equity/

Learning Forward. (2022). Standards for professional learning.

<https://standards.learningforward.org/>

Legters, N., Adams, D., & Williams, P. (2010). Common planning: A linchpin practice in

transforming secondary schools. Academy for Educational Development, Smaller Learning Communities Program.

Lynch, S. J. (2000). *Equity and science education reform*. Mahwah, NJ: Erlbaum.

Maready, B., Cheng, Q., & Bunch, D. (2021). Exploring mentoring practices contributing

to new teacher retention: An analysis of the beginning teacher longitudinal study.

International Journal of Evidence Based Coaching and Mentoring, 19(2), 88-99.

[DOI:10.24384/rgm9-sa56](https://doi.org/10.24384/rgm9-sa56)

Marlow, D., & Cooper, M. (2008). The MetLife survey of the American teacher: Past,

present and future. <http://files.eric.ed.gov/fulltext/ED504457.pdf>

McElearney, A., Murphy, C., & Radcliffe, D. (2018). Identifying teacher needs and

preferences in accessing professional learning and support. *Professional Development in Education*. 45. 1-23.

https://www.researchgate.net/publication/329851432_Identifying_teacher_needs_and_preferences_in_accessing_professional_learning_and_support

Mohan, P. P., Lingam, G. I., & Chand, D. D. (2017). A comparative study of rural and urban teachers' perceptions of professional development. *Waikato Journal of Education* 22(4), 79–87.

<https://doi-org.milligan.idm.oclc.org/10.15663/wje.v22i4.352>

National Center for Education Statistics. (2022) Common Core of Data. Search for public schools. <https://nces.ed.gov/ccd/schoolsearch/>

Norton, S. (2015). *The principal as human resources leader: A guide to exemplary practices for personnel administration*. Routledge.

Pane, J.F., et al. (2017). Informing progress: Insights on personalized learning implementation and effects. RAND Corporation.

https://www.rand.org/pubs/research_reports/RR2042.html

Peltola, P., et al. (2017). Opportunities for teacher professional development in Oklahoma rural and nonrural schools. *Regional Educational Laboratory Southwest*.

<https://eric-ed-gov.milligan.idm.oclc.org/?id=ED575846>

Polikoff, M. S., Desimone, L. M., Porter, A. & Hochberg, E.D. (2015). Mentoring policy and the quality of mentoring. *The Elementary School Journal*, 116 (1), 76-102.

Pharis, T. J., Wu, E., Sullivan, S., & Moore, L. (2019). Improving teacher quality: Professional development implications from teacher professional growth and effectiveness system implementation in rural Kentucky high schools.

Educational Research Quarterly, 42(3), 29–48.

[DOI:10.22230/ijep1.2018v13n5a740](https://doi.org/10.22230/ijep1.2018v13n5a740)

Public School Review. (2022). Find public schools.

<https://www.publicschoolreview.com/find-schools>

Quinn, S. L. (2021). *Elementary classroom teacher perspectives regarding the implementation of effective professional development practices in rural schools* (28148578). [Doctoral dissertation, William Woods University.] ProQuest Information & Learning.

Radford, C. P. (2107). *Mentoring in action: Guiding, sharing, and reflecting with novice teachers* (2nd ed.). Thousand Oaks, CA: Corwin.

Rhodes, C. & Beneicke, S. (2002). Coaching, mentoring and peer-networking: Challenges for the management of teacher professional development in schools. *Journal of In-service Education*, 28(2), 297-310.

[DOI:10.1080/13674580200200184](https://doi.org/10.1080/13674580200200184)

Rivera Rodas, E. I. (2019). Separate and unequal: Title I and teacher quality. *Education Policy Analysis Archives*, 27(14). <https://doi.org/10.14507/epaa.27.4233>

Rose, A. L., & Sughrue, J. A. (2020). Promoting retention of alternative certified teachers through professional development. *NASSP Bulletin*, 104(1), 34–54.

<https://doi.org/10.1177/0192636520913624>

Rude, H. A., & Brewer, R. D. (2003). Assessment of professional development systems: Improving rural special education services. *Rural Special Education Quarterly*, 22(4), 20-28.

- Schwan, A., Wold, C., Moon, A., Neville, A., & Outka, J. (2020, Fall). Mentor and new teacher self-perceptions regarding the effectiveness of a statewide mentoring program. *Critical Questions in Education*, (11)3. 190-207.
- SCORE. (2011). Transforming the rural South: A roadmap to improving rural education. https://tnscore.org/wp-content/uploads/2018/09/Transforming-The-Rural-South_Rural-Education-Vision-Report2011.pdf
- Simon, N.S. & Johnson, S.M. (2015). Teacher turnover in high-poverty schools: What we know and can do. *Teachers College Record*, 117. 1–36.
- Solution Tree. (2022). About PLCs. All Things PLC. <https://www.allthingsplc.info/about>
- Strong, M. (2006). Does new teacher support affect student achievement? New Teacher Center at the University of California [Research Brief], 6(1).
- TDOE. (2022). ESSA Title I. <https://www.tn.gov/education/districts/federal-programs-and-oversight/elementary-and-secondary-education-act-esea/essa-title-i.html>
- Todd, M. (2017). *Peer observation as a tool for professional development (84)* [Master's Thesis, St. Cloud State University]. https://repository.stcloudstate.edu/engl_etds/84
- TNTP. (2015) The mirage: Confronting the hard truth about our quest for teacher development. <https://tntp.org/publications/view/the-mirage-confronting-the-truth-about-our-quest-for-teacher-development>
- UNESCO Institute for Statistics. (2017). *Reducing global poverty through*

universal primary and secondary education. UNESDOC Digital Library.

<https://unesdoc.unesco.org/ark:/48223/pf0000250392.locale=en>

U.S. Department of Education. (2022, June 9). Secretary Cardona lays out vision to support and elevate the teaching profession.

<https://www.ed.gov/news/press-releases/secretary-cardona-lays-out-vision-support-and-elevate-teaching-profession>

USDA. (2021, August 23). *Data show U.S. poverty rates in 2019 higher in rural areas than in urban for racial/ethnic groups*. Economic Research Service USDA.

<https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=101903>

Wallace, T. (2014). A comparison of professional development practices in rural and urban high schools. *The Rural Educator*, 35(2), 11–16.

http://www.nrea.net/The_Rural_Educator

Wei, R. C., Darling-Hammond, L., & Adamson, F. (2010). Professional development in the United States: Trends and challenges.

<http://learningforward.org/docs/pdf/nsdcstudy2010.pdf>

Weitzenkamp, D. J., Howe, M. E., Steckelberg, A. L., & Radcliffe, R. (2003). The GOALS model: Rural teacher preparation institutions meeting the ideals of a PDS through educational technology. *Contemporary Issues in Technology and Teacher Education*, 2(4).

<http://www.citejournal.org/vol2/iss4/currentpractice/article1.cfm>

Whitaker, T., Whitaker Good, M., & Whitaker, K. (2019, September). How principals can support new teachers. *Educational Leadership*, 77(1), 50-54.

Yuejin Xu. (2016). The Relationship between teachers' attitude towards professional development and schools' accountability performance. *Research in the Schools*, 23(2), 51–60.

Zembytska, M. (2016, June). Mentoring as the core element of new teacher induction in the USA: Policies and practices. *Comparative Professional Pedagogy*, 6(2), 67-73. <http://dx.doi.org/10.1515/rpp-2016-0021>

Appendices

Appendix A: Teacher Practice Survey Codebook (ANLAR, 2018)

- Survey Year
 - 1= Summer 2018 (August/September)
 - 2= Spring 2019 (April)
 - 3= Spring 2020 (March)
- School
 - “At which school do you primarily teach?”
- Treatment. Indicates whether the school is in the treatment or control group.
 - 1 = Treatment,
 - 0 = Control
- Rural
 - 1= Rural (urban-centric district locale code of 32, 33, 41, 42, or 43)
 - 0= non-rural
- Gradespan
 - 1= pk/k-8
 - 2= 6-12
 - 3= 5/6- 8
 - 4= K-12
- Role
 - “Select your primary role.”
- Role_Other
 - Response if Role=="Other"
- Area
 - “What content area(s) are you teaching (or supervising) this year? (Select all that apply)”
 - 1 = English Language Arts
 - 2 = Mathematics
 - 3 = Science
 - 4= Social Studies
 - 5 = Foreign Language
 - 6 = Visual or Performing arts (art, music, band, etc.)
 - 7 = Physical education / health education
 - 8 = Career / technical education
 - 9 = Not a teacher
 - 10 = Other
- Grades
 - “Please indicate the grade levels of the students you teach. (Select all that apply)”
 - 1 = K
 - 2 = 1st
 - 3 = 2nd
 - ...

- 13 = 12th
- 14 = I do not teach.
- 15 = My school does not use grade levels.
- **Classroom / School Components.** “Please indicate whether the following characteristics, or layouts of physical space, exist in your school. For each that does exist in your school, please indicate the extent to which it facilitates or hinders personalized learning.”
 - Traditional classrooms with furniture that cannot be easily rearranged
 - 1 = Does not exist in my school
 - 2 = Exists in my school and hinders personalized learning
 - 3 = Exists in my school and has no impact on personalized learning
 - 4 = Exists in my school and facilitates personalized learning
 - Traditional classrooms with furniture that is easy to rearrange
 - 1 = Does not exist in my school
 - 2 = Exists in my school and hinders personalized learning
 - 3 = Exists in my school and has no impact on personalized learning
 - 4 = Exists in my school and facilitates personalized learning
 - Comfortable, non-traditional classroom furniture
 - 1 = Does not exist in my school
 - 2 = Exists in my school and hinders personalized learning
 - 3 = Exists in my school and has no impact on personalized learning
 - 4 = Exists in my school and facilitates personalized learning
 - Large, open instructional spaces
 - 1 = Does not exist in my school
 - 2 = Exists in my school and hinders personalized learning
 - 3 = Exists in my school and has no impact on personalized learning
 - 4 = Exists in my school and facilitates personalized learning
 - Open common areas for student use
 - 1 = Does not exist in my school
 - 2 = Exists in my school and hinders personalized learning
 - 3 = Exists in my school and has no impact on personalized learning
 - 4 = Exists in my school and facilitates personalized learning
 - Open instructional space with smaller rooms for individual or small-group instruction
 - 1 = Does not exist in my school
 - 2 = Exists in my school and hinders personalized learning
 - 3 = Exists in my school and has no impact on personalized learning
 - 4 = Exists in my school and facilitates personalized learning
 - Computer lab
 - 1 = Does not exist in my school
 - 2 = Exists in my school and hinders personalized learning
 - 3 = Exists in my school and has no impact on personalized learning
 - 4 = Exists in my school and facilitates personalized learning

- Laptops or tablet available for each student
 - 1 = Does not exist in my school
 - 2 = Exists in my school and hinders personalized learning
 - 3 = Exists in my school and has no impact on personalized learning
 - 4 = Exists in my school and facilitates personalized learning

- **Curriculum and Instruction.** Please indicate the extent to which you agree with each of the following statements about your curriculum and instruction
 - I require students to show that they understand a topic before they can move on to a new topic. (CBL)
 - 1= Not at all
 - 2= To a small extent
 - 3= To a moderate extent
 - 4= To a great extent
 - Different students work on different topics or skills at the same time. (CBL)
 - 1= Not at all
 - 2= To a small extent
 - 3= To a moderate extent
 - 4= To a great extent
 - I give students the chance to work through instructional material until they fully understand it. (CBL)
 - 1= Not at all
 - 2= To a small extent
 - 3= To a moderate extent
 - 4= To a great extent
 - Students have opportunities to review or practice new material until they fully understand it. (CBL)
 - 1= Not at all
 - 2= To a small extent
 - 3= To a moderate extent
 - 4= To a great extent
 - Students keep track of their own learning progress using technology (for example, by using an online gradebook or portfolio). (TFP)
 - 1= Not at all
 - 2= To a small extent
 - 3= To a moderate extent
 - 4= To a great extent
 - I am usually accessible to students via electronic communication when I am not available face-to-face. (TFP)
 - 1= Not at all
 - 2= To a small extent
 - 3= To a moderate extent
 - 4= To a great extent
 - Students are able to access instructional materials both in and outside the classroom. (TFP)

- 1= Not at all
 - 2= To a small extent
 - 3= To a moderate extent
 - 4= To a great extent
 - Students have opportunities to choose what instructional materials (such as books or computer software) they use in class. (SCE)
 - 1= Not at all
 - 2= To a small extent
 - 3= To a moderate extent
 - 4= To a great extent
 - Students have opportunities to choose what topics they focus on in class. (SCE)
 - 1= Not at all
 - 2= To a small extent
 - 3= To a moderate extent
 - 4= To a great extent
 - I provide a variety of materials or instructional approaches to accommodate individuals' needs and interests. (SCE)
 - 1= Not at all
 - 2= To a small extent
 - 3= To a moderate extent
 - 4= To a great extent
 - I connect what students are learning with experiences they have throughout the rest of the school day or outside of school. (SCE)
 - 1= Not at all
 - 2= To a small extent
 - 3= To a moderate extent
 - 4= To a great extent
 - I frequently adapt course content to meet students' needs by providing additional assignments, resources, and activities for remediation or enrichment. (SCE)
 - 1= Not at all
 - 2= To a small extent
 - 3= To a moderate extent
 - 4= To a great extent
- CompetencyBasedLearningScale = Average of Questions the teacher responded to regarding Competency-Based learning. (CBL)
- TechnologyForPersonalization = Average of Questions the teacher responded to regarding technology for personalization. (TFP)
- StudentChoice&Engagement = Average of Questions the teacher responded to regarding student choice & engagement. (SCE)
- **Modes of Instruction.** How often, on average, do you use the following modes of instruction?
 - Teacher-led large-group or whole-class (more than 10 students) instruction
 - 1 = Daily
 - 2 = Several times per week
 - 3 = Once per week
 - 4 = Less than once per week

- 5 = Never
- Teacher-led small group (2 to 10 students) instruction
 - 1 = Daily
 - 2 = Several times per week
 - 3 = Once per week
 - 4 = Less than once per week
 - 5 = Never
- In-person individual tutoring
 - 1 = Daily
 - 2 = Several times per week
 - 3 = Once per week
 - 4 = Less than once per week
 - 5 = Never
- Live or pre-recorded tutoring provided using the internet
 - 1 = Daily
 - 2 = Several times per week
 - 3 = Once per week
 - 4 = Less than once per week
 - 5 = Never
- Small-group collaboration (such as team projects, partner work, peer-to-peer instruction)
 - 1 = Daily
 - 2 = Several times per week
 - 3 = Once per week
 - 4 = Less than once per week
 - 5 = Never
- Independent practice without software (such as reading, writing)
 - 1 = Daily
 - 2 = Several times per week
 - 3 = Once per week
 - 4 = Less than once per week
 - 5 = Never
- Independent practice using software or other digital content
 - 1 = Daily
 - 2 = Several times per week
 - 3 = Once per week
 - 4 = Less than once per week
 - 5 = Never
- Paper and pencil assessment
 - 1 = Daily
 - 2 = Several times per week
 - 3 = Once per week
 - 4 = Less than once per week
 - 5 = Never
- Computer-based assessment
 - 1 = Daily
 - 2 = Several times per week

- 3 = Once per week
 - 4 = Less than once per week
 - 5 = Never

- **Professional supports.** Please indicate whether, in the XX school year, you received each of the following kinds of supports, and the extent to which you found it helpful for improving your instruction.
 - Formally assigned mentor or coach
 - 1 = I did not receive this support.
 - 2 = I received this support and found it unhelpful.
 - 3 = I received this support and found it somewhat helpful.
 - 4 = I received this support and found it very helpful.
 - Informal mentor
 - 1 = I did not receive this support.
 - 2 = I received this support and found it unhelpful.
 - 3 = I received this support and found it somewhat helpful.
 - 4 = I received this support and found it very helpful.
 - Release time to observe other teachers
 - 1 = I did not receive this support.
 - 2 = I received this support and found it unhelpful.
 - 3 = I received this support and found it somewhat helpful.
 - 4 = I received this support and found it very helpful.
 - Observation of and feedback on lessons by administrators
 - 1 = I did not receive this support.
 - 2 = I received this support and found it unhelpful.
 - 3 = I received this support and found it somewhat helpful.
 - 4 = I received this support and found it very helpful.
 - Common planning time (formally scheduled) with other teachers
 - 1 = I did not receive this support.
 - 2 = I received this support and found it unhelpful.
 - 3 = I received this support and found it somewhat helpful.
 - 4 = I received this support and found it very helpful.
 - Access to professional learning communities where you can discuss concerns or engage in instructional planning with other teachers
 - 1 = I did not receive this support.
 - 2 = I received this support and found it unhelpful.
 - 3 = I received this support and found it somewhat helpful.
 - 4 = I received this support and found it very helpful.

- **Obstacles.**
 - To what extent is your own knowledge of how to effectively implement personalized learning an obstacle to you promoting personalized learning with your students?
 - 1=Not an obstacle
 - 2=minor obstacle
 - 3=major obstacle

- To what extent is lack of flexibility in the curriculum you are required to teach an obstacle to you promoting personalized learning with your students?
 - 1=Not an obstacle
 - 2=minor obstacle
 - 3=major obstacle
- To what extent is pressure to cover specific material (as a result of state or district standards) an obstacle to you promoting personalized learning with your students?
 - 1=Not an obstacle
 - 2=minor obstacle
 - 3=major obstacle
- To what extent is excessive amount of time needed to develop personalized content an obstacle to you promoting personalized learning with your students?
 - 1=Not an obstacle
 - 2=minor obstacle
 - 3=major obstacle
- **Access to Student Data.** In general, how frequently do you receive the following types of information about the performance of your students?
 - Information about student performance on specific concepts or skills
 - 1 = Never
 - 2 = Once a year
 - 3 = A few times a year
 - 4 = Approximately monthly
 - 5 = A few times a month
 - 6 = Approximately weekly
 - 7 = A few times a week
 - 8 = At least daily
 - Identification of specific students who need extra assistance
 - 1 = Never
 - 2 = Once a year
 - 3 = A few times a year
 - 4 = Approximately monthly
 - 5 = A few times a month
 - 6 = Approximately weekly
 - 7 = A few times a week
 - 8 = At least daily
 - Identification of specific students who have achieved mastery
 - 1 = Never
 - 2 = Once a year
 - 3 = A few times a year
 - 4 = Approximately monthly
 - 5 = A few times a month
 - 6 = Approximately weekly
 - 7 = A few times a week
 - 8 = At least daily
 - Nonachievement outcomes (for example, student behavior, attitudes, or motivation)
 - 1 = Never

- 2 = Once a year
 - 3 = A few times a year
 - 4 = Approximately monthly
 - 5 = A few times a month
 - 6 = Approximately weekly
 - 7 = A few times a week
 - 8 = At least daily
- **Use of Student Data.** This school year, to what extent did you use student achievement / mastery data for each of the following purposes? (Consider data provided by instructional software, district benchmarks, or interim tests.)
 - Tailoring the pace of instruction to individual students' needs
 - 1 = My school doesn't do this
 - 2 = Did not use data for this at all
 - 3 = Used data to a small extent
 - 4 = Used data to a moderate extent
 - 5 = Used data to a large extent
 - Tailoring the content of instruction to individual students' needs
 - 1 = My school doesn't do this
 - 2 = Did not use data for this at all
 - 3 = Used data to a small extent
 - 4 = Used data to a moderate extent
 - 5 = Used data to a large extent
 - Developing recommendations for tutoring or other educational support services for particular students
 - 1 = My school doesn't do this
 - 2 = Did not use data for this at all
 - 3 = Used data to a small extent
 - 4 = Used data to a moderate extent
 - 5 = Used data to a large extent
 - Assigning or re-assigning students to groups within my class(es)
 - 1 = My school doesn't do this
 - 2 = Did not use data for this at all
 - 3 = Used data to a small extent
 - 4 = Used data to a moderate extent
 - 5 = Used data to a large extent
 - Assigning students to extended learning opportunities (for example, extended-day programs, Saturday classes, or an extended school year)
 - 1 = My school doesn't do this
 - 2 = Did not use data for this at all
 - 3 = Used data to a small extent
 - 4 = Used data to a moderate extent
 - 5 = Used data to a large extent
 - Identifying topics requiring more or less emphasis in instruction
 - 1 = My school doesn't do this
 - 2 = Did not use data for this at all
 - 3 = Used data to a small extent

- 4 = Used data to a moderate extent
 - 5 = Used data to a large extent
 - Identifying areas where I need to strengthen my content knowledge or teaching skills
 - 1 = My school doesn't do this
 - 2 = Did not use data for this at all
 - 3 = Used data to a small extent
 - 4 = Used data to a moderate extent
 - 5 = Used data to a large extent
 - Reflecting on and discussing teaching and learning with other teachers
 - 1 = My school doesn't do this
 - 2 = Did not use data for this at all
 - 3 = Used data to a small extent
 - 4 = Used data to a moderate extent
 - 5 = Used data to a large extent
 - Reflecting on and discussing learning with my students
 - 1 = My school doesn't do this
 - 2 = Did not use data for this at all
 - 3 = Used data to a small extent
 - 4 = Used data to a moderate extent
 - 5 = Used data to a large extent
 - Providing college / career advice or guidance
 - 1 = My school doesn't do this
 - 2 = Did not use data for this at all
 - 3 = Used data to a small extent
 - 4 = Used data to a moderate extent
 - 5 = Used data to a large extent
- **Learner Profiles.** Does your school use shared documents, such as learner profiles and learning plans, to document each student's strengths, weaknesses, and goals along with individualized plans to accomplish these goals?
 - 1 = Yes
 - 2 = No
- Do your school's learner profiles or learning plans have these attributes? (By learner profiles and learning plans, we mean documents about student strengths, weaknesses, and goals, and individualized plans to accomplish these goals.)My school's learner profiles...
 - ...exist for every student.
 - 1=Not at all,
 - 2 = To a small extent,
 - 3 = To a moderate extent,
 - 4 = To a great extent
 - ...are updated to incorporate new information.
 - 1=Not at all,
 - 2 = To a small extent,
 - 3 = To a moderate extent,
 - 4 = To a great extent

- ...summarize the student's strengths, weaknesses, and progress, drawing on multiple sources of information, including standardized tests and other information.
 - 1=Not at all,
 - 2 = To a small extent,
 - 3 = To a moderate extent,
 - 4 = To a great extent
- ...summarize the student's goals, interests, and aspirations.
 - 1=Not at all,
 - 2 = To a small extent,
 - 3 = To a moderate extent,
 - 4 = To a great extent
- ...set forth a personalized plan for students to accomplish instructional goals.
 - 1=Not at all,
 - 2 = To a small extent,
 - 3 = To a moderate extent,
 - 4 = To a great extent
- ...are accessed / updated by teachers.
 - 1=Not at all,
 - 2 = To a small extent,
 - 3 = To a moderate extent,
 - 4 = To a great extent
- ...are accessed / updated by students.
 - 1=Not at all,
 - 2 = To a small extent,
 - 3 = To a moderate extent,
 - 4 = To a great extent
- ...are accessed / updated by parents or guardians.
 - 1=Not at all,
 - 2 = To a small extent,
 - 3 = To a moderate extent,
 - 4 = To a great extent
- LearnerProfiles1 = Average of a teacher's scores for the above questions, not penalizing non-response.
- LearnerProfiles2 = Average of teacher's scores counting non-response as 0
- **Networking with other teachers** .For each group of individuals listed below, please indicate how often you discussed literacy with them. Not asked in year 1
 - Teachers in your school who teach the same content area as you.
 - 1= Daily,
 - 2 = Several times per week,
 - 3 = once per week,
 - 4 = Less than once per week,
 - 5 = Never
 - Teachers in your school who teach a different content area than you.
 - 1= Daily,
 - 2 = Several times per week,
 - 3 = once per week,

- 4 = Less than once per week,
- 5 = Never
- Teachers in your school who teach the same grade level as you.
 - 1= Daily,
 - 2 = Several times per week,
 - 3 = once per week,
 - 4 = Less than once per week,
 - 5 = Never
- Teachers in your school who teach a different grade level than you.
 - 1= Daily,
 - 2 = Several times per week,
 - 3 = once per week,
 - 4 = Less than once per week,
 - 5 = Never
- Your school's formal leaders (i.e., principal, assistant principal, instructional coach, etc.)
 - 1= Daily,
 - 2 = Several times per week,
 - 3 = once per week,
 - 4 = Less than once per week,
 - 5 = Never
- Teachers from other schools
 - 1= Daily,
 - 2 = Several times per week,
 - 3 = once per week,
 - 4 = Less than once per week,
 - 5 = Never

Appendix B: IRB Approval Letter



Date: February 28, 2023

- Principal Investigator: Brooke Drinnon, Graduate Students, Milligan University
- From: The Institutional Review Board (IRB) at Milligan University
- Project: *A Comparative Study of Accessibility to Professional Supports and Instructional Strategies in Select Middle-Grade Schools in Northeast Tennessee*
- IRB Tracking Number: 2023-07
- IRB Approval Number: Exe2302281133
- Subject: Declaration of Exemption

The Milligan University Institutional Review Board (IRB) has reviewed your research application and has determined that your proposed research is exempt from further review based on federal guidelines provided in 45 CFR 46.104(d)(4) in that you have demonstrated your research to be:

Secondary research for which consent is not required: Secondary research uses of identifiable private information or identifiable biospecimens meeting requirements outlined in 45 CFR 46.104(d)(4)(i-iii).

You are expected to conduct your research in accordance with the research plan that was presented for review. Substantive modifications to your research plan will require another formalized review of your plan by our office. Please remember that while we are not specifically reviewing your informed consent, all researchers should provide potential participants with an informed consent statement that includes all pertinent information.

Best wishes as you conduct your research! Please feel free to contact the IRB office by email should you have any questions; IRB@milligan.edu

On behalf of the IRB Committee,

David D Gibbons, Ph.D.
Chair, Institutional Review Board
Milligan University



