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Elementary Teachers' Use of Data-Driven Instructional Practices

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Abstract

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Project Study Submitted in Partial Fulfillment

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Abstract

A school in South Carolina developed a strategic plan to implement a professional learning community structure in the school, where teachers work together to evaluate student data to improve instruction. However, teachers at the school did not understand how to use data-driven instructional practices to drive classroom instruction. The purpose of this study was to explore understanding of elementary teachers at this school in South Carolina how to use data-driven instructional practices. The framework for this study was the learning target theory of action, focusing on researching the data-driven instructional practices teachers used when working with data. The research questions were created to explore the data-driven instructional practices teachers at this school in South Carolina used and how they perceived the practices in their classrooms. A basic qualitative research design was used, and 10 semi structured interviews were conducted with kindergarten through fifth-grade teachers. The interviews were transcribed, and open coding was used to identify common themes. Teachers at the study site used a variety of assessment data to guide classroom practices, but few teachers could provide a clear account regarding their data collection methods. Based on the teacher documentation provided during the interviews, a 3-day professional development was created for collecting, recording, and using formative assessments. This study supports positive social change by providing teachers with strategies to collect and use formative assessment data to improve student performance on district and state testing.

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Dedication

This project study is dedicated to my husband for being my biggest supporter. He pushed me to keep working because he knew it would be worth it. I thank my children for understanding when I could not be at every ball game or activity because I had schoolwork to do. The three of them have shown me how much they appreciate the hard work I have put into completing my degree. Thank you, John, Ryne, and Elisabeth, for being my people.

To my mom and dad, you knew just what to say to give me the extra nudge. I will never forget the excitement on my dad's face when I told him I was planning to work on my doctorate. He said he could not wait to tell everyone that his daughter is a doctor. Both have always made me feel I could accomplish anything, and I could not thank them enough for being my parents. I have truly been blessed. Thank you, Mom and Dad. I love you more than you will ever know.

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I would like to thank my work family for supporting me in completing this journey. Without you all, I would not have had the data I needed to complete my work. I would also like to thank my doctorate committee. Your support and encouragement were very much appreciated.

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Section 1: The Problem

The Local Problem

Data-driven instruction (DDI) is instruction in which teachers collect and analyze data to design instruction and facilitate performance improvement (Walker et al., 2018). When using DDI, teachers must change assessments into instructional practices by collecting, analyzing, and interpreting all types of data (Reeves & Chiang, 2019). Teachers begin with a goal, then collect appropriate data, analyze the data, and then interpret the results to make instructional changes (Mandinach & Schildkamp, 2021). In DDI, teachers use test scores, classroom observations, and teacher-created assessments to determine student weaknesses in content areas (Prenger & Schildkamp, 2018). When teachers can understand and use all the above data types appropriately, data literacy is achieved because these teachers can interpret and use data to make instructional decisions (Kippers et al., 2018).

Data literacy is understanding and using data to inform decisions and identify, collect, organize, analyze, summarize, and prioritize data (Fontichiaro & Johnston, 2020). Data literate teachers can increase student achievement and contribute to school improvement. Teachers and administrators can use data to identify what students know and how best to teach students based on their areas of need (Vanlommel & Schildkamp, 2019). Data literate teachers are valuable to schools because these teachers can understand how to interpret and use the available data to inform instructional changes (Bolhuis et al., 2019). Across the United States, districts have depended on data-literate teachers using data to improve student success and inform instructional decisions

(Abrams et al., 2020). The problem is that elementary teachers in South Carolina do not understand how to use DDI to guide classroom practices.

Research studies have shown that teachers may not understand using assessment data to drive instruction (Hubers et al., 2017). Harshman and Yezierski (2017) completed a literature review of 83 resources focused on teachers' processes to guide instruction and the limitations and gaps in how teachers should use data to drive instruction. The authors discovered that data-driven decision-making was used generally and not to help teachers in the daily instructional process. Detailed guidance in subject matter and pedagogical content knowledge are needed for successful data-driven decision-making. With an improved understanding of how to analyze data from assessments, teachers may be better able to guide instruction and provide students with optimal feedback to achieve mastery of required skills (Harshman & Yezierski, 2017). When teachers can use data from assessments, formative and summative, student learning improves (Blumenthal et al., 2012). The gap in practice exists between teachers' use of DDI and administrators' expectations of how DDI should be used in the classroom.

Rationale

Van Geel et al. (2017) found that DDI improves classroom instruction and increases student content knowledge. When teachers use data to inform classroom practices, student achievement increases (van Geel et al., 2017). The purpose of this basic qualitative study was to understand how elementary teachers in South Carolina used DDI to guide classroom practices. Teacher use of DDI and student achievement may increase based on the results of this study.

There are various research-based reasons teachers struggle with using data in the classroom. Many teachers lack the knowledge to use data effectively (Reeves & Chiang, 2019). Several factors contribute to the lack of data use. These include teachers' lack of understanding of the many ways to use data, teachers' lack of knowledge of how to interpret data in its various forms, and the lack of instructional strategies, materials, and activities to make instructional changes in the classroom. The administration at the study site voiced concerns about data discussions, conversations about student data, and whether teachers are using data to inform instruction or if teachers are data literate. The principal described how teachers struggled with interpreting the data and transferring the information into instructional changes.

DDI at the school level can affect teachers' use of data (van Geel et al., 2019). When the school does not have a clear vision of how data should be used, teachers are unsure how to use the data they are given or collected. Walker et al. (2018) found that many teachers are insufficiently prepared to use data because they lack knowledge and data skills. Bolhuis et al. (2019) also suggested that teachers lack the opportunities to practice DDI before being expected to be experts in the field. At the study site, a current fifth-grade teacher described the incomplete process of using data to inform classroom practices. The fifth-grade teacher stated that teachers are guided in setting up charts to identify student levels and growth projections but do not feel the time is allotted for teachers to revisit the process throughout the year.

The district included in this study developed a strategic plan for the 2016 to 2021 school years (Appendix B). This strategic plan stated that teachers are expected to

analyze data to differentiate instruction and use data to inform practices. The study site's strategic plan builds off the district plan, stating that teachers would use data gained from assessments and work together in planning for instructional purposes (Appendix C). The district allocated time and resources to support teachers in using data to drive instruction, but there was no way to know if it was effective.

Definition of Terms

I used the following terms in this study. These terms are associated with DDI.

Data: Data are the information (usually numbers) collected and organized to represent a specific aspect of educational learning (Hora et al., 2017; Prenger & Schildkamp, 2018).

Data-driven instruction: In this study, DDI is the actions educators use to drive instruction in the classroom, making adjustments in instruction based on student learning (Hora et al., 2017).

Data literacy: This is the ability to transform data collected from all assessment forms into actionable classroom instruction. Data literate teachers can collect, analyze, interpret, and reteach based on collected data (Reeves & Chiang, 2019).

Professional learning communities: Professional learning communities are collaboration teams that include teachers and school leaders, meeting to improve instruction using data collected from various sources (Abrams et al., 2020).

Significance of the Study

This study's findings may interest administrators, teachers, and students at the study site. The administration may learn what teachers do or do not understand about

using DDI to guide classroom practices. Teachers who participated in the study may use the findings to identify personal strengths and weaknesses to improve classroom instruction and share them with colleagues. Students' learning may improve when teachers adjust their instructional practices.

By gaining knowledge of teacher understandings of DDI, the administration could structure professional learning communities to guide teachers in using best practices when working with data. The findings of this study could support positive social change by implementing professional learning communities, building relationships among teachers and administrators, and enhancing teacher knowledge of data-driven instructional practices.

Research Questions

The local school where I conducted the study has made it a priority via the school renewal plan for teachers to use data to drive practices that may improve student achievement. However, administrators did not know if teachers understood how to use DDI to guide practices in the classroom. The purpose of this basic qualitative study was to explore how elementary teachers in South Carolina used DDI to guide classroom practices. I gathered information on the types of methods teachers employed in the classroom when planning for student achievement and if these practices related to DDI practices. I also used participant responses to identify what teachers understood about DDI. I used the following research questions to guide this study:

Research Question 1 (RQ1): What experiences do elementary teachers at a local southern public school have when working with data-driven instructional practices?

Research Question 2 (RQ2): How do elementary teachers in a local southern public school perceive the use of data-driven instructional practices in their classroom?

Review of the Literature

Introduction

The quality of instruction provided by the teacher has a significant influence on student achievement (Schildkamp et al., 2017). In this literature review, I identify the conceptual framework based on this study and the learning target theory of action. Theory of action explains how the instruction teachers provide students influences achievement. This literature review is organized into seven sections: the conceptual framework, DDI, characteristics that influence data use, effective use of data, data literacy, professional learning communities, and accountability and policy.

I accessed the resources for this literature review through various internet-based search engines and databases. The primary resource sites are Walden University's library, Google Scholar, ProQuest, EBSCO, Education from Sage, and Education Resource Information Center (ERIC). I used these sites to gather the most current resources available for the research topic. The search terms I used for this literature review included: *data-driven instruction, data literacy, professional learning communities, accountability in data-driven instruction, professional learning communities,* and *data teams.*

Conceptual Framework

I used the learning target theory of action (Argyris, 1997) as the conceptual framework for this study. Slomp and Elliot (2021) described how the theory of action

developed in education by stating that in 1946, Lewine developed the action research theory, which Stephen Corey adapted in 1949 as educational research. Argyris then revised his academic study in 1957 into the theory of action (Slomp & Elliot, 2021). Argyris's theory of action is a framework in which informed planned interventions are developed based on educational research. This theory also includes the works of Engestrom (1987) and goes back as far as the works of Vygotsky (1978; Kentzer et al., 2019). Theory of action is considered a social process where those involved reflect on their learning (Kentzer et al., 2019). Through this process, teachers discover a problem, work together to find solutions, try out the possible solutions, and monitor the effectiveness of the possible solutions (Argyris, 1997).

The theory of action links teacher actions to students' achievement (Hopkins, 2012). Teachers make instructional decisions based on a formative assessment process that produces high-quality teaching (Walker et al., 2018). Teachers provide explicit learning descriptors, use higher-order questions, and build authentic relationships with students (Hopkins, 2012). Through this process, teachers can gather evidence of student learning and decide on the differentiation of instruction (van Geel et al., 2019). Teachers must focus on DDI, taking information from formative and summative assessments and making instructional decisions to improve student outcomes. Teachers use the learning target theory of action framework to guide their planning, monitoring, and evaluation of teaching (Moss & Brookhart, 2012).

The theory of action is built on the idea that teachers enter the workforce with past experiences, beliefs, and knowledge. This information is essential to interactions

with those around them and how they work with their given tools (Kentzer et al., 2019). Argyris (1997) wrote about a learning process for the theory of action in which the learner discovers a problem, invents a solution, implements the solution, and monitors the effectiveness of the implementation. In this case, the learner is the classroom teacher. Theory of action can increase understanding of the basics of DDI.

DDI and the theory of action framework are linked through their learning processes. The DDI process includes teachers collecting data from assessments, identifying problems, building knowledge of how to help students, developing strategies to adjust instruction, and reteaching and reassessing students (Beck & Nunnaley, 2020; Datnow et al., 2018; Walker et al., 2018). In this study, I gathered information to understand what data-driven instructional practices teachers in the study site use to direct classroom instruction.

In this literature review, I explain the foundation of DDI by explaining the basic steps in using data and why teachers struggle with using data in the classroom. I describe the characteristics that influence data use, how teachers should manage data, and the qualities of a data literate professional. Professional learning communities are an essential part of the data-driven instructional process since this is a crucial component of the school renewal plan. Teachers use professional learning communities to discuss assessments collaboratively, building on teacher knowledge (Park, 2018). Finally, I explain accountability and policy because they affect how teachers use data in their classrooms.

Data-driven Instruction

DDI is the systematic collection of various types of data to improve the quality of education (Schildkamp et al., 2019; Wang, 2019). Data can come from multiple numerical sources, including formative and summative assessments, enhancing student performance. Formative assessments involve using data gathered from student work to monitor and guide the learning process (Vanlommel & Schildkamp, 2019). Data used by teachers are not limited to just numerical data but can include observations of student performance, surveys, teacher-created assessments, student interviews, and performance assessments (Schildkamp et al., 2020).

There are several possible reasons that teachers struggle with using data. Time, collaboration with colleagues, and accessibility of data are just a few of the issues teachers face when using data (Lasater et al., 2020). Teachers must outline content standards, establish scoring criteria, identify student strengths and weaknesses, and reteach accordingly (Reeves & Chiang, 2019). When teachers can analyze student data, teachers can then maximize instructional time, target instruction toward student needs, and adjust teaching methods accordingly (Little et al., 2019). If teachers cannot do these things, the information gathered from assessments is meaningless (Lasater et al., 2020).

There are essential steps in using data in the classroom (Walker et al., 2018). First, teachers must access or collect data from classroom assessments or observations. For example, benchmark assessments are most often used for data use because of easy access (Abrams et al., 2020). These assessments are given and then analyzed for skill mastery. After accessing or collecting data, teachers must filter, organize, and explore the

information (Walker et al., 2018). Through this process, teachers identify problems and frame questions to address the issues (Beck & Nunnaley, 2020). Then, teachers use their expertise to learn how to help students (Walker et al., 2018). Next, teachers must decide what strategies can be taught to alleviate apparent student confusion, including understanding student ability (Datnow et al., 2018). Next, teachers must adjust their instruction or actions to increase student understanding (Walker et al., 2018). For example, understanding and using differentiation skills during instruction benefits students and improves student knowledge (Farley-Ripple et al., 2021). Finally, another assessment is administered to determine if teacher actions or adjusted instruction were influential in the data process (Reeves & Chiang, 2019; Walker et al., 2018).

Characteristics Influencing Data Use

As administrators and teachers begin to use DDI in their educational setting, they need to understand what characteristics influence data use (Schildkamp et al., 2019). Data use is influenced by organizational factors, user characteristics, and data characteristics (Schildkamp et al., 2017). Organizational characteristics are those that focus on the school level. There must be a shared vision, norms for data use, and school leaders that value data use for data to be effective. School leadership can guide by creating data teams, supporting collaboration among colleagues, and training and support for all stakeholders (Schildkamp et al., 2017). Schildkamp et al. (2017) found that when a data team coach explained and monitored the process, team members were more effective and steps were not skipped or overlooked. Hubers et al. (2017) stated that school organizational routines were an important organizational characteristic of DDI. These

routines include the superficial structures of the school that support how school staff interacts with each other. These routines also had what data were being used, how the data were being used, and how data changed over time. Following this process could potentially lead to sustainable changes to data use in the school.

User characteristics relate to the people who use the data (Schildkamp et al., 2017). These characteristics include administrators, teachers, and coaches, the main participants in data teams. Knowledge on the part of the data team members results in the team working effectively. When team members come to the group to understand how to collect, analyze, and interpret data, the process moves along quicker. Schildkamp (2019) referenced a study where three districts adopted discussion protocols for data teams. These procedures were created to ensure that data discussions occurred and actions were taken to improve student achievement based on the discussions. The researchers found that teachers had a positive attitude about data teams. By using these practices, teachers could identify trends in the data with fellow teachers, reflect on the results, and then develop an action plan for student improvement.

Effective Use of Data

Teachers need to go beyond the numbers and make sense of the data to make data use more meaningful (Hora et al., 2017; Prenger & Schildkamp, 2018). For data to be effective, there must be a clear purpose for using the data. Kippers et al. (2018) described the importance of a clear purpose to show people their expertise and a shared understanding of the problem. The purpose of data could include identifying student needs, implementing subject-related support systems, differentiating instruction, or

modifying instruction (Farley-Ripple et al., 2021; Pak & Desimone, 2019). Using data, teachers can improve their reflection, identify strengths and weaknesses, and improve performance (Hubers et al., 2017). Through professional development programs, teachers can target student learning, teacher learning, and organizational change (Hubers et al., 2017).

Hubers et al.'s (2017) investigated if data team interventions would sustain the implementation of data use in schools. Teacher participation in data use was supposed to increase through professional learning opportunities and professional development. Six data teams were established in this study, and each group consisted of one to two school leaders, four to six teachers, and a data coach provided by the university. Data teams were to meet twice a month and participate in professional development to learn how to solve an educational problem in their school collaboratively. Each of the six data teams worked to develop school organizational routines for 2 years. In the third year, the data coach removed themselves from the meetings to see if the practices would be sustainable. While the data coach was actively involved in the data teams, organizational routines were in place, and teachers used data as they were trained. The study resulted in schools struggling with implementation and evaluation activities once the data coach was removed. Hubers et al. (2017) suggested that it could take 5 to 10 years before a school is completely transformed. This could mean that more attention needs to be focused on professional development and professional learning community training over time, giving teachers enough time and resources to implement data use effectively. Teachers must be

data literate for professional development and professional learning communities to succeed.

Data Literacy

Data literacy is the ability to gather and transform information into actionable knowledge where educators collect, analyze and interpret student data (Reeves & Chiang, 2019). When educators are data literate, they have expertise in using data in the classroom (Hora et al., 2017). In addition, data-literate educators have the time and resources to work with data appropriately and have leaders who support their endeavors. Data literate skills include understanding student strengths and weaknesses in collecting data, understanding the various reporting tools, and the ability to address achievement gaps found in the data (Beck & Nunnaley, 2020).

Data literacy requires three types of skills (Beck & Nunnaley, 2020). These skills include problem-focused skills, data-focused skills, and process-focused skills. Problem-focused skills are the ability to frame questions, identify problems, and find solutions to those problems. Data-focused skills are related to accessing data, generating information from the data, and interpreting the data. Process-focused skills are the collaborative aspect of data inquiry. Data literacy is more than just assessment data (Kippers et al., 2018).

Data-literate educators must connect data to practice, improving education (Reeves & Chiang, 2019). When educators can connect data to practice, they tailor instruction to student needs at the individual, small-group, and whole-class levels. Beck and Nunnaley (2020) completed a literature review of a continuum for data literacy for

teachers. The study found that when teachers create and score assessments, they engage more with data literacy for teaching and understand the steps of being data literate. The United States, however, does not give this opportunity to teachers.

Data literate educators can also identify personal needs that can be addressed through professional development. When using data effectively, it is essential to know what data to use, its purposes, and who will be using it (Park, 2018). Data should validate teacher understandings of students' strengths and weaknesses and change student grouping, allowing for flexible grouping (Park & Datnow, 2017).

Teachers are expected to use data to guide the differentiation of instruction; however, much of their instructional focus is on struggling students (Park, 2018). The No Child Left Behind (NCLB) act, approved by U.S. Congress in 2002, could cause ability grouping that focuses on students that perform below the proficient level on state testing. Much of the work has also focused on students considered "bubble kids," including suitable students at or below the proficient line. It is essential to understand that differentiated instruction needs to be fluid and ever-changing based on individual student needs around specific content, not just on a particular group of students (Park & Datnow, 2017). Data literate educators know how to use assessment data for all students, focusing on equity. A case study performed by Datnow and Park (2018) on two elementary schools found that when the data team discussed all students, instead of students falling just below the proficiency levels on assessments, equity was achieved along with shared responsibility and higher test scores.

Data literacy includes using assessment data to help teachers plan lessons, identify reteaching needs, and differentiate instruction (Park, 2018). Various assessments, including teacher-generated assessments, common assessments, benchmark assessments, and norm-referenced assessments, are essential when gathering student information. Benchmark assessments are used most when working with data. Benchmark assessments focus on student knowledge of material covered in a limited time frame. This type of assessment is easy to aggregate and use for instructional decisions (Park, 2018). There are many assessments that teachers may be required to aggregate but are not readily available and may not relate directly to the standards covered in the classroom (Cech et al., 2018). Large-scale assessments generally are not as valuable for the teacher or student (Mason et al., 2019).

Stakeholders must receive assessment education to effectively understand various assessments (Dunlap, 2018). Teachers that understand how to use data effectively use more than one type of assessment to determine student achievement (Park, 2018). Classroom assessments and class assignments are more meaningful to teachers. When data is closely connected to classroom instruction, teachers can make sense of them positively. Teacher-created assignments and assessments give more helpful information because they relate directly to the content covered in the classroom, allowing for quick and meaningful instructional changes (Park, 2018). Teachers can then use the information gathered from data in professional learning community meetings and when participating in professional development.

Kippers et al. (2018) studied six schools using a one-year data use intervention plan to solve an educational problem. The results showed that educators developed strong data literacy skills and found it essential to provide professional development opportunities for teachers to improve instruction at a higher level. This study identifies the importance of professional learning communities and professional development in using data in the classroom.

Professional Learning Communities

Professional learning communities (PLCs) provide a structured time for teachers and administrators to discuss data reports and develop a plan to use the data to support student learning (Hora et al., 2017). PLCs are the best way for teachers to learn to use data if structured effectively (Datnow & Park, 2018). Effective PLCs should have a common goal, focus on student learning, allow for teacher collaboration, and promote reflective inquiry, analysis, and interpretation of data (Bolhuis et al., 2019).

One disadvantage to teachers is that there is not enough time to work with data to its full potential in the school day. The administration should block instructional planning time where valuable discussions occur (Johnson & Matthews, 2020). Educators must have time and resources (Reeves & Chiang, 2019). Teachers are more likely to use data if supported (Schildkamp et al., 2017). Administration can create data teams where teachers learn to collaborate. Collaboration allows teachers to discuss student learning, identify instructional strategies, create goals for each other and students, and share personal knowledge (Park, 2018). Data teams have proven effective for teachers when working

with data because teachers feel supported. Teachers also believe they have some control in implementing DDI (Prenger & Schildkamp, 2018).

Teachers' professional knowledge must include data-driven decision-making practices (Walker et al., 2018). Teachers were allowed to discuss data with colleagues, strategize about pedagogy, and see student achievement gains and higher quality teaching (Park, 2018). When educators construct knowledge socially, they have a higher confidence level when working with data (Bolhuis et al., 2019). PLCs foster a culture of inquiry that promotes thoughtful data use (Park, 2018). Collaboration allows teachers to work together to solve problems within their schools using the data collected from their students (Schildkamp et al., 2019). This process allowed teachers to discuss how to teach differently (Beck & Nunnaley, 2020).

The common factor that emerges from the literature on professional learning communities is collaboration. When teachers are given the time to discuss data, they become more confident, increase their knowledge, and share successful classroom strategies that help other teachers (van Geel et al., 2017). The administration helped create a data culture within the school that embeds organizational norms and routines where teachers are given time to invest in their personal growth (Hora et al., 2017).

One case study found that administrators must value using data appropriately for student improvement (Datnow & Park, 2018). This study consisted of fourth and fifth-grade teacher teams that met together over a two-year period, where observations of data teams and interviews with teachers were conducted. The main goal of this study was to understand if the data teams focused on instructional improvement but also found a focus

on administrative compliance that interfered with the team discussions. For example, one teacher described how the team discussed how a lesson would be conducted in class and what the teacher would be looking for in the lesson for mastery. However, the principal interrupted the explanation to discuss testing procedures and compliance, which took up a significant amount of time for the group to discuss student achievement. The teacher explained that this caused her to not get the feedback from the team she had hoped to receive. This case study showed the importance of administration valuing organizational norms during data teams.

There are various ways teachers can use data to help students grow academically and master required standards (Schildkamp et al., 2017). For example, teachers can set learning goals for students, identify skills students have not got, and determine student progress. They can also tailor instruction to student needs, set the pace of lessons, group students for maximum instruction, identify lesson content to reteach, and evaluate why students make mistakes. When teachers can do these things, they are considered data literate (Bolhuis et al., 2019).

Accountability and Policy

Teacher accountability and policy requirements have harmed data use in the classroom. Through NCLB Act, teachers have been expected to work with data to help students reach targeted performance goals based on state assessments (Roegman et al., 2019). Schools have then been held accountable for student performance, which has led to schools using data for teacher accountability (Schildkamp et al., 2017). Roegman et al., 2019, completed a case study at one high school over two years. The researchers

questioned math and science teachers on their use of data to drive instruction and how accountability factors play into their use of data. Roegman et al. found that teachers with an average of 22 years of teaching experience had adverse reactions to using data in their classrooms to drive instruction. These teachers felt their data would not impact student learning, only meeting accountability requirements. Reward and punishment systems were created based on standardized testing outcomes, which bred resistance to data-driven decision-making (Reeves & Chiang, 2019). Data use systems were designed by district administrators, which led to professional learning communities and reporting guidelines (Roegman et al., 2019).

School leaders must build a positive relationship between teachers and policy when using data to drive instruction (Roegman et al., 2019). School leadership can intentionally frame data and remain transparent about using data to improve classroom instruction. State assessments are valuable to teachers and students when the assessments identify instructional decisions based on student learning needs (Roegman et al., 2019).

Implications

Completing a study on DDI in the classroom may provide administrators an understanding of strategies teachers use to increase student mastery of standards set by the state—understanding if or how teachers use data can shed some light on what administrators can do to support staff in the implementation of data use. Teachers must interpret data accurately for student improvement (Reeves & Chiang, 2019). The data gathered in this study may clarify teachers' interpretation of the data they use or have available. Then, professional learning communities could be tailored to teacher needs.

The data collection site uses professional learning communities to drive instruction. This study could provide administrators with an understanding of how effective the PLCs are for teacher implementation of DDI—finding out if data is a priority and if a shared vision in the study site could also become visible. Leadership must provide structural support for the implementation of data use (Schildkamp, 2019). The literature gathered from one study, referenced by Prenger and Schildkamp (2018), suggests that using data teams enhances the effectiveness of data use. Data teams could be an option for administrators, based on the findings in this study.

Summary

DDI has become a strategy that districts use to improve education in our country (Schildkamp et al., 2019). Data is gathered from various assessments, including benchmark, interim, teacher-created, common, and norm-referenced assessments (Park, 2018). However, the problem in schools is that it is difficult for teachers to take examinations and turn the data into usable information to improve instruction and student learning (Hora et al., 2017). Section two of this study describes the study's methodology and how participants were selected.

Section 2: The Methodology

I employed a basic qualitative design to address the research questions in this study. Using this approach, I understood the participants' experiences (see Ravitch & Carl, 2016). I used interviews to collect data to answer the research questions. The research questions for this study include: What experiences do elementary teachers at a local southern public school have when working with data-driven instructional practices? and How do elementary teachers in a local southern public school perceive the use of data-driven instructional practices in their classroom? I used this design to understand individual participants as they answered the interview questions related to the research questions (see Nassaji, 2015).

Research Design

I used a basic qualitative research design during the data collection process. I understood how the participants make sense of data collection and use it in their educational setting (see Burkholder et al., 2016). A qualitative research design refers to anything that does not pertain to numbers (Thorn, 2000). The researcher can uncover information about how people think and feel about the topic of study when using this type of research design (Ravitch & Carl, 2016). I decided to use a qualitative design instead of a quantitative design.

There are various qualitative research designs, including ethnography and grounded theory. Neither of these designs fit with this particular study. Ethnographic qualitative studies involve studying a cultural group, where the researcher lives within the group observing, describing, and documenting behavioral patterns (Merriam & Tisdell,

2016). Observation of cultural group behavioral patterns was not part of this study. Grounded theory is a qualitative study that develops a theory based on research gathered during the investigation (Merriam & Tisdell, 2016). I used the learning target theory of action as the basis of my research. I focused my study on what teachers understand about data-driven instruction, and the research questions are best answered with human lived experiences (see Ravitch & Carl, 2016).

I used interviews with teachers in this study to gather data for RQ1 and RQ2 (Appendix D). By conducting interviews, I gathered data on participants' experiences related to the research topic, and I was able to obtain a more direct approach to gathering data (see Heale & Twycross, 2018; Ravitch & Carl, 2016). I also used a semistructured format while interviewing the participants. Through a semistructured interview format, I could ask several vital questions and follow-up questions to understand a response more clearly. Participants were allowed to elaborate when answering questions (Gill et al., 2008).

Since interviews were the primary data collection method, I used audio recordings for accuracy and notetaking during the interviews. I transcribed the interviews and used open coding to identify common themes (see Burkholder et al., 2016).

Participants

The participant pool for this study included 10 current elementary teachers in grades kindergarten through fifth grade in South Carolina. By using small sample sizes in my qualitative research, close contact between the participant and myself allowed me to gather detailed, rich, and extensive information (see Moriarty, 2011). I used purposeful

sampling to select participants who teach in grades kindergarten through fifth grade. Purposeful sampling is the selection of participants with knowledge or experience in the topic of study (Palinkas et al., 2015). Participants were teachers with at least 3 years of teaching experience in kindergarten through fifth grade to account for different teacher experience levels. Seventeen teachers in the school met the criteria for participation. Availability and willingness to participate are also crucial in purposeful sampling for the study (Palinkas et al., 2015). Participants completed a consent form agreeing to participate in the study before beginning the interview.

Inclusion and exclusion criteria are essential when designing research. Subjects are chosen for research projects based on inclusion criteria (see Connelly, 2020). I also excluded subjects from the study based on specific characteristics. For this study, inclusion characteristics included informed consent, three years of teaching experience, administration of district-required assessments, and a teaching position at the study site. Exclusion criteria for this study included refusal to give informed consent, fewer than 3 years of teaching experience, and inability to meet for interview sessions. Data saturation is the point in data collection where no new themes or categories arise during open coding (Francis et al., 2010). I used this criterion for data saturation because the number of available participants was more significant than the number of participants who qualified for the study. I achieved saturation after 10 participants were interviewed.

Data Collection

I received approval from the Institutional Review Board (IRB) for Walden University on February 14, 2022. The IRB approval number is **02-14-22-0742571.** I

submitted a request for consent to the district superintendent before sending all information to Walden's IRB. Teachers were selected based on study criteria, and a consent form was made available to participants at the beginning of the interview. Participation was voluntary, with a complete understanding of involvement in the study (see Babbie, 2015). Participants signed a consent to participate, in writing, to ensure respect for all persons involved. I included the purpose of the study, the participant expectations, ethical considerations, and researcher contact information on the consent form.

To ensure confidentiality, I changed all names to participant numbers in the narrative case study information (see Blumenthal et al., 2012). I do not work as a supervisor or administrator within the district where the data were collected. I gathered data as a colleague of the potential participants, with our relationships conducive to a positive researcher-participant relationship. In addition, participants understood that their participation was voluntary, and they could refuse to answer questions or terminate participation at any stage of the study.

After receiving approval from the Walden University IRB, the district superintendent, and informed consent from the teachers participating in the study, I began collecting data. Informed consent refers to acknowledging the nature of the investigation by the participants and the agreement to participate in the study (Lambert, 2012). Data collection is the process used to collect data and the interactions with participants (Ravitch & Carl, 2016). I was the primary instrument in collecting data for the study.

The researcher needs to understand that the participants are the experts of their own experiences and must be valued throughout the process (Ravitch & Carl, 2016).

I collected data through a semistructured, one-on-one interview with each participant. Each interview lasted 30 to 45 minutes. Interviews are discussions with participants where the researcher gathers information related to the research questions about the participant (Blumenthal et al., 2012). Interviews could be structured in three different ways. These included structured, unstructured, and semistructured interviews (Lambert, 2012). For this study, I used a semistructured interview. Semistructured interviews combine the structure of a list of questions used during the interview process to cover the essential concepts based on the research questions. However, there is the freedom to follow up with additional questions for the participant (Blumenthal et al., 2012).

The data collection instruments and sources included audio recordings of the interview, interview schedule and questions, interview notes and transcripts, and text coding of the transcripts. When using interviews in qualitative research, researchers can explore the participants' attitudes, opinions, and feelings and discuss these with the participant (Lambert, 2012). However, there are disadvantages to interviews. For instance, the researcher could be drawn into an agreement with the participant and lose neutrality, or the interview could go off-topic due to the enjoyment of talking (Lambert, 2012).

I used a published recording-to-text application to transcribe the interviews. Transcribing is more reliable than taking notes during interviews because transcripts are

considered real-time data (Ravitch & Carl, 2016). I used open coding after interviewing the participants, identifying common themes that emerged from the interviews (see Kaiser & Presmeg, 2019). For example, open coding allowed me to identify potential types of assessments, potential tools that teachers use to evaluate assessments, and school organizational characteristics that support data-driven instruction. I could also identify the classroom's lack of assessments, tools, and school organizational characteristics when using open coding.

I used an automated transcription service to code the audio recordings of the interviews. These tools allowed me organized systems for keeping track of data. I also used a secure data management system to keep all research material. I used word documents to transcribe interviews and a user-friendly system for easy access to data, including numbering each transcript, numbering each page of every transcript, and numbering each line of every page (see Ravitch & Carl, 2016).

Each participant was assigned a letter to ensure confidentiality, and all data were stored on a password-secured computer in a secured folder. Assigned numbers allowed me to provide the anonymity and privacy of participants (see Lambert, 2012). Researchers must not share any raw data during the data collection process. Data should only be shared after analysis. I will store data for 5 years, following the completion of the study, in a personal home safe. This data include all written accounts, audio recordings, and word processing files. I will delete and shred all data at the end of the 5 years (see Lambert, 2012).

Role of the Researcher

My role in this study was to collect, analyzing, and interpret the gathered data. The researcher is the primary collection instrument in qualitative research and must adhere to ethical principles and guidelines (Ravitch & Carl, 2016). Designing interview questions, selecting and contacting participants, recording and coding interviews, and identifying themes are just a few of the roles of a researcher. As the researcher, my past and current professional roles played an essential part in collecting data. I have been teaching for 25 years in various grade levels. I have taught all grades, kindergarten through eighth grade, during my career. I have participated in professional development opportunities that focus on data-driven instruction and have been responsible for guiding teachers in using the instruments created by the district when using data to drive instruction.

Currently, I am a fifth-grade teacher in a school of inquiry where data-driven instruction is an area that is being incorporated into the school instructional model. This study took place in the school where I currently teach, meaning I had a relationship with the participants. I do not hold a position of authority in the school, which should not have affected data collection. As with any research, there are some potential biases. First, I have had some professional development on data-driven instruction through the district and know what teachers were expected to do in the past. These personal experiences could have caused a bias toward what teachers should already be doing in their classrooms. Researchers must maintain focus and keep feelings from interfering with the research (Lambert, 2012). Second, there must be full disclosure on the purpose of the

data and how it was used. I informed participants that the interviews were only being used for research purposes, not as an evaluation.

Data Analysis

Qualitative data analysis focuses on what participants say, how they say it, and the context of the discussion as they share their thoughts and experiences (Ravitch & Carl, 2016). I found that audio recordings ensure accurate analysis when gathering data during interviews. I transcribed the audio recordings using current software and coded the transcripts using relevant software. Once the interviews were coded, I identified themes. Analyzing studies involves describing the emergence of findings and comparing themes (Burkholder et al., 2016). A study's description involves answering the questions about who, what, when, and where. The emergence of findings is the formation of themes or categories identified in the raw data. Finally, I identified comparisons across themes.

Accuracy and Credibility of Data

Research accuracy and credibility are essential components of a solid qualitative study (Liao & Hitchcock, 2018). Researchers can assess methods and understand how a researcher reached their findings through transparency (Ravitch & Carl, 2016). I included detailed descriptions of how the study was carried out to ensure transparency. My conclusions were backed up with evidence from the interviews. I also used multiple data collection methods, including audio recordings and member checking. Member checking is a procedure in which participants are given a copy of interview transcripts to verify and correct information, allowing for participant validation (Ravitch & Carl, 2016). After the

audio recordings were transcribed, I gave each participant a copy of the transcript to review. Participants had no corrections after they received the transcripts.

Discrepant cases do not fit into any particular coding pattern (Ravitch & Carl, 2016). Researchers must look for these specific cases and address them as needed. I searched for and identified any discrepant cases as the data were evaluated. I described discrepant cases found in the study in the data analysis section.

Data Analysis Results

A public elementary school in South Carolina created a strategic plan where teachers were expected to use data from assessments to increase student performance on required assessments. The purpose of this study was to explore how elementary teachers use data-driven instruction to guide classroom practices. Through this study, I understood the experiences elementary teachers had when working with data in their classrooms. To collect data for this study, one-on-one interviews were conducted with ten classroom teachers in Grades K–5. I asked twelve teachers to participate in the study and told them they would be contacted if an interview was needed. After 10 interviews, I reached saturation and no new information was gathered.

The interview consisted of 14 open-ended questions, allowing the participants to share experiences and perspectives on data-driven instruction. Before beginning the interview, the participants were asked to sign the consent form. I allowed the participants time to read over the consent form and ask any questions. Once the consent form was signed, I began the interview. Each interview was recorded and transcribed using the

Otter software. As the interviews were being recorded, I was taking notes. Each interview was one hour or less in length.

I evaluated the interview transcriptions and cleaned them up for accuracy. I printed the transcripts and shared them with the participants. Participants were allowed to read over the transcripts and make any corrections. Through member checks, the accuracy of data quality was achieved. Printed transcripts were used to highlight repeated words and phrases. NVivo software was used to create codes and develop themes. The terms and phrases were placed on notecards and sorted based on commonality. These words and phrases were used to create themes. The themes were then matched to the research question—Table 1 shows how the themes and codes were compared to RQ 1.

Table 1

RQ1: What Experiences Do Elementary Teachers at a Local Southern Public School Have When Working with Data-Driven Instructional Practices?

Themes	Codes
Theme 1: Teachers have experience collecting a wide range of data when assessing student performance on grade-level material.	Anecdotal notes (Kid-Watching) Tests Quizzes Checklists
Theme 2: Teachers have experiences using data collected to drive classroom instruction.	Small Groups Pacing of lessons Remediation Reteaching
Theme 3: Teachers have experiences determining instructional strategies after gathering data.	MAP learning continuum Collaboration with other teachers Using various modalities Retest using a different tool PLCs

Theme 4: Teachers have experiences meeting the needs of students to improve student learning with data that was collected.	Grading in front of students to correct misconceptions Clarify questions Pretests Various modalities

Table 2 shows the themes and codes related to RQ 2. This research question focused on teacher perceptions of data-driven instructional practices in their classroom and their feelings about the helpfulness of administration. Each interviewed teacher described how helpful administration was when working with teachers and their use of data-driven instruction.

Table 2

RQ2: How Do Elementary Teachers at a Local Southern Public School Perceive the Use of Data-Driven Instructional Practices in Their Classrooms?

Themes	Codes
Theme 1: Teachers perceive challenges when working with data-driven instruction.	Inaccuracies Beyond grade-level standards Not a quick turn around Accountability
Theme 2: Teachers perceive the administration's support to be helpful when using data to drive instruction.	Provide resources Supportive Collaboration

Findings

In this section, I report the findings of the study. During the coding process, I identified six themes with 23 codes. Each theme was matched to the research questions. The findings of each research question are summarized, and examples from the interviews are provided. A total of ten interviews were conducted, with each participant numbered according to the order of the interview.

RQ1

I asked teachers what experiences they have when working with data-driven instructional practices through the interview questions related to RQ1. These questions

relate to the conceptual framework for this study, the learning target theory of action. Teachers described their instructional decisions based on an assessment process used in their classrooms. Four themes were developed from these interview questions to answer the research question. Each theme highlighted teachers' various experiences when using data in their classrooms.

Theme 1: Experiences When Collecting Assessment Data on Grade-Level Material

For Theme 1, experiences teachers have with collecting assessment data on grade-level material, the most occurring codes included chapter tests, quizzes, formal assessments, and observations. Participant 1 described how she uses pre-assessments to gauge her students and where they need to go. She said, “Usually, I’ll do some sort of pre-assessment to gauge where the knowledge my kids have to see how far back we need to go. And then that will kind of guide where I need to start.” Participant 2 described how she uses observations as her primary data collection form. She starts with a checklist with the students’ names listed. She then puts a check beside the student’s name if they mastered the skill, a check minus if they seem to be struggling, and a minus if they just do not get it. She uses this checklist to determine how she will proceed with her instruction.

Participant 6 also described how observation was the most used data collection tool that she used. Nine of the ten teachers interviewed described the importance of using anecdotal notes (observations) to gather data on their students. Participant 8 stated:

> I take down notes throughout the whole day. I take notes while they are at the guided reading table, and I take notes while they are in the writer's workshop. I keep a notebook where we jot down our notes.

She has a three-ring binder with sections created for each student. After she writes her observations on sticky notes, she places them in the section for the student she wrote the note about.

The lower-level teachers used running record data, guided reading group notes, and small group observations to assess students. The upper-level teachers described using more classroom assessments to evaluate student performance. Participant 2 said, "I will use data from assessments like our chapter tests or our quizzes that we do." Participant 9 said, "We assess, usually at the end of the week, with a formative quiz and our homework."

Through the questions related to this particular theme, I found that only three of the ten participants had a formal way of keeping up with data collected through observations. Participants 2, 8, and 10 were able to show me how they collected their data and how they used it to drive instruction. The other seven participants said that they kept their information in their heads. They could not show me evidence of how they kept up with information collected while observing students. Communicating effectively with administrators and parents may not be as detailed and helpful for driving instruction without appropriate documentation of student progress.

Theme 2: Data is used to Drive Classroom Instruction

The main codes found in Theme 2, data used to drive classroom instruction, are small groups, the pacing of lessons, reteaching, and remediation. Participants 1, 2, and 9 stated that they like to go over tests with the students right after they are taken. Participant 1 said she likes to go over assessments, discuss questions that most students missed, and correct any misconceptions. Participant 2 grades assessments, puts them in order by score, and pulls students one-on-one to clear up misconceptions. Participant 3 said, "You have to look at their data to where they are and pick up from there and move them to where they need to be. I use data all the time, to differentiate instruction."

Participant 10 stated that once tests are given, graded, and recorded in the gradebook, the tests are aggregated to see which problems are missed most and by who. This information is used to pull small groups during workshop time. Participant 4 said, "Data helps me make sure that I'm not just always teaching to those mid kids. I'm looking at my lower kids, then my higher kids, those kids that always get left out." Participant 5 described how she uses data once students have completed them. She said, "First, I review them and see what I have taught well and not taught well, because if everyone missed it, then it's not the content, it's me."

Theme 3: Determining Instructional Strategies after Gathering Data

The main codes in Theme 3 include MAP learning continuum, collaboration, modalities, PLCs, and retesting. Several participants said that they use different approaches to teaching material. They may need to switch up activities between visual, auditory, and tactile means. Participant 7 stated that when determining teaching strategies, "it might just be different approaches needed to teach something. Sometimes it

might be just more exposure to it, that it's maybe a concept that's a little more difficult. Sometimes it might be kind of more of a spiral that it might be something I'll review over the next few days."

Participant 3 discussed the importance of using the MAP learning continuum when deciding what to teach her students. She said the school had spent many meetings discussing using MAP data to teach students. She said, "It has really hit home with me about looking at those MAP scores and seeing where they are, what their lowest score is, and what I need to cover to bring them up to grade level." Participant 4 said:

> When I think of some of my MAP scores, I look at where my kids did really well in reading, but math was not as good. I know I just need to put in a little bit more time in my day for math.

She also described how she uses multiple approaches to reaching her students.

Participant 1 discussed how the school used PLCs to help teachers with instructional strategies. She said:

> I think we had a PLC on the writing from last year. Looking at the kids who I thought were good writers and seeing what they scored, that was really kind of eye-opening. I guess it was just kind of eye-opening to see how it was scored. It helped me focus on what areas they missed or why they made the score they did.

She said having conversations with other teachers and administration was very helpful when deciding what to teach.

Theme 4: Meeting the Needs of Students to Improve Student Learning

Theme 4 uncovered codes, such as grading in front of students, correcting misconceptions, clarifying questions, pretests, and modalities. Participant five teaches second grade, and she said:

> The main goal is to just give them what they need, like find where there is a hole and fill it. That's done with one-on-one instruction, small group instruction, and peer instruction. A whole lot of scaffolding is needed to meet them where they are. We don't expect fish to climb trees. Just let everybody be where they are and grow them from there.

Participant 6 said she believes in using a variety of activities and is a firm believer in learning styles. She said, "I try to have a variety of activities that pinpoint all of those different needs."

Participant 9 said that meeting the needs of all students is probably one of the hardest things to do because there are so many different levels in one classroom. She explained how she would pull individual students and ask them questions they missed on a test to see what the misunderstanding could have been and see if that clears up misconceptions. She also said that she has to be aware of how the students react to the lesson and change her teaching strategy so students can understand. Participant 4 said:

> I definitely go back and make sure instruction matches the needs of the kiddos. And then, over time, we go back and reassess some of the required data. I have that data to go back and look and see what worked and what didn't work. And then we just regroup. If you monitor your kids throughout the day and throughout

the week, between those, you have a good feeling of how they're going to perform or what their needs are.

RQ2

RQ2 focused on determining how teachers perceived the use of data-driven instruction in their classrooms. Two themes were developed from the interview questions to answer the research question. These themes relate to teachers' perceptions of challenges in the classroom and administration support when using data in the classroom.

Theme 5: Perceived Challenges When Working With Data

Theme 5 uncovered four codes: inaccuracies, accountability, delayed information, and beyond grade-level standards. Participant 8 said she doesn't like that some test results take so long to get back to the teacher. She said, "Sometimes the results don't come back until the next school year, and that is not helpful at all." Two participants expressed concerns about students who struggle with testing in general and do not do well on required assessments, like MAP. Participant 5 said, "The only challenge I've ever experienced is when you know that a child isn't getting it, but you can't figure out where the gap is coming in." She stated that some of her students understand the material one day, but then do not perform well on assessments or do not know the material a day or two later. She also said, "The children who aren't here often miss assessments, and you don't know if it's because they genuinely don't know or because they haven't been to school enough days to actually get the content."

Participant 7 voiced her concerns about the outliers, as well. She said:

> The outliers tend to be the big thing that really bothers me. Sometimes I wish we had a way of just saying, wait a minute, is the kid just a bad test taker? or do they just not know the material?

Participant 1 also said that she struggled with an outlier who just does not understand what is being taught or when she thinks the student understands, and then they take the assessment and do not do well. She said, "That sort of stuff kind of makes you question things."

Participant 2 said that she struggled with the test being accurate. She noted that circumstances at home could cause students to perform poorly on required assessments. She said:

> Maybe the night before, their mom and dad were arguing, and the student came to school with that on their mind. They are not going to care about the test. The powers that be just get that snapshot of the kid, not the whole child.

She explained that students are not allowed to retake the necessary tests for accountability just because of a bad night. She said that this is not an accurate test for this particular student.

Participant 9 also said that one challenge she faces is the accuracy of the test. She said:

> Fifth graders are notoriously emotional. If they happen to be having a bad day or mad at their teacher for some reason, then you're not getting good data because they're not trying their best. It is just a test taken on one day. I don't know if that is really reliable data.

Five of the ten participants said their challenges made them not want to use data in their classrooms. Participant 7 noted that it was discouraging because teachers are held accountable for student performance on one piece of data. Participant 5 said she sees the value of using data, but using data for job security makes her not want to use it sometimes. She described how one student took the MAP test in 12 minutes. The student had 54 questions to answer, and she felt this child's score was not a true reflection of what the child knew. Participant 9 said that the challenges she described make her not want to use data. She did say that not all data is bad and that her classroom assessments are more valuable than state or district-mandated assessments. Participant 8 noted that state and district requirements put too much pressure on students and she does not like using those assessments for that reason. She also felt that MAP testing was unreliable because it tested students outside their grade level and held them accountable for making unrealistic gains.

The other five participants did not feel that the challenges they presented had caused them to discredit the value of using data in their classrooms. Participant 2 said that she would never stop gathering data and looking at it to improve student learning, but she does not like the pressure teachers and students feel when district and state assessments are given to students. She said that these types of evaluations are never going away. Participant 1 said:

> I like the visual that the data gives me. I like looking at something, analyzing it, grouping it, and color-coding it. I like making that plan. Even though you get

> frustrated, it leads to communication with other people, other grade levels, or administration asking for advice.

Participant 3 enjoys using the data. She said she likes comparing data gathered and seeing how students have grown. She said, “Looking at data tells you many stories.” Participant 4 said that her challenges do not affect her using data. She said that she knows her students and what they can do. Participant 10 described how data was very effective in her classroom, no matter the challenges. She would still use data daily.

Theme 6: Perceptions of Administration Support

Theme 6 uncovered codes including helpful, supportive, and collaboration. The questions used to address this theme searched for teachers’ perceptions of the administration’s support of data-driven instruction. All ten participants felt that the current administration provides support and tools needed to use data in the classroom. Participant 5 said:

> Our school does a great job of just ensuring that we have the tools at our disposal. They’re not afraid to try new things or the best methods for the kids. They are not afraid to change something if it is not working.

Participant 9 said, “We have PLC meetings where we talk about data, and I feel like it’s a non-threatening environment.” Participant 1 said that she feels like teachers in our school get a lot of support from the administration. She said:

> During PLCs, they are there to help us break things down and understand what they look like, what we are looking at if it is something new. You can always go to one of the administrators and ask for help if you are stuck.

Participant 2 said the support is fantastic. She shared:

> I can't even put it into words because I have experienced it both ways. You know, where you were not trusted, and you were made to feel like you couldn't make those decisions on your own. Now, they're like, you do you. Do what you feel is best for your students. That really means a lot to me, it makes me want to work harder, and it makes me want to just be the best that I can be.

Discrepant Cases

There was only one discrepant case in this study. Participant 6 stated that she had no desire to use formal assessment data like MAP and state testing results in her classroom. She said, "Number things are just really not my thing. So, whenever we collect data from the principals, and then the meetings to discuss the data, is just a little too much for me." She was the only participant with no desire to look at assessment numbers.

Section 3: The Project

Introduction

This qualitative study was carried out to find the data-driven instructional practices of teachers at the study site. Based on the study findings, teachers used various formative assessment data to drive classroom instruction. However, many teachers did not have a system for documenting their data. These findings indicated a need for developing a 3-day professional development (PD) workshop focusing on how best to collect, record, and use data from formative assessments. The PD is titled "Collecting, Recording, and Using Formative Assessment Data." The information presented in this PD workshop will benefit kindergarten through fifth-grade teachers in all subject areas. With district and school administration approval, the 3-day PD workshop will be held in the fall of 2022.

The main goal of this PD is to provide teachers with various ways to document formative assessment data. Throughout the training, teachers will have the opportunity to develop a deep understanding of the various ways to collect and record data in day-to-day classroom activities. Teachers will also have the chance to practice collecting data, documenting their findings, sharing their thoughts, and planning instruction from the results. Finally, teachers will have an opportunity to create data collection methods that work best for their classroom and their students' learning goals.

The following learning outcomes will be addressed in the 3-day, face-to-face PD. These outcomes align with the findings from section two of the project study. The learning outcomes include:

- Goal 1: Teachers will explore the purpose of assessments related to classroom instruction.
- Goal 2: Teachers will explore the types of formative assessments used in an elementary classroom.
- Goal 3: Teachers will develop an understanding of the data-driven instructional cycle.
- Goal 4: Teachers will practice using the data-driven instructional cycle with formative assessment data.
- Goal 5: Teachers will practice creating tools for collecting classroom data.

Rationale

In this study, the interviewed teachers shared their data experiences used to drive classroom instruction. The themes that were revealed are detailed in Section 2. The study results show that teachers have experience collecting and using data to meet student academic needs. However, the teachers also revealed that they did not consistently use a documentation system when gathering formative assessment data. Therefore, teachers must create a plan for recording the results of formative assessments to make decisions about instruction pacing, reviewing concepts, and providing more practice (see Sindelar, 2015).

I created a project from this study that includes a three-day PD based on the findings and themes in Section 2. I will address how teachers can record information gathered while performing or evaluating formative assessments, focusing on purposefully collecting data in the PD. For example, the codes related to Theme 1 show that teachers

at the study site use various formative assessments to gather data. These assessments include observations, tests, quizzes, and checklists. I incorporated these codes into the PD, with suggestions on documenting important information that can drive classroom instruction.

During the 3-day PD, there will be a review of the teachers' types of assessments, identifying formative and summative assessments. After discussing the purpose of assessments and the different types, the PD includes tools teachers can use to gather formative assessment data. The PD will lead to understanding the data-driven instructional cycle and the tools used to guide classroom instruction. Finally, teachers will have the opportunity to create tools for collecting formative assessments that they can take back to their classrooms.

Review of the Literature

Introduction

Through this basic qualitative study, I aimed to explore the data-driven instructional practices of teachers in Grades K–5 in a South Carolina school. I created a 3-day PD to address the identified themes based on the research questions. The literature review is organized into four sections: professional development, collaboration, administrative support with data use, and formative assessments.

I accessed resources for this literature review through Walden University's library, Google Scholar, and Education Resource Information Center (ERIC). The sites I used provided the most current research on the five sections in the literature review. In addition, I used various search terms to gather information on the topics, including

professional development, collaboration, administration support of teachers, and *formative assessments.*

Professional Development

Students learn because of a culture of learning that teachers and other school personnel possess. Without this learning culture among adults, students cannot learn (Martin et al., 2019). PDs are one way to provide activities that build teachers' knowledge of student comprehension (Eroglu & Ozbek, 2021). In addition, PD opportunities allow teachers and administrators to evaluate their abilities, gain understanding, and increase their effectiveness in the classroom (Karacabey, 2020).

Student achievement has been the focus of education reform for a long time (Martin et al., 2019). Therefore, it is essential to create or plan PD opportunities that relate to the schools' needs and change the beliefs and practices of the professionals participatingwho participate in them (Karacabey, 2020; Martin et al., 2019). In addition, PD opportunities address problems that arise in the workplace (Karacabey, 2020).

Vermunt et al. (2019) referenced a literature review that described seven essential characteristics of effective PD. These characteristics include: addressing a problem within a practice, focusing on student learning, modeling and sharing practices, active teacher learning using inquiry, developing professional learning communities, a school goal-focused setting, and ongoing understanding among all stakeholders. Teacher knowledge and skills increase, and teacher beliefs, attitudes, and instructional practices change when a PD focuses on these characteristics. These changes can improve student learning (Vermunt et al., 2019).

Seneviratne et al. (2019) completed a literature review on the effects of PD on teachers' self-efficacy. The authors defined self-efficacy as the belief one has in their own ability to bring about the desired change. One crucial element that the research presented was that PDs allow teachers to improve their knowledge and practices, bringing about student learning changes. Teachers need time to implement what they have learned in their classrooms for this to happen.

Haug and Mork (2021) completed a study that focused on PDs that teachers find helpful. The authors identified five elements of effective PD. These elements include content focus, active learning, collective participation, coherence, and duration. First, content focus is the material that needs to be taught and how students learn that material. PDs must be linked to classroom instruction. Second, active learning engages teachers in practice that allows them to make connections between material in the PD and their classroom instruction. It is vital that teaching includes modeling for teachers to understand the material thoroughly. Third, collective participation groups teachers from the same school and same grade level to participate in building relationships and improving collaboration. Fourth, coherence provides teachers with information that matches personal beliefs, school curriculum, and goals. Finally, duration is the amount of time spent focusing on the information. Some PDs are short-term, and some are long-term. Haug and Mork (2021) stated that the more time spent implementing a PD, the higher the likelihood that teachers will participate.

Collaboration

Collaboration is vital in PDs because it focuses on peer communication (Sancar et al., 2021). Collaboration happens when teachers work and learn together for a common goal (Tallman, 2021). Collaborative environments are those in which teachers and staff work closely together to make decisions and share responsibilities toward a shared vision that focuses on improvement (Martin et al., 2019). Trust-building relationships between stakeholders are essential for collaboration in the school's professional culture (Garcia-Martinez et al., 2021). Schools have shown the value of teacher collaboration to improve the overall school and meet the needs of every child (Garcia-Martinez et al., 2021; Tallman, 2021). Reading and math scores tend to improve when teachers work collaboratively (Hargreaves, 2019).

Kolleck (2019) completed a study where she looked for the answer to the question: What motivates teachers to collaborate? Kolleck found that teachers were motivated by certain personal attributes and team behaviors through a systematic literature search. The literature revealed that teachers with a higher level of self-efficacy and who set goals were more likely to participate in collaborative activities. The author also found that age, gender, and experience contributed to the level of collaboration of the teacher. Through her literature review, Weddle (2022) found that collaboration positively impacts teachers, including decreased feelings of isolation, supportive relationships among peers, increased content knowledge, and more robust pedagogical approaches.

Not only are there positive impacts of teacher collaboration, but there are also negative impacts that may arise during collaboration (Weddle, 2022). There is a chance

of conflict, competitiveness, increased workload, and loss of autonomy. Weddle (2022) described how personal and group characteristics influence collaboration positively and negatively. The school and organizational structures can also affect how teachers work together.

Based on the data I gathered from this study, the PD I created incorporates teacher discussion and collaboration. Collaboration is essential for effective PD (Garcia-Martinez et al., 2021). Teachers can work together, build relationships, share personal practices, share beliefs, and construct new knowledge through practical PDs (Tallman, 2021). Teachers that work together place themselves in a position to share, reflect, and collaborate for the good of the classroom and school (Smith & Robinson, 2020). Teachers know that collaboration can positively impact professional practice (Garcia-Martinez et al., 2021).

Collaboration is linked to job satisfaction, as well. Teachers that work together in an environment where they share values, beliefs, and ideologies lack the feeling of loneliness that comes with isolation (Garcia-Martinez et al., 2021; Hargreaves, 2019). Group interactions create a place for collective thinking, problem-solving, dialogue, and reflection (Tallman, 2021). PDs are not the only way that teachers collaborate. Teachers can meet regularly to share instructional strategies for the benefit of other teachers and the school when participating in professional learning communities and common planning times (Smith & Robinson, 2020; Tallman, 2021).

Administration Support of Teachers

Administrators support teachers in various ways. Support is given by providing new teachers with mentoring programs, providing staff development for all teachers, providing help with parental issues, and providing personal and professional guidance in general (Martinez & McAbee, 2020). Administrators should show empathy, compassion, self-control, and self-awareness when working with teachers (Mahfouz, 2018).

Data gathered from this study addressed the need for further training on gathering informal data when working with students. Providing teachers with PD on formative assessment data collection was one way to address the need. The most valuable part of PD, including professional learning communities and common planning times, is the support of administrators. Administrators must create an environment for collaboration (Martin et al., 2019; Wang & Zhang, 2021). PDs should be centered around the needs of students and teachers, and the role that administration plays in creating these activities affect the motivation of teachers involved (Karacabey, 2020; Olsen & Huang, 2019). Principals who believe in and value PDs will have teachers that believe in and value PDs (Karacabey, 2020). These principals set the tone for how students and teachers work together in the educational setting (Martin et al., 2019).

Teacher job satisfaction has been linked to principal support (Olsen & Huang, 2019). Principals who recognize and support their teachers have a higher retention rate among staff, increase staff motivation, and see growth when evaluating student data (Karacabey, 2020; Olsen & Huang, 2019). Principal support includes learning alongside teachers, improving teaching conditions, mentoring, and providing structured

collaboration with and for teachers (Olsen & Huang, 2019; Park & Byun, 2021). Teachers are expected to discuss students and their progress, give suggestions to other teachers, and be willing to take advice. With the support of administrators, teachers are more likely to respectfully take guidance from their peers (Park & Byun, 2021).

The administration can build a positive school community by empowering teachers (Kiral, 2020). Empowerment gives teachers control to make decisions based on their professional knowledge. Communication between administration and teachers should be positive and reinforce the goals and objectives of the school, providing principals with the ability to engage with teachers. Collaboration is much more effective when leaders are engaged and provide positive support (Kolleck, 2019). Martinez and McAbee (2020) describe how positively recognizing the efforts of teachers in and out of the classroom can affect how teachers perceive administrators and the ability to retain teachers for more extended periods.

Formative Assessments

Formative assessments are a valuable part of data-driven instruction when used purposefully. Teachers collect information about students that drive classroom instruction using formative assessments (English et al., 2022; Lyon et al., 2019). A critical factor in using formative assessments correctly is that the information identifies learning goals and provides student feedback. Formative assessments do not compare students (English et al., 2022). All stakeholders are valuable in making formative assessments purposeful (Lyon et al., 2019). These stakeholders include teachers, peers, and students.

There are five critical components to the formative assessment framework. First, teachers must tell the students the lesson objectives and the criteria for success. Second, teachers provide students with opportunities to demonstrate an understanding of the lesson objectives. Third, teachers provide feedback based on information gathered to improve student learning. Fourth, students are encouraged to be a resource for other students. Finally, students are expected to take ownership of their learning (Martin et al., 2022). Leenknecht et al. (2021) describe the five components as; the teacher clarifying learning objectives and criteria for success, creating activities, discussions, and learning tasks for the students, the teacher providing feedback, and students being instructional resources for each other.

There are several barriers that teachers struggle with when using formative assessments to collect evidence of student learning (Lyon et al., 2019). First, teachers are unsure of what evidence to collect. PDs are one way to help with this barrier (Yan et al., 2021). PD on formative assessments can provide teachers an understanding of the importance of formative assessment data and increase teacher knowledge of pedagogical content. Another barrier to formative assessment use is the availability of tools (Lyon et al., 2019). Providing needed tools is where administrative support is most valuable. Teachers are more likely to embrace new ideas if they receive support from the administration (Olsen & Huang, 2019). Finally, teachers lack content knowledge. This knowledge refers to what the teachers are expected to teach and the understanding of how to design and implement formative assessments and how to move from interpretation to improvement (Lyon et al., 2019; Yan et al., 2021).

Student buy-in is a must in making the use of formative assessments successful. Students are the source of information, guiding teachers in differentiating instruction (Martin et al., 2022). When students work with teachers, they must be willing to analyze and own their learning (Lyon et al., 2019). Students must also be willing to work with other students. Student-to-student feedback and peer support will increase student achievement (Lyon et al., 2019; Martin et al., 2022). Feedback is one of the most potent factors in the effectiveness of formal assessments (Prashanti & Ramnarayan, 2019).

Formative assessments come in many forms and are usually informal (Martin et al., 2022; Yan et al., 2021). Student observations, student interviews, everyday question-answer activities, exit slips, short written assignments, self and peer assessments, classroom discussions, and interactive computer games are just a few of the various formative assessments teachers can use in the classroom (English et al., 2022; Martin et al., 2022; Yan et al., 2021). In addition, formative assessments positively affect student learning (Prashanti & Ramnarayan, 2019; Yan et al., 2021).

Project Description

This study shed some light on how teachers at a southern public school use data to drive instruction. The teachers' lack of data collection tools was one of the information from the interview process. With this knowledge, I created a three-day PD program. This PD will allow teachers to understand the importance of formative assessments and have time to develop tools for data collection that can be used in the classroom. This PD will require a face-to-face working schedule during the first three days of the school year or the last three days. In addition, the district where the study was conducted schedules PD

days at the beginning and end of the school year, where teachers have the opportunity to choose activities that relate to individual needs. Permission for the PD will go through the PD coordinator at the school. Once approval is granted, teachers will be notified and allowed to sign up for participation. The sessions may be recorded for teachers who were unable to attend.

Project Resources, Existing Supports, Potential Barriers, and Solutions

Resources for this PD include a computer device, either personal or school purchased, along with state standards for the grade level of the teacher participant. Chart paper, markers, sticky notes, and access to a copy machine are also needed for a successful PD. The state standards will be used during the last session for reference while creating classroom assessment tools.

The existing supports in the district are a valuable resource when carrying out PD activities. Existing support for this PD includes the time allotted by the district for teachers to get paid as if it were a regular school day. The PD coordinator will also be an essential support system for a successful program. School leaders must provide relevant PD that relates to the school and district mission, to the school goals, and is beneficial to the students (Martin et al., 2019).

There are some potential barriers when preparing for a PD. First, participation is voluntary. Teachers may not be interested in the topic, and the number of participants might not be enough to make the PD worth holding. One solution for this barrier is to provide free materials to take back to the classroom. Several books are used during the PD that teachers could use in their classrooms. By finding these resources for teachers,

they may be more likely to participate. Second, collaboration is a big part of making this PD successful. Some teachers may not feel comfortable with the amount of collaboration required for participation. Norms for participation could be created at the beginning of the first day so that teachers know the expectations. Also, an inquiry-collaboration description can be used to detail the type of PD teachers will receive if they participate.

Roles and Responsibilities of Involved Persons

Several influential individuals are involved in the PD presentation and implementation. As the presenter, I am responsible for gathering and presenting all materials required for the PD. Principals and teachers at the study site are responsible for attending and participating in the activities included in the PD. The participants must also work collaboratively and complete formative and summative evaluations.

Proposal for Implementation and Timeline

The PD will occur at the study site once district administrators give permission. In addition, project resources, such as chart paper, markers, sticky notes, professional reference books, and handouts will be secured through the PD office. They will be delivered to teachers in grades Kindergarten through fifth grade. The project timetable (Figure 1) includes various activities that allow teachers to collaborate and develop tools used in the classroom.

Figure 1

Daily Schedule for Professional Development

Time	Activity
8:30-9:00	Breakfast, socialization
9:00-9:30	Getting to know you activity
9:30-10:30	Purpose of assessments
10:30-10:45	Morning Break
10:45-11:30	Assessment Article Activity
11:30-1:00	Lunch
1:00-2:15	Types of Assessments
2:15-2:30	Break
2:30-3:30	Tools for Gathering Formative Assessment Data

Time	Activity
8:30-9:00	Breakfast, socialization
9:00-9:30	Getting to know you activity
9:30-10:30	The Data-Driven Cycle
10:30-10:45	Morning Break
10:45-11:30	Article Activity
11:30-1:00	Lunch
1:00-2:15	Practicing the Data-Driven Cycle
2:15-2:30	Break
2:30-3:30	Creating Tools for Gathering Formative Assessment Data

Time	Activity
8:30-9:00	Breakfast, socialization
9:00-9:30	Getting to know you activity
9:30-10:30	Focusing on Formative Assessment Documentation
10:30-10:45	Morning Break
10:45-11:30	Focusing on Formative Assessment Documentation
11:30-1:00	Lunch
1:00-2:15	Creating Tools for Classroom Use
2:15-2:30	Break
2:30-3:30	Creating Tools for Classroom Use

Project Evaluation Plan

Feedback compares previous information with new information (Wisniewski et al., 2020). Feedback is an essential part of any PD. I have planned post-surveys about the knowledge gained during the scheduled sessions with this knowledge. A survey will be given each day- at the end of the day. The final day will have a summative survey before the closing of the PD. Various formative assessments will be used to guide the process of PD.

Before lunch, participants will read an article and mark up the text on the first day, answering four different questions. Next, teachers will complete a Venn diagram, recording information learned from the article. After lunch, participants will create a project with all they have learned about assessments. These projects will be placed around the room, and participants will complete a gallery walk, leaving sticky notes on each other's projects. Participants will use the inquiry thinking stems posted in the room. I will take pictures of the projects to use to assess learning. There will also be a turn and talk session where participants share three things they learned, two things they are reminded of, and one question they still have about the material.

On the second day, the participants will read and complete an activity where they add what they have learned on a sticky note and add it to a piece of large chart paper. They will also have their daily surveys to complete. On the final day, participants will create formative assessment tools to take back to their classrooms. These tools will be shared with all teachers and administrators that attend the sessions.

Justification for Evaluation

The types of evaluations included in this PD are examples of how the participants can collect data in their classrooms. By modeling expectations, participants will see the value of the material taught in the PD. Allowing teachers to try new strategies and collaborate with other teachers positively impacts teacher practices (Smith & Robinson, 2020). The goals of the PD will be reflected in the daily surveys. The first goal of the PD will be to understand the purpose of assessments in the classroom. The second goal includes understanding and using various types of formative assessments used in the classroom. The third goal is understanding the data-driven instructional cycle. The fourth goal consists of the practice of the data-driven instructional process. The fifth and final goal is the creation of formative data collection tools. Overall, the evaluations received through this PD will provide the instructor, teachers, administrators, and district office person with information to address the documentation of formative assessment data in the classroom.

Key stakeholders include the PD instructor, teachers, administrators, students, and the district PD coordinator. The PD instructor is responsible for preparing materials, making copies, gathering needed supplies, evaluating surveys, and ensuring that participants are checked in and have all necessary materials before and during the PD. Principals and teachers participating in the PD are responsible for collaborating with others, completing assigned tasks, and submitting surveys promptly. The district PD coordinator is responsible for providing information about the PD to the school or district elementary teachers in Grades K–5 and any available funding for the PD. Students are

also important stakeholders in this project. They will benefit from teachers' understanding of gathering formative assessment data effectively, improving student test scores. When teachers participate in high-quality PD opportunities, the quality of education rises in the classroom (Eroglu & Ozbek, 2021).

Project Implications

The findings of this study provided many examples of how teachers use data to drive their classroom instruction. However, based on interview transcripts, it was apparent that teachers lacked the resources to document classroom data instead of having the information in their heads. To help teachers, I created a three-day PD plan. The PD was designed to help teachers understand the various formative assessment types, the data-driven instruction cycle, and how to develop tools to gather formative assessment data.

This project has positive implications for teachers that want to gather data about their students without using summative data, which is sometimes ineffective. The PD itself may provide teachers with various learning opportunities. Exposure to multiple learning opportunities helps teachers adapt to changes in the education field, increasing teacher effectiveness (Karacabey, 2020). The PD also provides teachers with various options to collaborate with others. Through collaboration, teachers work together, analyze their practice, learn new instructional strategies, and ultimately improve their practice (Smith & Robinson, 2020; Tallman, 2021).

Section 4: Reflections and Conclusions

In this section, I share my reflections and conclusions from writing and conducting a research project study. I share my thoughts on the project's strengths and limitations, possible alternative approaches, development and change, and conclusions. Based on the research and interview findings, I created a 3-day PD on formative assessment data.

Project Strengths and Limitations

After evaluating the PD project study, I realized several strengths and limitations. I found that the strengths of the 3-day PD shared in section 3 included an overall knowledge of formative assessments, their purpose and implementation process, and their potential impact on student success. In addition, the PD presents collaboration and reflection between all participants, allowing for intentional learning from each other. Also, teachers use the teaching strategies before taking them back to the classroom.

I also realized that there were some limitations to this PD. The timeline for this project suggests that teachers receive PD at the beginning of the school year. As a teacher of 26 years, I know the importance of having time at the beginning of the school year to set up my classroom, organize materials, and make the classroom welcoming to my students. Planning this type of extensive training may be overwhelming for some teachers.

Funding is another limitation of this project. This project could be offered before contracted days, but participation may be low if a stipend is not provided. Materials for

the daily activities will also need to be provided by the district for the PD to be successful. Without funding, this PD cannot take place.

Recommendations for Alternative Approaches

The district where the study took place has an extended school year calendar. Students attend school for 9 weeks and then have a 2-week intercession. One of the 2 weeks is used for remediation. When considering the scheduling of the PD, intercession weeks could be an option for providing teachers with PD opportunities. This would be contingent on funding.

Another alternative is to provide the PD during professional learning communities or faculty meetings. Teachers meet with administrators twice a month, after school, for faculty meetings, and twice a month, during planning, for PLCs at the study site. Part of the PLC and faculty meeting time could be used to implement the PD.

Scholarship, Project Development and Evaluation, and Leadership and Change

I have learned much about myself and my educational abilities through the doctoral process. Scholarly writing was one area where I saw growth during my journey with Walden University. Although I struggled with writing the prospectus, I grew as a writer. The alignment of problem, purpose, and research questions was an area of weakness, but everything seemed to make sense when I saw the connection.

I also learned how to schedule and hold interviews with colleagues and develop codes to understand the data collected. This process taught me how to communicate with others and build relationships outside the regular classroom. Maintaining an unbiased approach was a small barrier for me. I am very social, so I learned to step back and just

ask questions. I also had to be aware of how I wrote up the data, including only participant perspectives in the study.

While developing this project, I considered my experiences over the past 26 years of teaching. The study site showed a decline in student achievement over several years. I developed my problem, purpose, and research questions by asking the principal about what she noticed. In addition, I received much support from my first and second chairs, helping me grow as a leader and developing skills that I used to communicate with other teachers.

Through this project, I developed as a better understanding of the value of research, data collection, and planning. My goal is to move from a classroom teacher into a coaching position where I can use the knowledge obtained through this program to grow professionally. The presentation of this PD does not need to be limited to just the study site. Hopefully, the PD can be used district-wide to change teacher perspectives and grow an understanding of the value of formative assessment data.

Reflection on Importance of the Work

I enjoyed planning the PD created from the data gathered from my research. In addition, I learned the importance of interaction and collaboration while working on this PD. I also realized the importance of including professional reading in the activities after reading peer-reviewed journal articles during my doctorate journey.

My goal is to be able to carry out this PD at the beginning of the year with the teachers at the study site. I realized how much I learned from listening to others talk about classroom procedures when gathering data. These procedures taught me to create

new ideas and techniques for my future classes. I hope that the PD will do the same for my fellow teachers.

Implications, Applications, and Directions for Future Research

This project has positive social change implications by including strategies for teachers when working with formative assessment data. Through the interview process, it was apparent that teachers at the study site did not have documentation of information gathered on students while collecting data. Based on what I learned from collecting data, I created a 3-day PD on effectively managing and using formative assessments (see Appendix A). The PD also aimed to grow teachers' ability to collaborate and learn from each other.

The positive social implications may impact administrators, teachers, and students. Administrators may have more detailed conversations with teachers about students because teachers will have a collection of visible data. Teachers may be able to show administrators the information collected without trying to remember student performance. This information provides strong talking points between administrators and teachers. The collected data also impact student achievement because teachers can explain, in detail, what they recorded from classroom information.

This project study was created based on the learning target theory of action described in the first literature review. While completing the PD, teachers will practice skills that can be taken back to the classroom and used with their students. In addition, teachers will learn how to gather evidence from formative assessments and create plans to help students master skills that have not been mastered or new skills students are ready

to move to. These activities relate to the theory of action because teachers identify a problem, work with others to create a solution, try out the solution, and evaluate the effectiveness (see Argyris, 1997).

Future research could focus on implementing effective professional learning communities, a type of PD. The formative assessment data collection tools created in the PD are a start to constructive conversations among all stakeholders at the study site. Once this type of information is consistently collected and used in the classroom, a deeper understanding of the PLCs at the study site could be evaluated. Effective PLCs could relate to positive school improvement of student data.

Conclusion

With this qualitative study, I aimed to understand the data-driven instructional practices used by elementary teachers in Grades K–5 in South Carolina. Through this study, I developed an appreciation for research and scholarly writing as a way to present information to fellow educators. I also grew to understand the importance of perseverance. Doctoral work tested my commitment to completing a goal I set many years ago. Achieving this goal has also taught me to be a change scholar, looking for ways to improve one step at a time.

A 3-day PD resulted from this qualitative study, providing teachers with ways to collect, record, and use formative assessment data daily in their classrooms. The PD may create positive social change by providing teachers with ways to help students take ownership of their learning and improve student performance on state-required assessments. This PD was developed to help teachers achieve the following goals:

- Goal 1: Teachers will explore the purpose of assessments related to classroom instruction.
- Goal 2: Teachers will explore the types of formative assessments used in an elementary classroom.
- Goal 3: Teachers will develop an understanding of the data-driven instructional cycle.
- Goal 4: Teachers will practice using the data-driven instructional cycle with formative assessment data.
- Goal 5: Teachers will create tools for collecting classroom data.

This PD is the beginning of many changes in an elementary school setting when trying to improve student data. Teachers will be exposed to insight into productive collaboration and communication among their peers, learning to structure these in their classrooms. Hopefully, a plan for continued partnership will be created to support teachers in their goal to help children.

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Appendix A: Project Study

Collecting, Recording, and Using Formative Assessment Data

Purpose: To provide classroom teachers with various ways to document and use formative assessment data.

Rationale: Based on the interviews with ten classroom teachers, the teachers revealed experience collecting and using data to guide classroom instruction but did not have a consistent documentation system.

Goals:

Goal 1: Teachers will explore the purpose of assessments related to classroom instruction.

Goal 2: Teachers will explore the types of formative assessments used in an elementary classroom.

Goal 3: Teachers will develop an understanding of the data-driven instructional cycle.

Goal 4: Teachers will practice using the data-driven instructional cycle with formative assessment data.

Goal 5: Teachers will practice creating tools for collecting classroom data.

Timeline: This professional development will take place at the beginning of the 2022-2023 school year, with approval from the district professional development coordinator. Day one will cover goals one and two. Day two will cover goals three and four. Finally, day three will cover Goal five.

Day One

Session Outcomes
• Goal 1: Teachers will explore the purpose of assessments related to classroom instruction. • Goal 2: Teachers will explore the types of formative assessments that are used in an elementary classroom

Session Materials	
Facilitator: • Smartboard • Computer • Powerpoint • Construction Paper • Scissors • Markers • Colored Paper • Sticky Notes • Large Chart Paper • Handouts	Participants: • Computer fully charged • Pen • Paper

Agenda

Time	Activity	
8:30-9:00	Breakfast, socialization	
9:00-9:30	Getting to know you activity	

9:30-10:30	Purpose of assessments	
10:30-10:45	Morning Break	
10:45-11:30	Assessment Article Activity	
11:30-1:00	Lunch	
1:00-2:15	Understanding Formative Assessments	
2:15-2:30	Break	
2:30-3:30	Tools for Gathering Formative Assessment Data	

Collecting, Recording, and Using Formative Assessment Data

Kristi Tucker

Professional Development Purpose

- The purpose of this professional development is to provide classroom teachers with various ways to document and use formative assessment data.

Day 1 Agenda:

Time	Activity
8:30-9:00	Breakfast, socialization
9:00-9:30	Getting to know you activity
9:30-10:30	Purpose of assessments
10:30-10:45	Morning Break
10:45-11:30	Assessment Article Activity
11:30-1:00	Lunch
1:00-2:15	Understanding Formative Assessments
2:15-2:30	Break
2:30-3:30	Tools for Gathering Formative Assessment Data

Getting to know you

- Choose any of the materials on the table and create a flower describing you.
- Use as many materials as you would like but be sure that you are describing yourself.

You have 15 minutes to complete the task.

Getting to know you

- Find one person that you do not teach with and share your flower with them. (You have three minutes for you and your partner to share.)
- Find another person that you do not teach with and share your flower with them. (You have three minutes for you and your partner to share.)

Today's Goal:

Morning Session:

We will explore the purpose of assessments as they relate to classroom instruction.

What do we know/wonder chart

Answer each of these questions on a sticky note. Place your sticky note on the appropriate chart.

- What do you know about assessments?
- What do you wonder about assessments?

Let's look at our sticky notes. What do we notice? What do we wonder?

Why collect data?

Why do you as a teacher collect data on your student?

- Take a sticky note and write down one reason you collect data in your classroom.
- Add your sticky note to the chart.

Why collect data?

- Let's share our ideas...

There are three main reasons to collect data:

1. To answer a question
2. To provide evidence to support or refute a theory
3. To measure progress

Golden, 2018

Purpose of Assessments

- To inform instruction during and after lessons
- Confirm mastery
- Grades
- State report card data
- District data collection
- Teacher accountability

Any other ideas?

Dixson & Worrell, 2016

Break Time

Please return in 15 minutes.

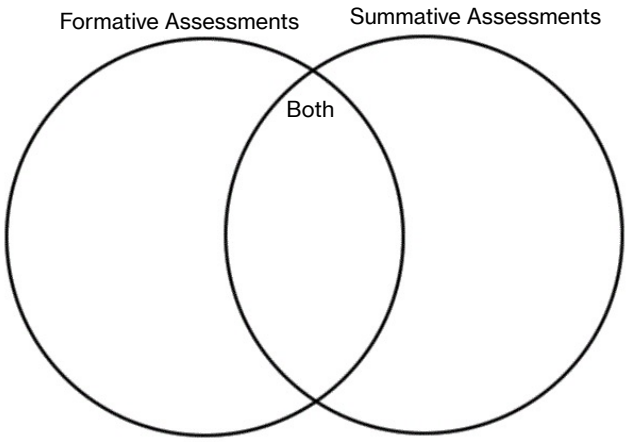
Let's read the article...

Garrison, C., & Ehringhaus, M. (2007). Formative and summative assessments in the classroom.

As you read, mark up the text asking yourself these questions.

- What do you want to ask the author of the text and why?
- What do you agree with the text and why?
- What do you want to argue with in the text and why?
- What parts of the text do you aspire to do and why?

Article Take-Away:



- Use the article to complete the Venn Diagram.
- Partner with someone you do not teach with and compare your information.

Lunch Break

Formative Assessments

What are formative assessments?

How can they help drive classroom instruction?

What instructional strategies do teachers use to formally gather data on students?

* Let's revisit our article.

Today's Goal:

Afternoon Session:

We will explore the types of formative assessments that are used in an elementary classroom.

Formative Assessments:

"Formative assessments give us feedback about our students' thinking and provide opportunities for us to revise instruction by making moment-by-moment decisions based on our ongoing assessments of our learners' current levels of understanding."

Sindelar, 2015

Gallery Walk

With your sticky notes in hand, go on a gallery walk.

1. Pick a starting point (three people to a group).
2. A timer will be set for two minutes. During this time, study the project.
3. When the timer goes off, take one minute to write your thoughts on a sticky note using one of the thinking stems provided.
4. When the timer goes off, rotate to the right and the process will begin again.

Thinking Stems:

I notice...

I wonder...

I appreciate...

I learned...

I feel...

I think...

I made a connection...

Break Time

Please return in 15 minutes.

Turn and Talk:

- Turn to the person beside you.
- Share
  - Three things you learned
  - Two things you are reminded of
  - One question you still have

Tools for gathering formative assessment data

- Let's look at chapter 7 in The Data Guidebook for Teachers and Leaders : Tools for Continuous Improvement
- As you read through the chapter, look for ways to gather data (formal and informal).

Mark up the text asking yourself these questions.

- What do you want to ask the author of the text and why?
- What do you agree with the text and why?
- What do you want to argue with in the text and why?
- What parts of the text do you aspire to do and why?

Thank you for today

Before leaving, please complete today's survey.
Leave these in a stack in the center of your table.

Collecting, Recording, and Using Formative Assessment Data- Day 1 Survey

Please rate the following statements on a scale of 1 to 5. 1= Poor, 5= Excellent

* Required

1. Today's activities were well organized. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

2. Today's objectives were clearly stated. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

3. Today's activities were relevant to my classroom. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

4. All resources for today's activities were available and ready to use. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

5. I felt comfortable participating in today's activities. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

6. I felt comfortable collaborating with others. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

7. What suggestions do you have to improve this professional development? *

8. What activities did you like the most? *

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Google Forms

Day Two

Session Outcomes
• Goal 3: Teachers will develop an understanding of the data-driven instructional cycle. • Goal 4: Teachers will practice using the data-driven instructional cycle with formative assessment data.

Session Materials	
Facilitator: • Smartboard • Computer • Powerpoint • Construction Paper • Scissors • Markers • Colored Paper • Sticky Notes • Large Chart Paper • Handouts	Participants: • Computer fully charged • Pen • Paper

Agenda

Time	Activity	
8:30-9:00	Breakfast, socialization	
9:00-9:30	Getting to know you activity	

9:30-10:30	The Data-Driven Cycle	
10:30-10:45	Morning Break	
10:45-11:30	Article Activity	
11:30-1:00	Lunch	
1:00-2:15	Practicing the Data-Driven Cycle	
2:15-2:30	Break	
2:30-3:30	Creating Tools for Gathering Formative Assessment Data	

Day 2 Agenda:

Time	Activity
8:30-9:00	Breakfast, socialization
9:00-9:30	Getting to know you activity
9:30-10:30	The Data Driven Cycle
10:30-10:45	Morning Break
10:45-11:30	Article Activity
11:30-1:00	Lunch
1:00-2:15	Practicing the Data Driven Cycle
2:15-2:30	Break
2:30-3:30	Creating Tools for Gathering Formative Assessment Data

Getting to know you

Icebreaker: Cocktail Party

1. Pick a question from the bowl in the center of your table. Don't share your question with anyone yet.
2. When I say "GO!", stand up and walk across the room to find a partner. Stand with your partner until I say "GO!" again.
3. When I say "GO!", ask your question and listen to your partner's answer. Then, answer your partner's question.
4. When I say "GO!", switch partners.

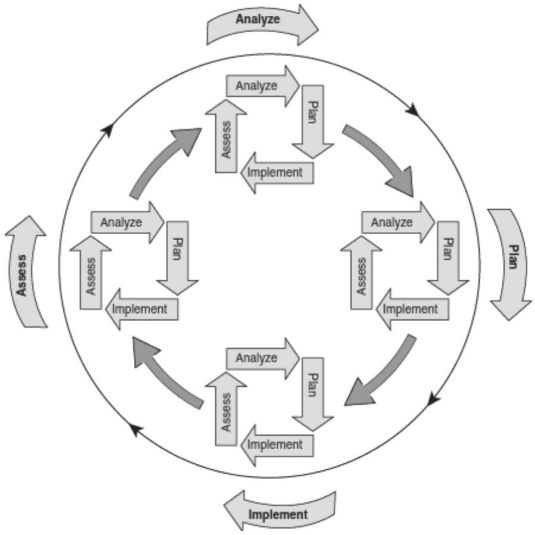
We will continue the activity until everyone has shared their question with four different people.

Today's Goal:

We will will develop an understanding of the data-driven instructional cycle.

The Data Driven Cycle

Figure 1.3 The Complete Improvement Cycle Diagram



Chapter Activity:

- Let's look at chapter 1 in The Data Guidebook for Teachers and Leaders : Tools for Continuous Improvement
- As you read through the chapter, look for the four steps in the data driven cycle.

Mark up the text asking yourself these questions.

- What do you want to ask the author of the text and why?
- What do you agree with the text and why?
- What do you want to argue with in the text and why?
- What parts of the text do you aspire to do and why?

Break Time

Please return in 15 minutes.

Activity:

Around the room, you will find a chart paper with each of the steps of the data driven cycle. With your chapter in hand, move around the room adding sticky notes to the charts.

Be sure to read other sticky notes and add comments.

You have 15 minutes to complete this activity.

When you finish, return to your seat and share your thoughts with a partner.

Lunch Break

Today's Goal:

We will practice using the data-driven instructional cycle with formative assessment data.

Practicing the Data Driven Cycle

We are going to use some samples of student work to analyze and plan.

- **Student Work samples:** https://acrobat.adobe.com/link/review?uri=urn:aaid:scds:US:ad5652a3-1487-399d-bcc6-390701e13592

- **Rubric:** https://acrobat.adobe.com/link/review?uri=urn:aaid:scds:US:2881dfab-10ca-3261-af50-385b2b026750

You will find a folder of material on your table.

You may use the planning form in your folder or create your own. Work with your table to analyze and plan for future instruction. We will gather back together in 30 minutes for a check in.

Thank you for today

Before leaving, please complete today's survey.
Leave these in a stack in the center of your table.

Collecting, Recording, and Using Formative Assessment Data- Day 2 Survey

Please rate the following statements on a scale of 1 to 5. 1= Poor, 5= Excellent

* Required

1. Today's activities were well organized. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

2. Today's objectives were clearly stated. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

3. Today's activities were relevant to my classroom. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

4. All resources for today's activities were available and ready to use. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

5. I felt comfortable participating in today's activities. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

6. I felt comfortable collaborating with others. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

7. What suggestions do you have to improve this professional development? *

8. What activities did you like the most? *

Day Three

Session Outcomes	
• Goal 5: Teachers will create tools for collecting classroom data.	
Session Materials	
Facilitator: • Smartboard • Computer • Powerpoint • Construction Paper • Scissors • Markers • Colored Paper • Sticky Notes • Large Chart Paper • Handouts	Participants: • Computer fully charged • Pen • Paper

Agenda

Time	**Activity**	
8:30-9:00	Breakfast, socialization	
9:00-9:30	Getting to know you activity	
9:30-10:30	Focusing on Formative Assessment Documentation	
10:30-10:45	Morning Break	

10:45-11:30	Focusing on Formative Assessment Documentation	
11:30-1:00	Lunch	
1:00-2:15	Creating Tools for Classroom Use	
2:15-2:30	Break	
2:30-3:30	Creating Tools for Classroom Use	

Day 3 Agenda:

Time	Activity
8:30-9:00	Breakfast, socialization
9:00-9:30	Getting to know you activity
9:30-10:30	Focusing on Formative Assessment Documentation
10:30-10:45	Morning Break
10:45-11:30	Focusing on Formative Assessment Documentation
11:30-1:00	Lunch
1:00-2:15	Creating Tools for Classroom Use
2:15-2:30	Break
2:30-3:30	Creating Tools for Classroom Use

Getting to know you

https://www.calacademy.org/educators/icebreakers-and-energizers

Human Bingo:

You will find a “human bingo” form on your table.

- When I say start, mingle around the room asking one another the questions within the squares on the worksheet.
- When you find someone who meets the criteria in the box, add their name to that box and put an ”x” in the box.
- Your goal is to try to mark off five squares in a row. You can have a horizontal, vertical, or diagonal bingo.
- The first participant to get five squares in a row calls out “bingo!” and wins.

Today's Goal:

We will practice creating tools for collecting classroom data.

Focusing on Formative Assessment Documentation

https://poorvucenter.yale.edu/Formative-Summative-Assessments

- Use the website above to create a list of formative assessment documentation tools you would like to create for your classroom.
- In your group, begin writing a list of ideas on a piece of chart paper.

Break Time

Please return in 15 minutes.

Focusing on Formative Assessment Documentation

- Read the article below:

https://www.oregon.gov/ode/educator-resources/assessment/Documents/five_evidence_gathering_routines.pdf

Mark up the text as you read, asking yourself these questions.

- What do you want to ask the author of the text and why?
- What do you agree with the text and why?
- What do you want to argue with in the text and why?
- What parts of the text do you aspire to do and why?

Focusing on Formative Assessment Documentation

Turn and talk (about the article):

Share your thoughts with a partner.

Add your take aways to the chart at the front of the room.

Lunch Break

Creating Tools for Collecting Data

- The rest of the day will be creativity time.
  - Use your teaching materials that you brought today (standards, learning continuums, pacing guides, etc.).
  - Use this information to determine what type of tracking you want to use for standards/lessons.
  - Work with someone in your grade level and partner up to create as many tools as you can make.

I will work with you on what ever you need. Materials are on the table at the front of the room.

Creating Tools for Collecting Data

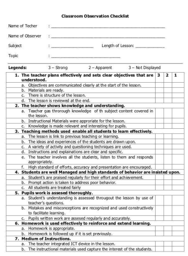
Rubrics:

Cox, Janelle. (2020, August 26). Sample Essay Rubric for Elementary Teachers. Retrieved from https://www.thoughtco.com/essay-rubric-2081367

Features	4 Expert	3 Accomplished	2 Capable	1 Beginner
Quality of Writing	Piece was written in an extraordinary style and voice Very informative and well-organized	Piece was written in an interesting style and voice Somewhat informative and organized	Piece had little style or voice Gives some new information but poorly organized	Piece had no style or voice Gives no new information and very poorly organized
Grammar, Usage & Mechanics	Virtually no spelling, punctuation or grammatical errors	Few spelling and punctuation errors, minor grammatical errors	A number of spelling, punctuation or grammatical errors	So many spelling, punctuation and grammatical errors that it interferes with the meaning

Teacher observation tools:

Checklists:
https://pin.it/6
71CilC



Classroom Observation Checklist

Name of Techer : ____________

Name of Observer : ____________

Subject : ____________ Length of Lesson: ____________

Topic : ____________

Legends: 3 – Strong 2 – Apparent 3 – Not Displayed

	3	2	1
1. The teacher plans effectively and sets clear objectives that are understood.			
a. Objectives are communicated clearly at the start of the lesson.			
b. Materials are ready.			
c. There is structure of the lesson.			
d. The lesson is reviewed at the end.			
2. The teacher shows knowledge and understanding.			
a. Teacher gas throrough knowledge of th subject content covered in the lesson.			
b. Instructional Materials were approriate for the lesson.			
c. Knowledge is made relevant and interesting for pupils.			
3. Teaching methods used enable all students to learn effectively.			
a. The lesson is link to previous teaching or learning.			
b. The ideas and experiences of the students are drawn upon.			
c. A variety of activity and questioning techniques are used.			
d. Instructions and explainations are clear and specific.			
e. The teacher involves all the students, listen to them and responds appropriately.			
f. High standard of efforts, accuracy and presentation are encouraged.			
4. Students are well Managed and high standards of behavior are insisted upon.			
a. Student's are praised regularly for their effort and achievement.			
b. Prompt action is taken to address poor behavior.			
c. All students are treated fairly			
5. Pupils work is assesed thoroughly.			
a. Student's understanding is assessed througout the lesson by use of teacher's questions.			
b. Mistakes and misconceptions are recognized and used constructively to facilitate learning.			
c. Pupils written work are assesed regularly and accurately.			
6. Homework is used effectively to reinforce and extend learning.			
a. Homework is appropriate.			
b. Homework is followed up if it is set previously.			
7. Medium of Instructions.			
a. The teacher integrated ICT device in the lesson.			
b. The instructional materials used capture the interest of the students.			

Final Evaluation

- Before leaving, please complete the survey on your table.
- Thank you for participating.
- Please feel free to contact me if you have further questions or comments.

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Collecting, Recording, and Using Formative Assessment Data- Final Survey

Please rate the following statements on a scale of 1 to 5. 1= Poor, 5= Excellent

* Required

1. The goals for each day were relevant and focused. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

2. The information presented each day was relevant and focused. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

3. The presenter was knowledgable. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

4. The presenter was easy to work with and willing to listen. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

5. I felt comfortable participating in the planned activities. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

6. I felt comfortable collaborating with others. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

7. The assessment activities in this PD are ones I can use in my classroom. *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

8. What specific activities did you feel need to be adjusted or removed from the PD?

9. What suggestions do you have to improve this professional development? *

10. What specific activities did you feel were most valuable? *

11. What activities did you like the most? *

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12. Would you attend another professional development on the same or similar topic *

Mark only one oval.

- Yes
- No
- Maybe

Appendix B: School Performance Goal Action Plan

Strategy #2: Implement a Professional Learning Community (PLC) structure to foster an excellence in teaching and learning.					
Action Step	**Timeline** Start/End Dates	**People Responsible**	**Estimated Cost**	**Funding Source**	**Indicators of Implementation**

1. Conduct Professional Learning Community (PLC) meetings with teachers twice per month.	Ongoing	Administrators Teachers Literacy Coach	$0	N/A	PLC agenda Data Analysis Reports
2. Analyze Common Assessment data in Grade Level Teams.	Ongoing	Leadership Team Teachers	$0	N/A	Data Analysis Reports
3. Develop and implement a process for intervention and referral to Tier 3.	2021-2026	MTSS coordinator Assistant Principal School Psychologist School Counselor Principal	$0	N/A	SIT Process Data Reports Tier 1 and Tier 2 Classroom interventions

Appendix C: District Performance Goal Action Plan

Strategy #2: Implement a comprehensive professional learning model to foster an excellence in teaching.					
Action Step	**Timeline** Start/End Dates	**People Responsible**	**Estimated Cost**	**Funding Source**	**Indicators of Implementation**
1. Revise a district professional learning guidance document.	Annual review	Director of Professional Learning	$0	N/A	Published Guidance Document
2. Offer a variety of coursework to allow employees to acquire additional certifications and academic advancement.	Ongoing	Director of Professional Learning and Director of Special Services	$60,000+	Local and federal funds	Course syllabus, course rosters, and certifications
3. Collaborate with regional colleges to offer training and coursework for instructional staff.	Ongoing	Director of Professional Learning	$1,500	Local and federal funds	Contracts with colleges and course syllabus
4. Offer research-based professional learning opportunities to all staff based on identified needs.	Ongoing	Director of Professional Learning	$350,000	Local and federal funds	Conference certificates and surveys
5. Employ academic and technology coaches to lead professional learning and on-site support.	Ongoing	Director of Professional Learning	$1,200,000	Local and state funds	Payroll records, coaching logs, and professional learning attendance rosters

Appendix D: Alignment of Interview Questions to Research Questions

Research Question Interview Questions
RQ 1: What experiences do elementary teachers at a local southern public-school have when working with data-driven instructional practices?
1. How do you assess student performance on grade-level material? 2. What type of data do you collect? 3. What type of data does the school collect? 4. What do you do with assessments after students have completed them? 5. How do you use data? 6. How does the way you use assessments improve student learning? 7. Can you provide examples of how you use the data? 8. Could you share the specific steps you use when analyzing assessments? 9. How do you determine your teaching strategies after analyzing the data? 10. After administering required assessments, how do you determine your instructional strategies? 11. How do you address the needs of all of your students after analyzing data?

RQ 2: How do elementary teachers in a local southern public-school perceive the use of data-driven instructional practices in their classroom?

1. Have you encountered any challenges with using data from assessments?
2. If so, how do these challenges affect your need or want to use data?
3. What kind of support do you receive from the administration when using data?

   Probing - Is the support meaningful? If so, how?