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TEACHER REFLECTIVE PRACTICE AND THE INFLUENCE ON STUDENT
ACHIEVEMENT

By
Laura Wyatt

A Dissertation Submitted to the
Gardner-Webb University School of Education
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

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2020

Approval Page

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Abstract

TEACHER REFLECTIVE PRACTICE AND THE INFLUENCE ON STUDENT ACHIEVEMENT. Wyatt, Laura, 2020: Dissertation, Gardner-Webb University.

This research study explored in-service teacher reflective practices. Data were collected via survey and interview to answer questions about how teachers define and engage in reflective practice, how teachers develop as reflective practitioners, and how reflective practice influences student achievement. The survey population included 170 elementary and middle level teachers in a school district in the upstate of South Carolina. Student achievement was based upon English language arts and math standardized testing data. Likert items explored the frequency, social context, and modes of reflective practice in which teachers engage. Open-response items provided teachers the opportunity to further describe practices and discuss how reflective practices are used to impact student achievement. Follow-up interviews further investigated school level practices, development of reflective practitioners, and how reflective practice is used to impact student achievement. The study was grounded in Kolb's (1984) Experiential Learning Theory and recognized adult learning occurs through continuous cycles of experience, reflection, and action. Key findings in the study indicate reflective practice as a combination of independent and collaborative processes. The study reflects some differences in the frequency of reflecting on colleagues teaching and reflecting after practice between schools with varying levels of student achievement. Data indicates teacher reflection is concerned with determining what works, what does not work, and what needs to change. Finally the study suggests teachers develop as reflective practitioners primarily through collaboration with colleagues. The findings of this study

may contribute to the body of research on reflective practice in education and teacher continuous development.

Keywords: reflection, reflective practice, experiential learning theory

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Chapter 1: Introduction

Introduction

Education and work characteristics of the 21st century require students to possess complex skills and abilities that call for “sophisticated forms of teaching” (Darling-Hammond, Hyler, & Gardner, 2017, p. 1). In addition to developing deeper levels of content understanding, students must be able to think critically, problem solve, communicate effectively, collaborate, and be self-directed in order to be successful in college and career (Darling-Hammond et al., 2017). Learners possess a multitude of diverse needs that require educators to constantly modify and adapt instruction to support each student’s learning. Reflection, an essential component of teacher professional development and growth, can motivate teachers to seek out new approaches and implement changes in practice to positively impact student learning (Darling-Hammond et al., 2017; York-Barr, Sommers, Ghere, & Montie, 2006). Reflective practice is widely accepted as a characteristic of teacher quality which is directly associated with student achievement (Furtado & Anderson, 2012; Saylor, 2014; Wright, 2019). Practicing reflection raises teacher self-awareness and increases teacher capacity to effectively meet the learning needs of students (Muhammad, 2017; York-Barr et al., 2006). Student learning is intimately connected to teacher learning and collaboration, thus increased support for the continuous development of teacher knowledge and skills through reflective practice positively impacts student achievement (Smylie & Hart, 1999). Investing time and effort in developing teacher habits of reflection can also enhance morale, efficacy, and collaborative culture (York-Barr et al., 2006).

This study examined the reflective practice of elementary and middle school

teachers in a rural district located in the upstate of South Carolina. Data were collected using a 2-part survey consisting of Likert and open-response items; and interviews were conducted to explore how teachers define and engage in reflective practice, how they develop as reflective practitioners, and how reflective practice influences student achievement.

Chapter 1 provides an overview and introduction to the research study. An explanation of the background and problem being addressed is presented. The purpose of the study and its relevance to the field of education are described. The theoretical and conceptual frameworks, study design, and methods are introduced. Finally, the chapter includes a brief presentation of the limitations and delimitations of the study.

Statement of the Problem

The public education system faces increasing challenges from changing requirements of the job market, a more global economy, a growing economic gap, and continuing advances in technology (Senge, 2012). Other challenges include increased cultural and linguistic diversity, increased economic inequality and rate of pupils living in poverty, heightened awareness of dropout rates, literacy deficiencies, increasingly rigorous standards, and the digital learning age (Risko & Vogt, 2016). Recent educational reforms call for high quality teaching practices that result in college and career readiness for K-12 students (Disu, 2017). The 2001 No Child Left Behind Act (NCLB) and the Every Student Succeeds Act (2015) mandate curriculum, instruction, and assessment that maximize learning outcomes for every student.

In South Carolina, the Profile of the South Carolina Graduate depicts the foundation of the mission of the South Carolina Department of Education that all students

graduate and are prepared for success in college, career, and citizenship (Every Student Succeeds Act Consolidated State Plan State of South Carolina, 2017, p. 1). Each South Carolina school administers standardized assessments of English/ language arts (ELA) and mathematics, SCREADY, to students in Grades 3-8. These assessments measure proficiency based upon mastery of aligned content standards. A performance level is used to describe each student's proficiency level: Level 1: Does Not Meet; Level 2: Approaches; Level 3: Meets; and Level 4: Exceeds. Students performing in the lowest level, Level 1, are not considered to be on the trajectory for college or career readiness. Level 2 student performance indicates students are on the path to career readiness. Levels 3 and higher represent performance that meets the standards for college and career readiness. The state goals for student achievement include that by 2035, 90% of students will score a Level 2 or higher and 70% of students will score a Level 3 or higher (Every Student Succeeds Act Consolidated State Plan State of South Carolina, 2017). Table 1 summarizes the state's goals for student achievement from a baseline set in 2017.

Table 1

South Carolina Goals for Student Achievement by 2035

State Goals	Baseline	2020	2026	2035
Percent scoring level 2 or above - ELA - All Students	74.2%	79.5%	82.1%	90.0%
Percent scoring level 2 or above - Math - All Students	75.8%	79.5%	82.1%	90.0%
Percent scoring level 3 or above - ELA - All Students	43.2%	47.7%	56.6%	70.0%
Percent scoring level 3 or above - Math - All Students	46.0%	50.0%	58.0%	70.0%

Table 1 summarizes the state's goals for increased student achievement in ELA

and math by 2035 as measured by the state standardized assessment, South Carolina College-and Career-Ready Assessment (SCREADY). To meet these expectations, teachers must possess a capacity for change that is supported by a depth of reflection for continuous improvement (Golding, 2017). Educators need to be able to reflectively evaluate teaching practices to measure the effects of methods and strategies on student learning so instruction can be polished and continuously improved (Darling-Hammond et al., 2017). Additionally, educators must be able to identify weaknesses in professional practice and act to improve (Valli, 1997). The traditional focus on content knowledge as a measure of teacher quality is shifting to an emphasis on the educator's capacity for continuous development as a professional practitioner (Sellars, 2012). Unfortunately, sometimes teachers fail to think carefully about roadblocks to student learning and underestimate the potential to impact student behavior and achievement (Valli, 1997). Rather than passively engaging in the profession through a conformist approach, teachers should be problem solvers and decision makers working to meet the complex, simultaneous demands of unpredictable situations (Schon, 1987). "Perhaps if teachers saw themselves as pro-active knowledge constructors rather than passive knowledge transmitters, an untapped potential might be unleashed" (Bradley, 2015, p. 123).

The quality of a teacher is a powerful indicator of student academic achievement (Gerritsen, Plug, & Webbink, 2017). In 2007, the Programme for International Student Assessment (PISA) reported that the classroom has approximately four times the effect on student achievement than that of the school. No aspect of a student's education is more critical than teacher quality (William, 2018). Factors such as teacher content knowledge and expectation motivation directly relate to student achievement (Hill,

Rowan, & Ball, 2005; Rowan, Chiang, & Miller, 1997). A critical component in increasing teacher quality and expertise is reflecting to evaluate personal performance and enact a professional growth plan (Marzano, Frontier, & Livingston, 2011). Reflective practice facilitates teacher critical thinking about pedagogy so conscious choices can be made to strengthen the quality of work (Marzano, 2012). Teachers are empowered through reflective practice because it enables the transformation of ideas into reality in the classroom and facilitates constant monitoring of student progress (Danielson, 2006; Disu, 2017). Consistent forms of reflective practice are necessary and, whether in solitude or collaboration, should provide actionable feedback, promote professional inquiry, and support continuous growth (Disu, 2017; York-Barr et al., 2006). These opportunities can affect teaching profoundly by allowing professionals to evaluate craft, apply inquiry and research-based methods, and increase understanding of content and instructional methods that positively impact student learning (Disu, 2017; Hall & Simeral, 2015; York-Barr et al., 2006).

Maximizing reflective abilities builds teacher capacity for success (Hall & Simeral, 2008). Reflective practices provide opportunities for teachers to “make sense of the uncertainty” (Ghaye, 2000, p. 7) of the profession and the “courage to work competently and ethically at the edge of order and chaos” (Ghaye, 2000, p. 7). Emphasizing reflective practice in the development of educators to improve instruction addresses the prevalent concern for the quality of education provided by American schools (Valli, 1997).

Deficiencies in the Literature

While the literature on reflective teaching practice touts its importance and

possible benefits, no consensus exists about how practicing teachers define and use reflection in the classroom or how reflective practitioners can be developed (Butke, 2006; Disu, 2017). In fact, there is much debate on the focus of reflection, questioning if it should be introspective or extend to a social context; and questions still prevail about how, when, where, and why reflection should occur (Finlay, 2008). Further, while the development of reflective practice is at the forefront of the training and preparation of preservice teachers, there is little research on the continuation of development for in-service educators or the types of reflective practice teachers actually use (Boud & Walker, 1998; Disu, 2017; Gutierrez, 2015; Moon, 1999). The emphasis of empirical research is overwhelmingly on teacher education programs and preservice teachers and less on teachers in practice (Nilsson, Andersson, & Blomqvist, 2017). Finally, there is a gap in research directly relating teacher reflection to student learning (Jaeger, 2013).

Purpose of the Study

The purpose of this study was to examine teacher reflective practices, experiences that impact development of reflective practitioners, and reflective practices that result in increased student achievement. Through merging qualitative and quantitative data, inferences were drawn about best practice in developing in-service educators as reflective practitioners with the greatest impact on student achievement.

The findings may be of interest to educational leaders interested in facilitating professional learning that impacts teachers and students or to teachers interested in continuous development of effectiveness in increasing student outcomes. Findings could contribute to the understanding of teacher reflection and build upon the body of research devoted to the development of educators as reflective practitioners, potentially impacting

school policy and practice related to adult learning.

Research Design

This mixed methods study incorporated both quantitative and qualitative approaches (Creswell & Creswell, 2018). The convergent design merged quantitative and qualitative data to provide a thorough analysis of teacher reflective practices (Creswell & Creswell, 2018). Figure 1 illustrates the convergent mixed methods design of the study.

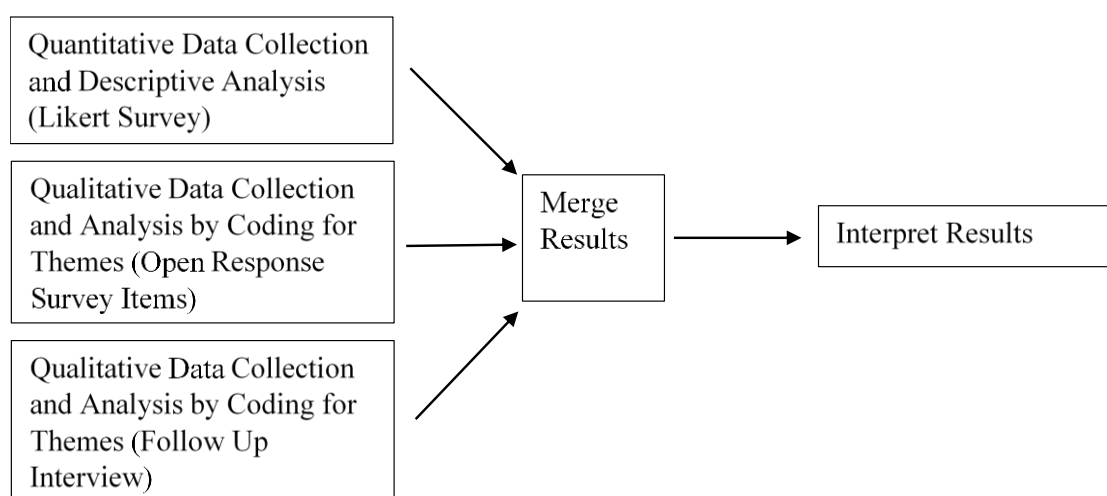


Figure 1. Convergent Mixed Methods Design Plan. The flow chart shows the steps taken for data collection and analysis, merging of results, and interpretation.

As shown by Figure 1, quantitative and qualitative data were collected and analyzed independently and then the findings were merged to interpret the results. The quantitative instruments of the study consisted of teacher Likert survey data assessing use of reflective practice. The qualitative instruments consisted of open-response survey questions and interviews. The open-response survey items asked teachers to define reflective practice, discuss reflective practices, describe personal development as reflective practitioners, and discuss their perceptions of how reflective practices influence

student achievement. The follow-up interviews attempted to engage teachers in deeper discussion of the definition, engagement, and development of reflective practice and the influence of reflective practice on student achievement.

Research Questions

The goal of this research was to better understand reflective practice from the perspectives of practicing educators. Three research questions guided the study to uncover how teachers engage in reflective practice, experiences that impact development as reflective practitioners, and their use of reflective practice to impact student achievement. The three research questions were:

1. How do practicing teachers define and engage in reflective practice?
2. How do practicing teachers develop as reflective practitioners?
3. How does reflective practice influence student achievement?
 - a. To what extent is there a statistically significant difference in teacher reflective practices among schools with varying student achievement levels?

Philosophical Approach

This study was conducted through a pragmatic approach which focused on determining those practices of reflection that work for teachers and help them impact student academic achievement. The pragmatic worldview is concerned with determining what works and developing solutions to problems based upon actions, situations, and consequences (Patton, 1990). This approach was appropriate because the researcher was focused on the problem of developing best practices in teacher reflection so student learning is maximized.

Theoretical Framework

Kolb (1984) emphasized reflection as a process not an outcome. Experiential Learning Theory defines learning as “the process whereby knowledge is created through the transformation of experience” (Kolb, 1984, p. 41). In 2014, Kolb stated,

Truth is not manifest[ed] in experience; it must be inferred by a process of learning that questions preconceptions of direct experience, tempers the vividness and emotion of experience with critical reflection, and extracts the correct lessons from the consequences of action. (p. xxi)

Kolb’s (1984) theory breaks down learning into a 4-step process: concrete experience, reflective observation, abstract conceptualization, and active experimentation. Figure 2 illustrates the Experiential Learning Cycle.

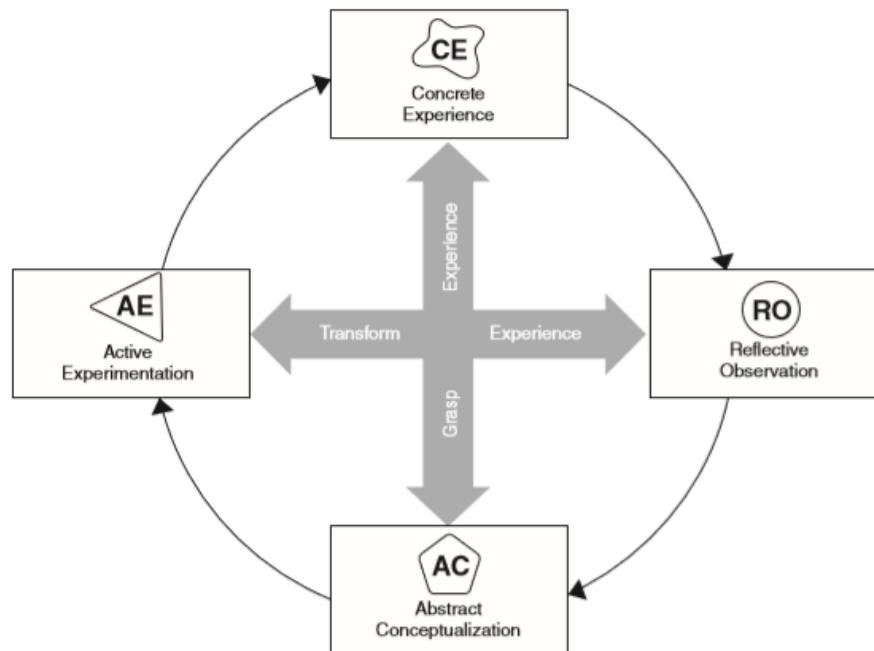


Figure 2. The Experiential Learning Cycle. This figure illustrates the experiential theory of learning as a cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation. (Kolb, 2014, p. 51)

Kolb's (1984) work expands upon the work of Dewey (1933) who discussed the integral role of reflective thinking upon experiences to break out of routine behaviors and responses. Dewey (1933) stated, "experience also includes the reflection that sets us free from the limiting influence of sense, appetite, and tradition" (p. 156). Wildman, Hable, Preston, and Magliaro (2000) reiterated that while people do learn from experience, "it is the reflective mode of cognition that results in the formation of new concepts—the creation of increasingly powerful frameworks for interpreting practice and for solving problems that require new ways of thinking" (p. 249). Many models of adult learning support learning through experience and include reflection as a process for working through challenges (Darling-Hammond et al., 2017; Kolb, 1984). Race (2006) argued that reflection could be the essential stage where new learning is assimilated and personalized, adding to one's frames of reference. Experiential learning prompts teacher inquiry regarding assumptions and conventions that inform practices (Kolb, 2014). A growing body of research supports the effectiveness of embedding learning experiences in the day-to-day work of teachers because this provides opportunities to reflect and experiment with instructional modifications (Camburn & Han, 2015). Reflecting upon experience enhances learning through experience and encourages divergent learning outcomes by questioning all the possible ways to approach a problem or challenge (Loughran, 2002).

Gibbs (1988) also emphasized the importance of reflection to the learning gained from experiences and stated,

It is not sufficient simply to have an experience in order to learn. Without reflecting upon this experience, it may quickly be forgotten, or its learning

potential lost. It is from the feelings and thoughts emerging from this reflection that generalizations or concepts can be generated. And it is generalizations that allow new situations to be tackled effectively. (p. 9)

As an expansion of the component of reflection in Kolb's (1984) experiential learning cycle, Gibbs (1988) developed a cyclical model of reflection (Figure 3).

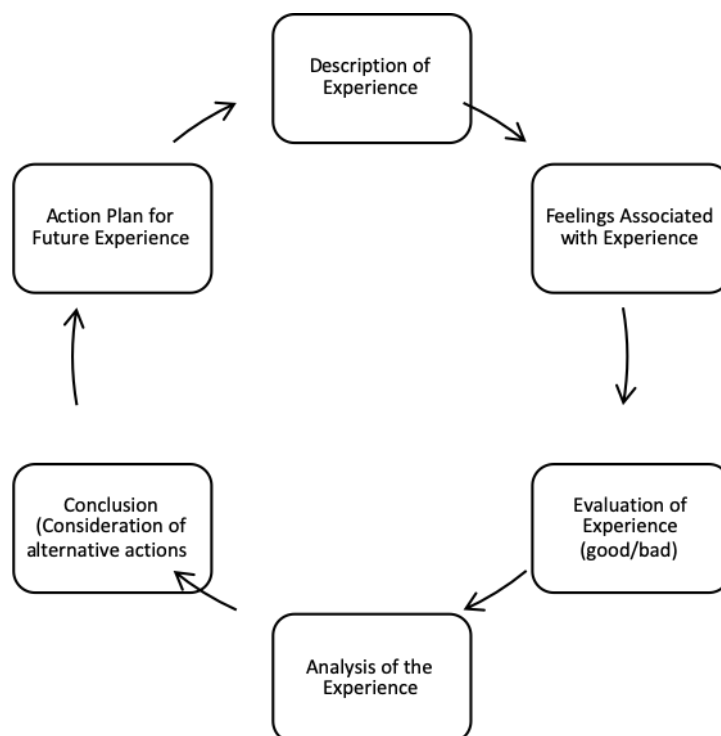


Figure 3. Gibbs's (1988) Reflective Cycle.

Gibbs's (1988) cycle consists of six phases: (a) description of the experience, (b) examination of thoughts and feelings, (c) evaluation and judgement, (d) analysis of the why behind the evaluation, (e) development of conclusions, and (f) plan of action. These stages offer a basic structure to facilitate reflection upon experiences.

Conceptual Framework

The conceptual framework for the study represented the key concepts the

researcher explored. This study responded to calls in literature for further study of how teachers define, use, and develop reflective practice (Butke, 2006; Finlay, 2008; Disu, 2017) and how teachers describe the influence of reflective practice on student achievement. The researcher explored reflective practices through three lenses: social context, frequency, and practices/processes. Within the social context, the researcher considered trends in independent and collaborative reflection. Within each of these contexts, the researcher sought themes and preferences in the processes and strategies teachers described engaging in to reflect. Finally, the frequency teachers reported using each type of reflection was studied. Figure 4 illustrates the conceptual framework.

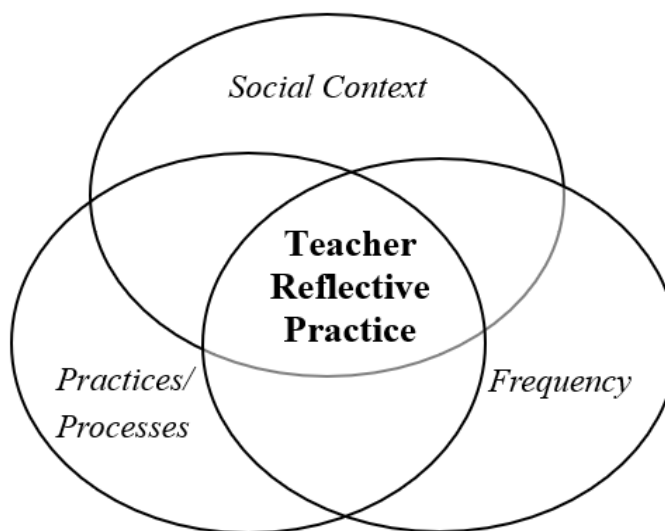


Figure 4. Reflective Practice Venn Diagram. This diagram illustrates the three lens through which teacher reflection was explored in this study: social context, practices and processes, and frequency.

Figure 4 depicts the researcher's conceptual framework. The framework shows elements of reflective practice that were studied to answer the question of how teachers engage in reflective practice. The concepts were explored through surveys and

interviews to gain insight into teacher perceptions of their reflective practice. Trends in each area were considered in relationship to levels of student achievement of the schools in survey groups.

Definitions

Reflection. “Reflection is the process of engaging the self in attentive, critical, exploratory, and iterative interactions with one’s thoughts and actions, and their underlying conceptual frame, with a view to changing them and with a view on the change itself” (Nguyen, Fernandez, Karsenti, & Charlin, 2014, p. 1182).

Reflective teaching practice. Reflective teaching practice refers to an inquiry-based approach to teaching that involves critical thinking and a personal commitment to continuous learning and improvement (York-Barr et al., 2006).

SCREADY.

The South Carolina College and Career Ready Assessments (SC Ready) are statewide assessments in English language arts (ELA) and mathematics that will meet all of the requirements of Acts 155 and 200, the Elementary and Secondary Education Act (ESEA), the Individuals with Disabilities Education Improvement Act (IDEA), and the Assessments Peer Review guidance. (South Carolina Department of Education, 2020, para. 1)

Academic achievement. Every Student Succeeds Act Consolidated State Plan State of South Carolina (2017) referred to academic achievement as “a measurement of proficiency on the annual statewide reading/language arts and mathematics assessments” (p. 12).

Assumptions

The study assumed that teachers self-assessed honestly and openly, accurately rated each survey item, and openly answered (positively/negatively/neutral) the open-response questions. Additionally, the researcher assumed that responses offered during interviews were open and honest and represented the interviewee's perspective of reflective practice as it relates to teaching and learning. The purpose of this study was to gain insight into teacher descriptions and perceptions of their own reflective practice; thus, it was necessary to assume that teachers provided this information as accurately as possible.

Scope and Delimitations

The concept of reflective practice is potentially generalizable to all educators regardless of location or grade level. Themes in conditions and factors identified as contributing to the development of teachers as reflective practitioners should be transferable to the field of education. The survey was administered to all K-8 teachers in the district. Only data from teachers of Grades 3-8 ELA or math, the subject areas of standardized assessment data used in the study, were used to examine the influence of reflective practice on student achievement. While these delimitations were made, the researcher acknowledges that some experiences and conditions may have been unique to the school district of the population.

Limitations

The study was limited to approximately 430 teachers of Grades K-8 within one school district in the upstate of South Carolina. To increase generalizability, the researcher included all schools in the district serving Grades K-8 to maximize the size

and diversity of the sample population in terms of teacher grade level, gender, ethnicity, years of experience, school, and subject area.

Role of the Researcher

The researcher serves as an assistant principal in one of the middle schools included in the study. The researcher recognized the possible influence of this role on the participants and sought to remain anonymous in the process by working with administration and leadership to administer the survey to teachers. The researcher's role in this study was the communication of the purpose of the research, distribution of surveys, conducting of interviews, collection and analysis of the data, and presentation of the findings and recommendations.

Significance

As educators around the world strive to prepare young people for success beyond school days, there exists a mounting array of challenges posed by the fast-paced changes of the world. A common assertion is that teachers are preparing students for jobs that do not yet exist. Darling-Hammond (2010) expanded on this assertion:

Thus the new mission of schools is to prepare students to work at jobs that do not yet exist, creating ideas and solutions for products and problems that have not yet been identified, using technologies that have not yet been invented. (p. 2)

These challenges are compounded by a diverse population of learners and a range of socioeconomic and demographic factors; the challenge educators face in preparing students for success in college and career calls for increased capacity to solve problems to effectively meet the needs of all students (Drago-Severson & Blum-DeStefano, 2016). Teachers need to be able to question, analyze, collaborate, and communicate to be

successful (Wagner & Dintersmith, 2015). Reflective practice offers an approach to developing these skills and abilities in teachers when it is “anchored in a community where open and honest communication is the norm, where critical dialogue is a priority, and where a supportive, trusting environment encourages and embraces risk taking” (Drago-Severson, 2009, p. 76).

By examining reflective practices of teachers, this research sought to reveal those reflective practices that are most frequently utilized and experiences that foster the development of those practices. Data were analyzed across schools with varying levels of student achievement to observe any variance in practices. This is important to the field of education because reflective practice has the power to meaningfully advance education if educators adhere to its fundamental assumptions and deep processes (York-Barr et al., 2006). The findings of this study have the potential to impact school policy and practice related to adult learning that supports the development of reflective practice among educators, thus increasing student achievement.

Summary

Adults learn from experiences embedded in day-to-day work, and reflection is critical to translating experience into meaningful learning that impacts future practice (Risko & Vogt, 2016). Reflective teaching practice can lead to improved teaching and increased student learning (Disu, 2017). Reflection is a skill that professionals can continuously develop (Schon, 1987), and providing educators with opportunities to engage in and hone reflective practice should be a goal of adult learning (Mezirow, 1991). This study aimed to contribute to the body of research dedicated to developing teachers as reflective practitioners with the capacity to positively impact student

achievement.

Chapter 2 delves deeper into the models and theories related to reflection and reflective practice. The review of literature includes descriptions of models, methods, and contexts of teacher reflection and reflective practice. Modes, or activities, of reflection are discussed as well as ways in which skills of reflection are developed. A review of research findings on the impact of teacher reflective practice is provided.

Chapter 2: Literature Review

Overview

Denton (2011) argued that the construct of reflection “represents the human capacity for higher-level thinking and our ability to assign meaning to our experiences” (p. 849). Teachers can be supported in dealing with challenges and uncertainties of the educational field through ongoing opportunities to develop by regularly and critically reflecting upon experiences related to professional practice (Camburn & Han, 2015). Increasingly, the literature emphasizes the importance of fostering teacher reflection through professional development that is embedded in daily experience and focused on classroom teaching (Camburn & Han, 2015; Risko & Vogt, 2016). Sellars (2012) asserted the likelihood that teachers implement quality changes in the classroom based upon knowledge gained in professional development is directly related to teacher capacity for reflective practice. While the importance of critical reflection to teacher quality is overwhelmingly acknowledged, there is still ambiguity around the actual reflective practices of teachers (Saric & Steh, 2017).

The purpose of this research study was to examine the reflective practice of in-service teachers. The study employed a mixed method design to collect and analyze data through a combination of Likert and open-response survey items and interview questions. The research sought to answer three research questions:

1. How do practicing teachers define and engage in reflective practice?
2. How do practicing teachers develop as reflective practitioners?
3. How does reflective practice influence student achievement?
 - a. To what extent is there a statistically significant difference between

teacher reflective practice in schools with varying levels of student achievement?

This chapter reviews the various definitions and theories of reflective practice. It explores research related to the benefits and impact of teacher use of reflective practice. A thorough search was conducted to survey theoretical foundations as well as past and current research. Search terms included reflection, reflective practice, teacher reflective practice, modes of reflection, models of reflection, theories of reflection, reflection and student achievement, reflection and teacher development, and teacher perception of reflective practice. The review begins with a broad description of reflection and a wide range of theories and models of reflection found in the literature. This is followed by a summary of the findings on reflective practice and its modes, development, and effects. A review of the most current research related to reflective practice is included.

Reflection

Teacher expertise is developed continuously not by simply having experience but by rigorously reflecting upon teaching experiences (Wieser, 2016). Airasian and Gullickson (1994) pointed out that teachers gain important technical knowledge in their preparation programs, however, learning by doing occurs when they begin to practice. This experiential learning takes place through a cycle of experience, reflection, and improvement; but without the critical element of reflection, continuous growth and improvement will not occur (Airasian & Gullickson, 1994).

One's ability to reflect is a strong indicator of his being in control of the brain (Race, 2006). Reflection is "an important human activity in which people recapture their experience, think about it, mull over and evaluate it" (Boud, Keogh, & Walker, 1985, p.

19). For teachers, this means considering a segment of teaching and learning and then reimagining, reenacting, or recollecting the events, emotions, and successes of it to learn from experience (Shulman, 1987). Tremmel (1993) explained that reflection is “using such abilities as feeling, seeing, or noticing to examine what it is you are doing; then learning from what you feel, see or notice; and, finally intelligently, even intuitively, adjusting your practice” (p. 89).

The act of reflecting is one which causes us to make sense of what we've learned, why we learned it, and how that increment of learning took place. Moreover, reflection is about linking one increment of learning to the wider perspective of learning - heading towards seeing the bigger picture. (Race, 2006, p. 2).

Reflection allows a person to overcome challenges by reimagining experiences and considering alternative courses of action (Johns, 2017); thus, being reflective can be empowering for developing professional craft (Johns, 2017). For decades, theorists have constructed models portraying types of reflection and the reflective process (Grimmett, Erickson, MacKinnon, & Riecken, 1990; Taggart & Wilson, 1998; Valli, 1997; Van Manen, 1977).

The use of the word reflection dates to the 14th century when it was used to describe the return of light back from a surface. Merriam-Webster (n.d.) defined reflection as “consideration of some subject matter, idea, or purpose” (para. 7). The beginning of the conversation on reflection in teaching is often attributed to the work of Dewey (1933) who spoke of reflection as “turning a subject over in the mind and giving it serious consecutive consideration” (p. 3). Dewey (1910) termed reflection as “active, persistent, and careful consideration of any belief or supposed form of knowledge in the

light of the grounds that support it and the further conclusions to which it tends” (p. 6). He explained two key components of reflection are “(1) a state of doubt, hesitation, perplexity, mental difficulty, in which thinking originates, and (2) an act of searching, hunting, inquiring, to find material that will resolve the doubt, settle and dispose of the perplexity” (Dewey, 1910, p. 9). Habermas (1971) viewed reflection as a tool for developing different forms of knowledge based upon three foundational interests: practical, technical, and emancipatory. Mezirow (1990) spoke of reflection as “an examination of the justification for one’s beliefs primarily to guide action and to reassess the efficacy of the strategies and procedures used in problem solving” (p. xvi). Reflection begins with a problem which initiates critical reflection, thus facilitating change that could occur through internal dialogue or through the seeking of other perspectives (Mezirow, 1991). More recently, Tripp and Rich (2012) identified reflection as “a self-critical, investigative process wherein teachers consider the effect of their pedagogical decisions on their situated practice with the aim of improving those practices” (p. 678).

Dewey (1910) distinguished between two types of teacher action: routine and reflective. Routine actions are based upon habits, traditions, authority, or organizational expectations (Dewey, 1910). Conversely, reflective action employs continuous self-appraisal, flexibility, rigorous analysis, and social awareness (Dewey, 1933). Dewey (1933) noted sequence and consequence are central to reflective thinking, asserting that thinking is only reflective if it follows a logical sequence and considers consequences of choices. According to Dewey (1933), when contemplating new ideas, reflective thinkers critically consider and weigh different perspectives and seek evidence to help them reach

resolutions to problems. Dewey (1910) proposed that becoming a successful *thinking* teacher required development of three attributes essential to be reflective: being open to new ideas, eagerness to find and engage in new approaches, and concern for the consequence actions which require reflecting on experiences.

Mezirow (1991) expanded upon Dewey's (1910) definition of reflection, stating it "is the process of critically assessing the content, process, or premise(s) of our efforts to interpret and give meaning to an experience" (p. 104). His work pointed out a distinction between reflection and thinking or learning by distinguishing between nonreflective and reflective action (Mezirow, 1990). According to Mezirow (1990), nonreflective action represents thinking about human experience without reflection and thinking about human experience habitually with reflection as reflective action. While many consider thinking about one's thoughts and feelings, or introspection, as reflective (Lundgren & Poell, 2016), Mezirow (1991) argued that introspection lacks the critical element of testing ideas based upon prior learning.

Schon (1983) defined two types of reflection: reflection-on-action and reflection-in-action. Reflection-in-action occurs when a problematic situation arises suddenly and the practitioner is faced with determining a resolution (Schon, 1983). Reflection in action may help teachers to cope with challenges of teaching contexts when collaborative reflection is difficult to achieve (Aldahmash, Alshmrani, & Almufti, 2017; Johns, 2017). According to Schon (1983), one of the defining characteristics of professional practice is one's ability to engage in a process of continuous learning by reflecting on action. Reflection-on-action involves thinking deliberately about a situation after it has occurred (Schon, 1983). Schon (1987) explained that the teacher has to constantly monitor the

progress of carefully planned lessons in order to allow for changes as situations require. After lessons, actions of reflecting, analyzing, evaluating, planning, and preparation lead to a cycle of continued improvement (Schon, 1987). This application of knowledge from previous experiences enables professionals to work through unique situations using an active experimental process (Schon, 1983).

Expanding upon Schon's (1983) concepts of reflection-in-action and reflection-on-action, Grushka, Hinde-McLeod, and Reynolds (2005) recognized a distinction in reflection-for-action during which teachers consider technical, practical, and critical elements of daily instruction. These elements of reflection-for-action were also central to the work of Van Manen (1977) who considered them stages of reflection essential to professional growth and learning. Through technical reflection, the teacher considers factors such as time and resources and focuses on analyzing the effects of his strategies (Grushka et al., 2005; Van Manen, 1977). Technical reflection can be described as problem-posing and problem-solving (Johns, 2017). During practical reflection, the teacher is concerned with relevance and engagement and examines underlying assumptions of classroom practices and the consequences of those assumptions (Grushka et al., 2005; Van Manen, 1977). Critical reflection involves thinking about why the topic is important and questioning the moral and ethical nature of situational decisions (Grushka et al., 2005; Van Manen, 1977).

Zeichner and Liston (1996) proposed five behaviors of reflection that occur before, during, and after instruction. These behaviors range from on-the-spot decision-making to extensive long-term changes in theories of practice. Zeichner and Liston's behaviors include rapid reflection, repair reflection, reflection on action, research, and re-

theorization and re-formulization. The first two behaviors relate to reflection in action. Rapid reflection happens instantaneously and is routine and automatic. Repair reflection occurs when teachers make decisions during instruction that alter his/her response to student learning needs. The third behavior, reflection on action, takes place after instruction. This reflective activity involves the thinking, discussing, or writing about an experience of teaching or student learning. The purpose of this behavior, according to Zeichner and Liston, is to inform future practice and next steps. The last two behaviors are essential to reflection-for-action. Research engages the educator in a more systematic and focused approach to thinking and observation that involves in-depth data collection that influences instructional planning. Each of the four previous behaviors culminate in the fifth behavior where the teacher retheorizes and reformulates practices based upon the consideration of all the information gathered in the reflective process.

Valli (1997) studied teachers in the United States determining common topics of reflection that include challenges to student motivation, development of engaging curriculum, and helping students coexist to help each other learn. She acknowledged the goal-oriented nature of Americans and found this contributed to variance in the purpose of reflection to decide how to achieve educational goals, evaluate progress, and determine factors that promote or hinder goal achievement. Based upon literature from teacher education programs that emphasized reflective teaching, Valli concluded five types of reflection that mirror the conclusions of earlier theorists. The five types include technical reflection, reflection-in and on-action, deliberative reflection, personalistic reflection, and critical reflection (Valli, 1997).

Technical reflection is rule-bound and focuses on research-based instruction and

management behaviors. In this mode, teachers are concerned with matching their performance to external guidelines. Reflective topics might include time-on-task, wait-time, active learning, student engagement, homework review, and prior knowledge (Valli, 1997). Technically reflective teachers might use standardized assessment results to measure effectiveness of lessons. Technical reflection enables teachers to determine when to reteach or correct student responses.

Valli's (1997) thoughts on reflection-in and reflection-on action built on Schon's (1983) work. He explained that in these modes, the basis of reflection is on teacher situations, and reflection focuses on personal teaching performance with the teacher's voice being valued as the expert (Valli, 1997). Decisions are based on practical knowledge gleaned from experience that develops the teacher's craft (Schon, 1983).

Deliberative reflection values decision-making based on various resources such as multiple perspectives, advice, experience, and research (Valli, 1997). Through deliberative reflection, teachers weigh all the information to make an informed decision. Teachers who practice deliberative reflection balance attention to teaching behaviors, relationships with students, subject matter, and school culture/climate (Valli, 1997).

Personal reflection centers on professional growth and relational issues (Valli, 1997). Reflection in this mode links personal and professional to consider not only one's personal life goals but also all aspects, academic and nonacademic, of the lives of students (Valli, 1997). This personalistic orientation to reflection is characterized by empathy and less concern with standardized achievement as opposed to development of students as compassionate and contributing citizens (Valli, 1997).

Critical reflection views school as a political construction where the teacher's

concern is with improving social conditions to increase understanding and quality of life for disadvantaged groups (Valli, 1997). The focus of one's critical reflection might be on equality and overcoming inequities of diversity. Careful consideration is given to the development of teacher questioning skills to dig deeper into knowledge and developing an environment of equitable access (Valli, 1997).

Butke (2006) merged the theories and definitions posed by earlier theorists into four categories: pedagogical, curricular, personal/professional, and critical. Pedagogical reflection focuses on methodologies and involves thinking on matters such as management, procedures, and sequencing (Butke, 2006). Curricular reflection focuses on the concepts being taught (Butke, 2006). Personal reflection is concerned with personality traits and factors outside of the classroom that influence a teacher's practice (Butke, 2006). Professional reflection involves exchanges with colleagues and opportunities for continuous learning (Butke, 2006). Critical reflection examines the transformation of practice based upon evaluation of social, moral, and political factors influencing teachers and students (Butke, 2006).

Reflective Practice

How the process of reflection is actually employed in the professional practice of teachers is an ongoing question in the world of education (Saric & Steh, 2017).

Reflective practice stretches teachers' informal thinking about daily events to careful consideration of experiences in the context of theories to make systematic and intentional plans for improved practice (Furtado & Anderson, 2012; Rodgers, 2002). Reflective practice in teaching denotes deliberate action taken to respond to some discourse or problem (Dewey, 1933; Mezirow, 1991; Schon, 1983). Erkens (2008) argued that the

difference between a reflective person and a reflective practitioner is the intentional effort to evaluate the effectiveness of interventions. Reflective practice is more than evaluating the act of teaching because it investigates the rationale behind the teaching process (Hammersley-Fletcher & Orsmond, 2005), and it engages teachers in an inquiry-based approach where critical thinking facilitates continuous learning and improvement (York-Barr et al., 2006). This practice encourages teachers to study their own teaching carefully to glean insights for improving practice purposely (Danielson, 2006). Finlay (2008) wrote,

This often involves examining assumptions of everyday practice. It also tends to involve the individual practitioner in being self-aware and critically evaluating their own responses to practice situations. The point is to recapture practice experiences and mull them over critically in order to gain new understandings and so improve future practice. This is understood as part of the process of life-long learning. (p. 1)

Reflective practitioners consider both their philosophy and practice (Hammersley-Fletcher & Orsmond, 2005). Reflective practitioners use educational theory, knowledge, and experience to measure the quality of teaching (Hammersley-Fletcher & Orsmond, 2005). According to Wubbels and Korthagen (1990), a reflective practitioner welcomes innovation and has more positive relationships with students and colleagues. Erkens (2008) explained,

Reflective practitioners have a strong sense of their personal strengths and learning curves, but they take it one step further and seek confirmation of their strengths in student results. They set aside personal defensiveness regarding past

efforts and preconceived notions of what may or may not work regarding future efforts. A reflective person might spend considerable time pondering her effectiveness, but a reflective practitioner seeks answers outside of herself and takes action to address gaps. (p. 22).

York-Barr et al. (2006) presented the Reflective Practice Spiral as an illustration of the continuous learning and developmental levels of reflective practices. The spiral includes four levels: individual, partner, small group, and schoolwide. Beginning with the individual level, reflective practices spiral out and interconnect to ultimately include schoolwide practices that impact learning. The development of individual reflective capacity increases teacher ability to encourage and impact peer, small group, and schoolwide reflective processes (York-Barr et al., 2006). York-Barr et al. proposed four critical questions for reflection: (a) What happened; (b) Why; (c) So what; and (d) Now what? This work asserts that the processes of reflection translate to school improvement and increased student outcomes (York-Barr et al., 2006). Effective use and understanding of all levels is essential to reflective practice that leads to schoolwide improvement (Burns, 2012; York-Barr et al., 2006). The influential capability of an individual's development of reflective practice is described thoroughly by York-Barr et al. (2006), who argued,

The learning and positive growth that individuals experience from engaging in reflective practice provides an informed, experiential foundation on which to advocate and commit to expanding the practice of reflection beyond themselves. As we develop our individual reflection capacities, we can better influence the reflection that occurs with partners and in small groups or teams of which we are

members. As more such groups become reflective in their work, the influence and potential of reflective practice spreads throughout the school. (p. 20)

Research elaborates on many avenues for engaging in independent and collaborative reflective practice. Thinking, writing, and conversing are three primary modes of reflecting that dominate the research and literature. In the thinking mode, teachers either intentionally or sporadically engage in thinking on an aspect of teaching. This can result in creative ideas, problem-solving of solutions, or emotional reaction (Butke, 2006). In the writing mode, the teacher consciously engages in writing down thoughts about practice or teaching segments. The conversing mode involves participation in dialogue around a teaching practice or strategy.

Through independent reflective practice, a person becomes a purposeful thinker by thinking back on what is seen or heard (Valli, 1997). However, according to York-Barr et al. (2006), collaborative reflective teaching expands a teacher's understanding of professional practice by exposing different perspectives. Teacher-coach and teacher-teacher interactions embedded in daily practice can assist teachers in developing strategies to address challenges (Camburn & Han, 2015). A collaborative culture relates positively with student achievement outcomes, and at the heart of that collaborative culture is collective reflection (Gruenert & Whitaker, 2015). When teachers engage in professional collaboration, learning from colleagues' diverse experiences occurs, knowledge of pedagogy expands, and understanding of content increases (Goddard, Goddard, & Tschannen-Moran, 2007). Collaborative reflective practice occurs between pairs of teachers, small groups, and even schoolwide and can be a formal or informal activity (Disu, 2017; York-Barr et al., 2006).

Farrell (2016) conducted a review of 116 research studies, dating from 2009 to 2014, on the practices that encourage participation in reflective practice among educators in the field of Teaching English to Speakers of Other Languages. The framework for reviewing the research consisted of philosophy, principles, theory, practice, and beyond practice (Farrell, 2016). Reflecting upon philosophy was found to be supported by *restorying*, or narrative exploration, of lived experiences to raise awareness of identity and gaps between teachers' expected and actual identities. Through writing, feedback, and coursework, in-service teachers were encouraged to reflect upon principles, or beliefs and values about teaching and learning, and reported an increased awareness of the beliefs underlying their practice (Farrell, 2016). Collaborative lesson planning proved to be a powerful practice for reflecting upon theory because teachers were able to develop shared understandings and gain new perspectives to make sense of events and bring theory into practice (Farrell, 2016). Evidence also exists of the benefit of reflecting upon principles and theory through online discussions, blogs, and chats to facilitate problem-solving (Farrell, 2016). Peer observation, feedback, and teacher study groups all emerged as ways to stimulate practicing teacher reflection upon theory and practice, and these were most effective in the context of trusting relationships (Farrell, 2016). Reflection upon a combination of principles, theory, and practice, mechanisms such as reflective writing, portfolios, action research, and post-observation conferences, encouraged reflection that challenged assumptions and led to breaking out of routines and changing teaching practices (Farrell, 2016). Writing emerged as the most powerful tool to carry reflection beyond the classroom and facilitate enhanced critical reflection upon issues of social justice and equality that impact teaching and learning (Farrell, 2016).

Jaeger (2013) proposed case study, writing, self-study, and audio- or video-recording analysis as activities that are valuable to the development and encouragement of reflection. When examining case studies, teachers consider critical incidents in the classroom to evaluate the positives and negatives and make decisions about necessary changes in action (Jaeger, 2013). Journal writing is the most common task used in guided reflection; however, some argue that journal writing often avoids examining teacher behaviors and decision-making which are critical to supporting reflection in action (Jaeger, 2013). “Self-study focuses on understanding the self as well as the classroom environment, involves seeking personal as well as professional improvement, and makes use of narrative and autobiography in addition to traditional action research methods” (Jaeger, 2013, p. 92). Self-study engages teachers in examining theory and practice when thinking about problems in practice, selecting strategies for addressing the problems, implementing the strategies, and monitoring progress. This process over time can result in teachers experiencing fewer problematic situations (Jaeger, 2013).

Interactive journaling, cognitive coaching, talking about instruction, talking through an inquiry cycle, shared reading, examining student work, and online dialogue are all ways educators might engage in collaborative reflective practice with a partner (Risko & Vogt, 2016; York-Barr et al., 2006). Common reflective practices of groups and teams include engaging in peer review with critical friends (McTighe, 2008; Nilsson et al., 2017); professional dialogue (Nilsson et al., 2017); engaging in lesson study and action research (Graham & Ferriter, 2010); collaborative goal setting (Marzano, 2007); peer coaching or mentoring (Nilsson et al., 2017); and analyzing student work (Drago-Severson, 2009).

Poulos, Culbertson, Piazza, and D'Entrement (2016) performed a research study of collaborative practices and found teachers attributed improvement in their classroom practice to thoughtful conversations they have with their peers. Individual and school practices can be significantly improved when adults have supportive collegial relationships and are provided consistent and frequent opportunities to engage in discussions that encourage self-analysis (Drago-Severson, 2009). Through constructive dialogue, teachers are able to express frustrations, share celebrations, give and receive feedback, and explore new strategies (Butke, 2006). In an expansive study on effective professional development, Darling-Hammond et al. (2017) emphasized,

When whole grade levels, departments, or schools are involved, they proved a broader base of understanding and support at the school level. Teachers create a collective force for improved instruction and serve as support groups for each other's work on their practice. Collective work in trusting environments provides a basis for inquiry and reflection into teachers' own practices, allowing teachers to take risks, solve problems, and attend to dilemmas in their practice. (p. 10)

Teachers engage in reflective conversation through many collaborative practices such as cognitive coaching, peer reviews, and mentor-mentee relationships. Cognitive coaching engages teachers in structured dialogue for the purposes of planning, reflecting, and problem-solving (Costa & Garmston, 2016). The relationship between teacher and coach is grounded in respect and empathy and involves genuine, honest, and trustworthy interactions that focus on developing teacher thought processes and self-directedness (Rogers, Hauserman, & Skytt, 2016). Bair (2017) found the benefits of this practice, as reported by teachers, include increased collegiality, improved mentoring skills, and

positive impact on teaching. Camburn and Han (2015) reported that teachers who sought advice from experts and colleagues and worked with coaches on focused instructional issues were more likely to engage in reflection that resulted in changed practice.

Reflective conversations might also be prompted by narrative interviews stimulated by reviewing videoed segments of teaching (Wieser, 2016). Recorded classroom interaction provides an opportunity for teachers to recall events and generate retrospections as well as discuss moments of uncertainty where a teacher had to shift from knowing to reflection in action and elaborate on how they perceived it from their perspective (Wieser, 2016). McCullagh (2012) examined the use of video as a tool for critical reflection. In the age of digital technology, this tool is readily available and offers access to real episodes for convenient and repeated viewing both independently or collaboratively (McCullagh, 2012). Video can encourage collaborative reflection because it captures experience so it can be viewed with whomever and whenever the teacher chooses to glean alternative perspectives of the experience (McCullagh, 2012). “The vivid detail and real-life experience presented through video results in a deep level of engagement and causes teachers to draw upon their experiences of their own and others practice” (McCullagh, 2012, p. 139). Video-supported reflection can serve as a motivator for improved practice by providing opportunity for identification of patterns and observations of changes in teacher and student behaviors through repeated analysis (McCullagh, 2012).

Reitano and Sim (2010) studied the use of video stimulated recall (VSR) as a method to support development of reflective practice in learning communities. When using this strategy, teachers agree upon a shared issue and one teacher volunteers to

record a lesson modeling his/her approaches to the issue during teaching. Soon after the lesson is recorded, teachers gather to discuss and offer feedback while viewing the video. VSR provides opportunities for teachers to recognize behaviors in their teaching that they may be unaware of because they have become automatized (Reitano & Sim, 2010). Further, the use of video stimulates the recalling of thoughts about decisions and rationale behind action providing a platform for questioning and responding. The team leaves the conversation with an action plan to continue addressing the issue of focus, and the process is repeated (Reitano & Sim, 2010). “The important feature of using VSR...is that it provides professional learning that starts where the action is—in the classroom—and it results in learning that is decided by teachers in meaningful collaboration” (Reitano & Sim, 2010, p. 223). Video analysis with colleagues and supervisors can result in a shift in focus from teacher behavior to student thinking, positively impact teacher ability to distinguish insignificant and significant instructional events, and increase the likelihood of adjustment in practice that affects student learning (Jaeger, 2013).

Lesson study, yet another form of collaborative reflective practice, can result in increased knowledge about subject matter and pedagogy, increased skill in student observation, and clearer connections between daily practices and long-term goals (Lewis, Perry, & Hurd, 2004). During lesson study, teachers collaboratively design a research-based lesson for peer observation and evaluation (Verhoef, Coenders, Pieters, van Smaalen, & Tall, 2015). Teams select a common problem based upon a shared goal and then collect data from observation of student learning during lesson implementation (Samaranayake, Premadasa, Amarasinghe, & Paneru, 2018). This process involves teams of teachers collaboratively developing, implementing, and observing a lesson and then

reflecting upon its effectiveness with the goal of improving upon an aspect of their teaching (Gutierrez, 2015; Lewis et al., 2004). Lesson study supports Danielson's (2006) assertion that

The greatest professional resource available to every school is the expertise of its teachers. Yet as valuable and extensive as this knowledge and experience are, they are rarely tapped for planning and improvement. Therefore, if educators are interested in improving outcomes for students, they must not ignore the expertise within their walls. (p. 55)

When teachers collaboratively design, implement, analyze, and revise lessons, knowledge of content and instructional strategies is increased and the capacity to work collaboratively with colleagues is heightened (Lewis et al., 2004). Lesson study provides an environment of critical reflection that facilitates educator transformational learning centered around common goals for improvement and enhances their professional growth (Gutierrez, 2015). This process of embedded professional development has been found to encourage teachers to try alternative approaches and inspires a willingness to change (Samaranayake et al., 2018).

Another activity of collaborative reflection, action research, involves a concerted and structured effort to determine best practice (Hendricks, 2017) and improve student learning outcomes (Impedovo & Malik, 2016; Mertler & Charles, 2008). Impedovo and Malik (2016) studied the impact of teacher development of research skills and dispositions and found it to contribute to the improvement of reflective processes and increase reflective capacity. Action research applies the relationship between theory and practice to draw on real experience and ascertain new ideas and insights (Impedovo &

Malik, 2016). In the process of action research, teams identify a problem, brainstorm a solution, implement the possible solution, evaluate its effectiveness, and adjust practice based upon their findings (Hendricks, 2017).

At the forefront of many school improvement efforts is collaborative investigation of student work samples with the purpose of directing future teaching and learning (Blythe, Allen, & Powell, 2015). The process of looking at student work purposefully typically occurs in a collaborative inquiry cycle often associated with a professional learning community (PLC) or lesson study group (Slavit, Nelson, & Deuel, 2012). Often, student artifacts prompt the identification of pedagogical issues that serve as a platform for teacher discussion (Slavit et al., 2012), but these conversations do not develop if the teacher does not possess an inquiry stance toward student data (Slavit et al., 2012). Examining student work samples (i.e., written responses, projects, quizzes, tests, artwork, drawings, journal entries, presentations) provides opportunities for educators to question, problematize, and reconsider strategies (Slavit et al., 2012). This can potentially help teachers answer questions such as (a) What have students have learned; (b) What will help students learn more; (c) What motivates and engages learners; (d) What classroom environment characteristics most support learning; and (e) How can struggling learners best be supported (Blythe et al., 2015)? Blythe et al. (2015) proposed reflecting cyclically upon direct evidence to find meaning and incorporate that meaning back into everyday pedagogy “may prove the very engine of school change in the critical years ahead” (p. xxi).

Through the increasingly common framework of PLCs, teachers collaborate to continuously improve teaching and learning (Carpenter, 2017; DuFour, DuFour, & Eaker,

2008). Carpenter (2017) defined a PLC as “a group of educators gathered in the physical and intellectual workspace to critically reflect on their practice while collaborating on teaching and learning” (p. 1). The physical workspace may be a face-to-face meeting space or a digital platform (Carpenter, 2017). Intellectual workspaces represent interactions where ideas are shared through reflection, discussion, and dialogue (Carpenter, 2017). PLCs provide a platform for collaborative reflective practices of dialogue, mentoring, coaching, data inquiry, and examining student work. By examining discrepancies in learning outcome expectations and actual student achievement, educators critically reflect upon teaching and learning to innovate instruction such that student learning is increased (Carpenter, 2017). Through PLCs, teachers work together to implement changes based upon prior experience and learning by developing ideas and plans that could not be developed alone (Carpenter, 2017). Burns (2012) found that the extent of implementation of a PLC relates to the depth of reflective practice of teachers.

A critically reflective process affects teaching and teacher ability to recognize the ideological foundations of teaching and identify needs for continuous development (Brookfield, 1995). Reflective processes in teams lead to identification of key insights and innovative practices (Graham & Ferriter, 2010). “Collaborative teams are smarter and more innovative than any individual” (Graham & Ferriter, 2010, p. 184) and enhance teacher effectiveness and expertise (Hattie, 2015). Danielson (2006) explained that focusing on results requires de-privatization of practice and recognized that this can be a source of apprehension for teachers. Teacher leaders then must reassure teachers that the goal is increasing student learning not criticizing practice (Danielson, 2006). This is greatly dependent on

a school culture that honors collegial sharing of technique, an environment in which it is safe to admit questions and concerns and an atmosphere of collaborative problem solving. It also reflects a vision of student learning in which it is not sufficient for some students to excel while others flounder or receive an inadequate education. (Danielson, 2006, p. 86)

Continuous learning and development can be supported through communities of reflective practice (Saylor, 2014). McArdle and Coutts (2010) found that participation in a reflective community benefits the educator through a heightened sense of identity and the continuous evolution of practice. Nilsson et al. (2017) studied the recurrent collegial reflection of 21 teachers in Sweden and found three essential components relevant to the facilitation of collegial reflection: allotting time, assuming a participatory approach, and ethical values. Teachers valued the structure of a designated weekly meeting time. The study indicated that organization of groups either by common grade level and/or content or mixed supported continuous development and professional learning (Nilsson et al., 2017). Teacher perceptions of the participatory approach were conflicting where some appreciated the autonomy to make decisions, while others valued being guided to decisions. Finally, the findings revealed divergent perceptions of the purpose of collegial reflection. Some valued the personal aspects of getting to know others and building a support network, while others were focused on the professional aspect and impacting student learning.

Developing Reflective Practice

There is a vast difference in the act of *doing* reflection and *being* reflective as a professional (Johns, 2017). Simply reflecting on an experience, or thinking about it, does

not facilitate the experiential learning that transforms practice (Kolb, 1984; Mezirow, 1990). However, developing critically reflective educators who not only think about experiences but use prior learning to consider, implement, and evaluate future action for continuous improvement is not an easy task (Finlay, 2008; Mezirow, 1990). This challenge is described by Finlay (2008), who stated,

The problem with reflective practice is that it is hard to do and equally hard to teach. It is even harder to do and teach effectively. This is hardly surprising given the confusion about what exactly it is, the complexity of the processes involved and the fact that there is no end to what can be reflected upon. (p. 15)

Race (2006) questioned the effectiveness of teaching reflection and argued that while the process of reflection can be illustrated, it is not wise to “teach” people to reflect because the act of reflection is a personal or primarily independent process. Schon (1987) argued that one’s ability to reflect is not an inherent trait but rather a skill that can be honed. “The skill of self-reflection transcends all other skills, strategies, and teaching approaches because it can grow over the course of teacher’s career and enable the teacher to cultivate and solidify all of his or her professional learning” (Hall & Simeral, 2008, p. 38). To successfully engage in reflective practice requires skills such as acute observation, logical reasoning, analysis, synthesis, and evaluation (Bloom, 1956). Finlay (2008) offered four recommendations for teaching and cultivation of effective reflective practice: (a) present reflective practice(s) with care; (b) provide sufficient support, time, resources, opportunities and methods for reflection; (c) develop skills of critical analysis; and (d) take proper account of the context of reflection.

Hall and Simeral’s (2008) Continuum of Self-Reflection is composed of four

stages: unaware stage, conscious stage, action stage, and refinement stage. The stages are explained as “states of mind, levels of self-awareness, and phases in the self-reflective process that ultimately lead to you becoming a reflective practitioner” (Hall & Simeral, 2015, p. 36). This continuum is intended to provide a tool to understand a teacher’s current state of mind and facilitate deeper reflective habits (Hall & Simeral, 2008). In the unaware stage, educators possess no awareness of alternatives to the current state of their classroom. In this stage, there is sparse knowledge of research-based instructional strategies and no understanding of the teacher’s role in student learning. Hall and Simeral (2008) pointed out these educators are often among the hardest working faculty members yet yield the smallest increases in student achievement outcomes. Teachers in the conscious stage demonstrate a discrepancy in their knowledge and practice. Conscious educators know what should be done and consider strategies but often lack the motivation or consistency to put ideas into practice. It is common for these teachers to choose the easiest route over what is best for students (Hall & Simeral, 2008). Teachers who are motivated and are beginning to implement ideas and knowledge of strategies and best practices into the classroom exist in the action stage. These professionals often believe there is a single best strategy and are focused on finding the right way to teach. Although action stage teachers may lack the knowledge to address student needs effectively, these teachers take responsibility for student success and have some ability to recognize individual needs. According to Hall and Simeral (2008), action stage educators are open to and seek out constructive feedback and advice. The final stage of the continuum is the refinement stage. Teachers in this stage are skilled in the art of teaching (Hall & Simeral, 2008). Hall and Simeral

(2008) explained,

[These teachers] plan and implement strategies that actively engage and support students, making deliberate attempts to allow for multiple ways of learning.

Formal and informal assessments, both formative and summative, drive the instruction in their classroom. [These teachers] are able to modify and refine plans at a moment's notice in response to student need, interest, and motivation.

(p. 44)

Instead of searching for the one right way, teachers in the refinement stage understand there are multiple effective strategies for meeting the needs of individual students and embrace the potential of reflective learning to continuously change ways of thinking and practice (Hall & Simeral, 2008).

After a professional has begun to practice reflection, models and structures for reflective practice may help drive thinking deeper, but the strengths and limitations of the model(s) should be considered (Finlay, 2008). Engaging a teacher in questioning to prompt reflection may help develop the individual's ability to reflect (Race, 2006).

Questions that generate thought of the past, present, and future push thinking deeper; for example, (a) What worked well; (b) Why did it work well; and (c) What action can be taken as a result (Race, 2006)?

Hall and Simeral (2015) presented a reflective cycle through which teachers develop as a self-reflective practitioner. This repetitive cycle or pattern, termed as the reflective cycle (Hall & Simeral, 2015), illustrates characteristics that "combine to define effective, accurate reflection" (p. 38). Figure 5 illustrates the reflective cycle (Hall & Simeral, 2015).

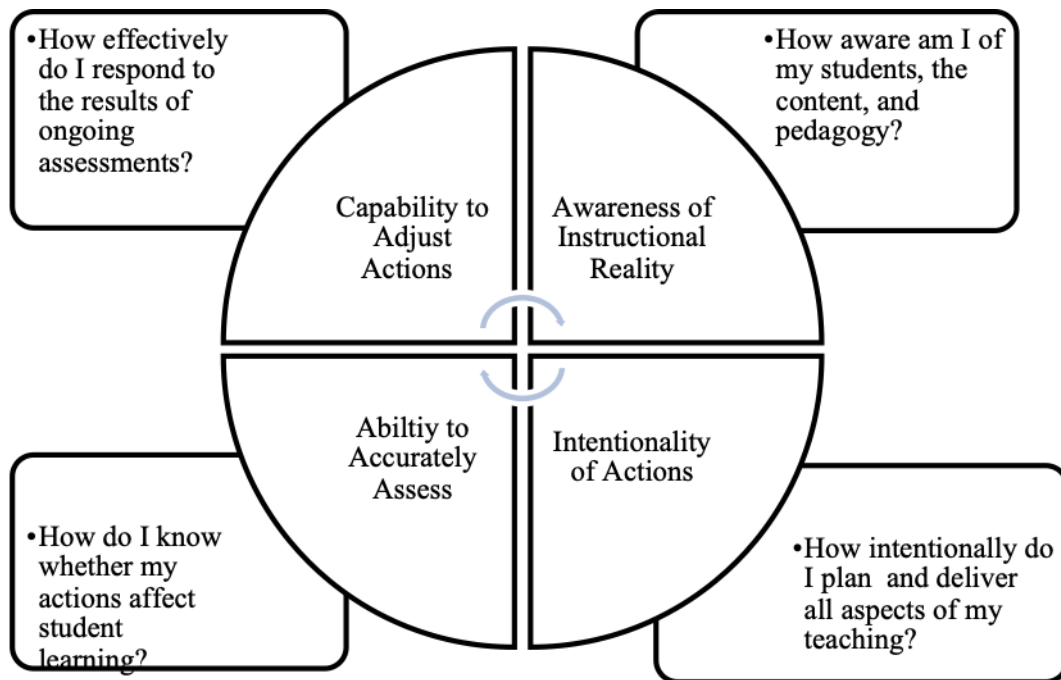


Figure 5. The Reflective Cycle (Hall & Simeral, 2015). This cycle reflects the continuous development of reflective practice.

As illustrated in Figure 5, the reflective cycle is comprised of four characteristics: awareness of instructional reality, intentionality of actions, ability to accurately assess, and capability to adjust actions. The attribute of awareness empowers a teacher to see clearly the actions and interactions between classroom events, instructional plans, and learning (Danielson, 2007). A reflective teacher's awareness includes knowledge about each student and his specific academic ability levels and needs, interests, and learning profiles (Tomlinson, 2014). During this cycle, teachers question the awareness of students, content and pedagogy, intentional planning and delivery of instruction, knowledge of whether instructional actions affect student learning, and the success of the response to the results of ongoing assessments. Through this continuous process, the teacher's awareness increases and the understanding of

content and pedagogy is enhanced, thus maximizing student performance.

Dufour et al. (2008) asserted that reflection is at the heart of the most effective learning teams, and the effectiveness of reflection is increased when reinforced by others dedicated to reflective strategies (Thorpe, 2000). Bringing educators together to reflect on pedagogical issues provides a platform for analyzing teaching and learning to make meaningful plans for next steps (Kuit & Gill, 2001). Teachers need to not only develop their own capacity for reflective practice but also their ability to engage colleagues in reflective practice to extend their professional learning (Brockbank & McGill, 1998). When teachers share benefits of reflective practice on their improvement, it may motivate novices to engage in reflection (Finlay, 2008).

Effects of Reflective Practice

Hattie (2009) asserted, “What ‘some’ teachers do matters—especially those who teach in a most deliberate and visible manner” (p. 22). Reflective practitioners exercise high levels of intentionality in their practice, combining knowledge of curriculum and students to select and implement research-based strategies that maximize learning (Hall & Simeral, 2015). The reflective practitioner assesses the impact of intentional practice on student learning outcomes using a variety of carefully selected or designed assessments matching the task and purpose (Hall & Simeral, 2015). Assessment data are analyzed to determine the effect of a specific strategy on student learning (Hall & Simeral, 2015).

The most reflective teachers understand an inherent capability to assess learning in the moment and adjust actions on the fly (Hall & Simeral, 2015; Hattie, 2009). Reflective educators engage in continuous and ongoing reflection that occurs naturally

throughout the processes of teaching (Hall & Simeral, 2015). The benefit and impact of reflection on teaching practice is well documented as teacher participation in reflective practice provides opportunities to examine and improve attitudes, skills, knowledge, and awareness (Kolb, 1984; Shukri, 2014). Through reflection, teachers discover new ways of understanding and overcoming the challenges of the classroom, and engaging in the reflective process raises awareness and reveals possibilities for change and growth (Butke, 2006). Through these processes, self-awareness, self-efficacy, and self-regulation are promoted as teachers face the complexities and demands of the profession (Hall & Simeral, 2015; York-Barr et al., 2006).

Reflective processes guide teacher development of open-mindedness and responsibility (Butke, 2006). Mezirow (1991) argued that reevaluating and updating practice could not possibly lead to ineffective teaching. The primary role of revising practice is enhancing the quality of teaching, resulting in improved student learning outcomes (Mezirow, 1991). Teachers who are reflective are metacognitive and contemplate about thinking (Dewey, 1933; Hall & Simeral, 2008; Schon, 1983).

Reflective teachers understand personal strengths and weaknesses and are intrinsically motivated toward continuous improvement (Dewey, 1933; Hall & Simeral, 2008; Kolb, 1984). Self-reflective professionals are intentional in teaching and can explain the what and why behind a particular practice (Hall & Simeral, 2008; Schon, 1983). These professionals care deeply about how specific instructional decisions affect the students (Hall & Simeral, 2008; Hernandez & Endo, 2017; Schon, 1983). These teachers are active and collaborative participants in PLCs (Hall & Simeral, 2008).

Cheung and Wong (2017) studied the impact of reflection on teacher change in

the context of educational reform in Hong Kong. By examining narratives of four teachers, observations were made about the content of teacher reflection and the impact of that content on the change in practice (Cheung & Wong, 2017). The researchers determined that teacher reflection first focuses on curriculum at a technical level, then on student learning needs at a practical level, and finally on equality and social justice at a critical level (Cheung & Wong, 2017). Further, the narratives provided evidence that the higher the level of teacher reflection, the greater the teacher motivation to change practices (Cheung & Wong, 2017). Cheung and Wong offered two conclusions about ways to develop teachers as reflective practitioners: (a) professional development should avoid the focus on transferring knowledge and skill and emphasize reflection on practice, and (b) opportunities to consider and modify practice should be embedded in daily classroom practice facilitated by structures such as peer collaboration and mentoring. Engaging in continuous cycles of reflective practice can result in transformational learning that transitions from practice focused on technical practicality to fully developed professional artistry (Johns, 2017).

Carey (2017) studied National Board certified teacher (NBCT) perceptions of reflective practice, reflective activities teachers incorporate into practice, and benefits of reflective practice. NBCTs reported the certification process positively impacted reflective practices and that reflective practice impacted professional growth. The teachers reported engaging in individual self-reflection before considering collaborative reflection. NBCTs demonstrated aspects of reflection aligned to both Dewey and Schon, reflecting in and on action. Improvement of student learning was the most prominent benefit of reflective practice perceived by the teachers completing National Board

certification (Carey, 2017).

Teacher Experience and Student Achievement

A teacher's years of experience is a common descriptor of teacher qualification. Typically, years of experience results in salary increases and implies the teacher has better skills, expertise, and knowledge (Lee, 2018). Although years of experience is often relied upon as a positive indicator of teacher effectiveness, a review of literature indicates conflicting interpretations of its impact on student achievement (Lee, 2018; Rockoff, 2004; Wayne & Youngs, 2003).

Many studies have presented a positive relationship between years of experience and student achievement (Clotfelter, Ladd, & Vigdor, 2007; Ladd, 2008; Rockoff, 2004; Wayne & Youngs, 2003). Rockoff (2004) studied the correlation between teacher years of experience and student performance on standardized measures in reading and math. His findings indicated a strong correlation between teacher experience and student reading achievement. While a correlation was also indicated in math, it was not as strong as reading. Wayne and Youngs (2003) interpreted findings from 21 studies regarding the impact of teacher characteristics on student achievement. The researchers' findings concluded that while there exists some positive relationship between student achievement and teacher experience, the extent of that relationship is unclear because it is difficult to separate experience from other variables such as motivation and conflicting life circumstances (Wayne & Young, 2004).

Just as prominent as studies indicating a positive association between teacher experience and student achievement are those studies purporting no significant positive relationship (Lee, 2018). A significant amount of research indicates little increase in

student achievement in correlation to increases in teacher experience (Aaronson, Barrow, & Sander, 2007; Goe, 2007). In fact, many studies cite an increase during a teacher's initial years but little effect after that time (Chingos & Peterson, 2011; Rockoff, 2004).

A growing trend in the teaching profession is the attainment of advanced degrees which often results in increased salary (Lee, 2018; Miller & Roza, 2012). However, research is not conclusive about the relationship between teacher degree and student achievement (Betts, Zau, & Rice, 2003; Goldhaber & Brewer, 1997; Hanushek, Kain, O'Brien, & Rivkin, 2005; Ladd & Sorensen, 2017; Lee, 2018; Rockoff, 2004).

Additionally, much of the research fails to relate the degree to the subject area being tested (Goe, 2007; Ingersoll, 2004; Lee, 2018). Despite this common oversight, many studies do exist that indicate when a teacher holds an advanced degree in the subject area taught, there is a positive impact on student achievement (Dee & Cohodes, 2008; Goldhaber & Brewer, 2000; Lee, 2018; Wayne & Youngs, 2003). Lee (2018) found that higher student achievement results when the number of high-quality teachers (years of experience, level of education, subject-matter expertise, and effectiveness) a student is taught by increases.

Despite the questionable impact of degree and experience on achievement, there is support in the literature for the relationship between teacher seniority and reflective practice. Impedovo and Malik (2016) asserted that teachers with common years of experience shared similar reflective practices. Novice teachers demonstrate knowledge of strategies for reflection but do not routinely integrate it into daily practice (Impedovo & Malik, 2016). On the contrary, experienced teachers tend to question effectiveness and focus reflective processes on the goal of increasing student outcomes (Impedovo &

Malik, 2016).

Summary

The literature on reflection and reflective practice includes an array of theories and perspectives. Beginning with the work of Dewey, theorists attempt to define the act of reflection through definitions and models, each offering distinct components elaborating on previous theories. Further, the concept of reflective practice emphasizes the significance of acting upon reflection to make changes and improvements. The process of reflective practice, modeled in multiple theories, can be summarized as identifying a problem from experience, reflecting in and on action, determining possible solutions or next steps, implementation, and reflecting on the implementation to inform future practice. In the field of education, this occurs through many forms, in varying social contexts, and at different developmental stages. Teachers may reflect through strategies such as thinking and metacognition, writing, video analysis, and lesson study. This process can occur independently or in collaboration with peers and groups, both face to face and in digital platforms. Some recent research explores environments that support teacher development as reflective practitioners, citing consideration for time and establishment of a clear purpose for reflecting collaboratively. However, little research is available on teacher perceptions of those professional experiences that have the most powerful impact on their continuous development of reflective practice. Further, while research studies often acknowledge a connection between teacher practice and student learning, this relationship is not explored significantly. Finally, the vast majority of literature in the area of reflective practice in teaching is focused on the development of preservice teachers neglecting the study of reflective practice in the actual context of

teaching practice.

This review of literature of reflective practice reveals the need to explore the habits and perceptions of in-service teachers and how reflective capacity is developed. Additionally, it recognizes an opportunity to more explicitly examine reflective practice in relation to student learning. These deficiencies in the literature support the work of this research study.

Chapter 3 describes the methods for data collection and analysis to answer the research questions. The setting and population of the study are described. Quantitative and qualitative instruments are explained, and a data analysis plan is presented.

Chapter 3: Methodology

Introduction

The purpose of this mixed methods study was to examine teacher definitions and use of reflective practice, development as reflective practitioners, and the influence of reflective practices on student achievement. The study used a combination of quantitative and qualitative survey and interview data to attempt to answer three research questions:

1. How do practicing teachers define and engage in reflective practice?
2. How do practicing teachers develop as reflective practitioners?
3. How does reflective practice influence student achievement?
 - a. To what extent is there a statistically significant difference between teacher reflective practice in schools with varying levels of student achievement?

This chapter explains the methods used to answer the research questions. It begins with an overview of the setting for the study. Next, the research design and rationale are presented, followed by an explanation of the role of the researcher. Methods for the study are then explained, including plans for instrumentation, data collection, and data analysis. The chapter concludes with assurance measures for validity and reliability along with a statement regarding the handling of ethical issues.

Setting

This study was set in a rural district in the upstate of South Carolina. The district serves over 10,000 students, with an approximate 60% rate of poverty. The district employs 645 teachers, and the student to teacher ratio is 25:1. Approximately 60% of

those teachers have earned advanced degrees and 88% serve on continuing contracts.

This study focused on teachers practicing in the district's eight elementary, one intermediate, and three middle schools. These 12 schools were selected based upon availability of data gathered from the administration of the state standardized assessment, SCREADY. The student populations of the schools vary in size and socioeconomic status, and the teacher populations vary in size and degree levels. In order to preserve confidentiality, the schools were each assigned a number (1-12) that served as an identifier throughout the study. Table 2 summarizes the student and teacher populations within each school.

Table 2

Student and Teacher Population Data (based on 2019)

School	Grades	Teachers	Teachers with Advanced Degrees	Student Enrollment	Poverty Index
1	6-8	68	52.9%	1137	58.7%
2	PK-4	52	53.8%	812	58.6%
3	PK-5	37	51.4%	571	68.5%
4	PK-5	22	54.5%	314	75.7%
5	PK-4	45	82.2%	612	75.4%
6	PK-5	19	57.9%	302	67.8%
7	5	37	64.9%	551	58.2%
8	6-8	34	76.5%	514	64.5%
9	PK-4	27	77.8%	462	57.0%
10	PK-4	39	59.0%	637	56.9%
11	6-8	46	56.5%	724	54.1%
12	PK-4	38	42.1%	604	63.8%

Research Design and Rationale

A convergent mixed methods design (Figure 6) was used to answer the research questions of this study (Creswell & Creswell, 2018).

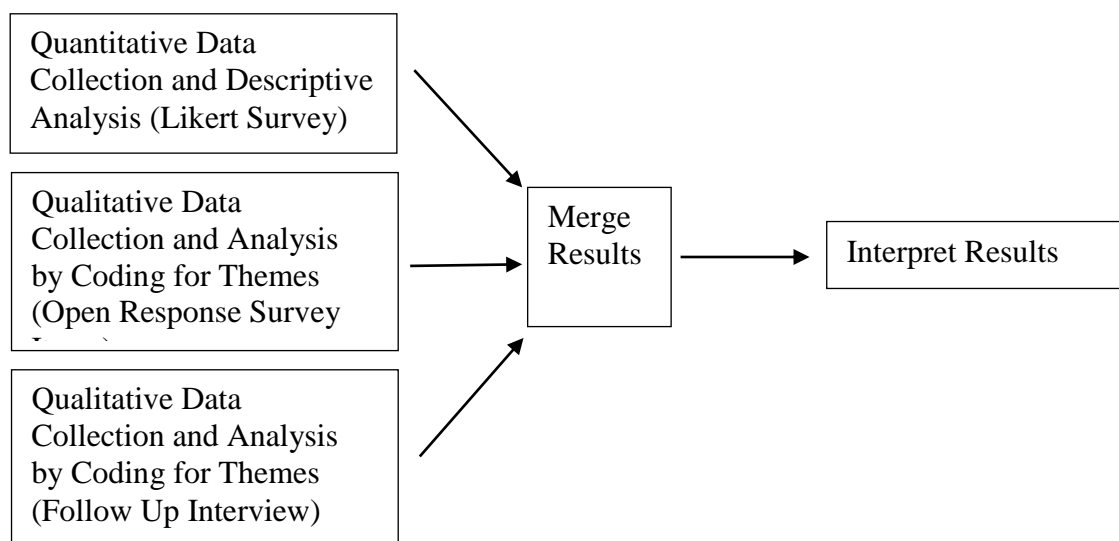


Figure 6. Convergent Mixed Methods Design Plan. The flow chart shows the plan for data collection and analysis, merging of results, and interpretation.

Through this design, qualitative and quantitative data were collected and analyzed simultaneously and then interpreted to more deeply understand the data. Quantitative and qualitative data were collected via survey consisting of both Likert and open-ended items. The Likert items were analyzed descriptively to describe ways in which teachers engage in reflection. The open-response items were coded and analyzed for themes related to how teachers define, engage in, and develop reflective practice and perceptions of its impact on student achievement. Interviews were conducted with randomly selected participants from schools with similar student achievement. Transcripts were coded and analyzed for themes related to how teachers define, engage in, and develop reflective

practice and perceptions of its impact on student achievement. The reason for collecting both quantitative and qualitative data was to better understand practices of reflection that impact student achievement and how teachers develop those practices. The results of the analysis of the quantitative and qualitative data were merged and interpreted to answer the research questions.

Role of the Researcher

The researcher was an administrator in one school within the scope of the study. The researcher has served in this capacity for 4 years and served the preceding 11 years as a teacher within the school. The researcher had no significant personal association with the study participants outside of normal working relationships. There was no significant relationship between the researcher and the participants at the other schools included.

To manage the potential threat of researcher bias and minimize the influence of power relationship, anonymity was upheld in all processes of the research study except interviews where anonymity is not feasible. Participant names were not collected in the survey, and identifiers only included descriptive data such as grade level, subject area taught, highest degree earned, and years of experience. With the threat of bias minimized, the researcher administered surveys, conducted interviews, collected data, and analyzed data in the study.

Methods

Participant selection logic. The population of the study included approximately 400 elementary and middle school teachers, 172 of whom teach Grades 3-8 ELA and/or math in one of the schools included in the study during the 2018-2019 school year. The

decision to include all grade levels and subject areas was made to maximize the population thus increasing the validity of the study. Although data from all participants were used to answer Research Questions 1 and 2, only data collected from ELA and math teachers of Grades 3-8 were used to answer Research Question 3. Table 3 shows the number of teachers whose data were used to answer Research Question 3.

Table 3

ELA/Math Teachers Included in Survey Population

School	Tested Grades	Total Teachers Included
1	6-8	34
2	3-4	12
3	3-5	12
4	3-5	8
5	3-4	11
6	3-5	8
7	5	26
8	6-8	14
9	3-4	7
10	3-4	11
11	6-8	18
12	3-4	11

This population included 66 middle level teachers of Grades 6-8 and 106 elementary teachers of Grades 3-5. While the population presented in Table 3 accurately depicts the pool of teachers who taught during the 2018-2019 school year, the researcher recognized that some teachers no longer worked in the district or were employed at a different school in the current school year. To ensure that only teachers in the intended

population were included, participants indicated whether they taught in their current school during the 2018-2019 school year. Of this population, a convenience sample was drawn based upon those teachers who agreed to participate in the study. Two attempts at gathering responses were used to maximize the sample and ensure that the sample was representative of the population. This minimized the likelihood that the sample differed from the population in any way that would influence the outcome of the study and supported the use of convenience sampling as an acceptable method for determining a sample (Urdan, 2017). The interview participants were selected via random sampling from the pool of participants who indicated willingness to participate in an interview on the initial survey. The researcher selected participants to represent both elementary and middle schools and schools with varying levels of student achievement. Table 4 shows each school's student academic achievement in ELA and math for 2017, 2018, and 2019. The achievement measures indicate the combined percentage of students performing at Level 3 (Meeting) and Level 4 (Exceeding).

Table 4

2017, 2018, 2019 Combined Percentage of ELA and Math Students Level 3 and Level 4

School	ELA			Math		
	2017	2018	2019	2017	2018	2019
1	46.8	51.3	48.4	42.4	45.2	48.6
2	42.3	53.8	58.4	62.1	67.4	70.8
3	43.7	57.2	63.8	57.4	68.2	71.3
4	44.6	50.4	58.5	57.7	63.5	66.7
5	38.5	39.9	44.9	48.9	62.3	63.6
6	50.7	52.3	59.1	62.7	66.7	66.4
7	33.7	44.5	50.7	44.5	55.6	59.8
8	52.9	42.4	44.6	37.8	42.8	44.6
9	56.7	61.3	74.2	70.1	71.8	77.3
10	53.2	49.8	58.5	60.3	55.6	62.8
11	56	57.4	50.6	44.4	48	43.4
12	38.6	43.4	55.2	44.7	57.7	66.4

Beginning in 2018, the state included a student achievement index rating on the school report card. This rating is calculated using the percentage of points earned based upon the numerical value assigned to each level (1-4). This percentage is converted to an index, and categories of 5=Excellent, 4=Good, 3=Average, 2=Below Average, and 1=Unsatisfactory are reported. The school's achievement level is based upon data gathered from the state standardized math and ELA assessments, SCREADY. Table 5 summarizes the student achievement indicator levels for each school included in the study for 2018 and 2019.

Table 5

Student Achievement Level Indicators by School

School	Grades Tested	2018		2019	
		<i>Achievement Level</i>	<i>Achievement Index</i>	<i>Achievement Level</i>	<i>Achievement Index</i>
1	6-8	Good	4	Good	4
2	3-4	Good	4	Good	4
3	3-5	Good	4	Excellent	5
4	3-5	Good	4	Excellent	5
5	3-4	Average	3	Average	3
6	3-5	Good	4	Good	4
7	5	Average	3	Good	4
8	6-8	Average	3	Average	3
9	3-4	Excellent	5	Excellent	5
10	3-4	Average	3	Good	4
11	6-8	Good	4	Good	4
12	3-4	Average	3	Good	4

The three study groups consisted of schools with common achievement levels in 2019. The average achievement group consisted of two schools: one elementary and one middle. The good achievement group was made up of seven schools: four elementary, one intermediate, and two middle. The excellent achievement group included three elementary schools.

Quantitative instruments. The survey (Appendix A) included a quantitative section made up of 24 Likert items. Items 1-12 focused on the frequency participants use varying characteristics of reflective practices and were rated on a continuum of 0-4, where 0=Never, 1=Yearly, 2=Quarterly, 3=Weekly, and 4=Daily. Items 13-24 applied to teacher perceptions of the benefit of varying characteristics of reflective practice to student achievement. These items were rated on a continuum of 0-2, where 0=Not Beneficial, 1=Somewhat Beneficial, and 2=Very Beneficial.

Construct validity was based upon the alignment of the survey items to Research

Questions 1 and 3: “How do teachers define and engage in reflective practice” and “How does reflective practice influence student achievement?” Survey items also aligned to the conceptual framework which explored reflective practice through the three lenses of social context, practices and processes, and frequency. Further, each statement was aligned to theory and research outlined in the literature review. The survey was piloted with a group of teachers not involved in the study to ensure the statements and directions were clear to the reader and unambiguous.

Qualitative instruments. The qualitative instruments included open-response survey items and interviews. The survey administered included an open-response section. Items in this section collected data on teacher definition and use of reflective practice, development as reflective practitioners, and perceptions of the influence of reflective practice on student achievement. Open-response questions were framed around the research questions. The questions are listed in Table 6.

Table 6

Open-Response Survey Questions

Number	Question
1	How would you define reflective practice?
2	Describe how you reflect.
3	What is your belief about the influence of reflection on student achievement?
4	What experiences/opportunities support (or have supported) your development as a reflective practitioner?

To establish validity of the qualitative survey items, the questions were piloted with a group of teachers not participating in the study. The purpose of piloting was to

ensure clarity and that the teachers understood the questions. The researcher used feedback to revise questions as appropriate.

Creswell and Creswell (2018) suggested conducting interviews to elicit perspectives from participants. Following the survey, participants were asked if they would be interested in participating in a follow-up interview. If interested, the teacher provided his/her email in an external link embedded in the survey. From the pool of participants indicating willingness to be interviewed, one teacher was selected from the average group of schools, three from the good group, and two from the excellent group. The interviews were conducted face to face and an interview protocol (Appendix B) was used. During the interview, the researcher utilized an assistant to take notes, and the session was audio recorded for transcription. The interview consisted of questions focused on teacher perception of the use of reflective practice to impact student achievement and experiences that support teacher development of those practices. The interview questions are listed in Table 7.

Table 7

Interview Questions

Number	Question
1	How would you define reflective practice?
2	Describe an experience that is an example of your use of reflective practice.
3	In what ways (formal or informal) do teachers in your school engage in reflective practice? Which are most beneficial?
4	How does engaging reflective practice impact student achievement?
5	What experiences throughout your career have encouraged or supported your development as a reflective practitioner?
6	Is there anything else you would like to share regarding your reflective practices?

Data collection. The survey was delivered to teachers via an email sent from the district's Director of Public Relations. The survey included a teacher letter explaining the purpose of the study, procedures for participation, assurance of anonymity, plans for use of the data collected, estimated completion time, and participant consent statement. Teachers were able to consent by selecting "yes" or decline to participate by selecting "no." By selecting yes, participants were automatically taken to the survey. A response of "no" terminated the survey with a "Thank you." A follow-up email was sent 1 week after the initial email to recruit additional participants. Each study group was emailed separately, and a separate survey form was used for each group (average, good, and excellent). At the close of the survey, the researcher exported the data to an Excel spreadsheet to facilitate analysis. This information will be destroyed by the researcher when the research is finalized and approved.

Interviews were conducted at the district office to preserve confidentiality of the school the teacher represented. Interviews were recorded using the audio recording tool on a laptop computer and transcribed for data analysis. An assistant was present for notetaking. Participants were asked to verify that information was correctly recorded and interpreted by reviewing the notes taken prior to the close of the interview session. A transcript of the interview was emailed to the participant so data could be verified and an opportunity to add or edit was provided. All recordings, notes, and transcriptions will be destroyed when the research is complete and approved. These considerations were communicated to the participant verbally prior to the session using a script included in the protocol (Appendix B).

Data analysis. The data analysis plan was designed around the three research

questions. Figure 7 shows the plan for data analysis by question.

Research Question	Data Source	Analysis
How do practicing teachers define and engage in reflective practice?	Likert Items 1-12 Open-response items 1 and 2 Interview items 1-3	Descriptive analysis of Likert Items (holistic and disaggregated by group) Coding of Open response Coding of Interview Responses Merging of findings through joint display
How do practicing teachers develop as reflective practitioners?	Open-response item 4 Interview item 5	Coding of Open-Response Item Coding of Interview response item Merging of findings through joint display
How does reflective practice influence student achievement?	Likert Items 13-24 Open-response item 3 Interview item 4	Analysis of survey data by group (Average, Good, Excellent) Coding of Open-Response Item Coding of Interview Responses Merging of findings through joint display
<i>To what extent is there a statistically significant difference between teacher reflective practice in schools with different levels of student achievement?</i>	Likert Items 1-12	<i>ANOVA determine if differences in means of each group is statistically significant.</i>

Figure 7. Data Analysis Plan by Research Question.

Quantitative analysis. To better understand the population of the study and of each study group (average, good, and excellent), a descriptive analysis of the data was

completed. The population was described based upon variables including subject area, grade level, highest earned degree, and years of experience. These data were displayed in a combination of charts to offer clear and concise descriptions and to make the data easier to understand (Urdan, 2017).

To answer Research Question 1, Likert items 1-12 were each analyzed descriptively. Items 13-24 were analyzed to answer Research Question 3. Survey analysis first focused on all participants to better understand what the data said about the whole group. Then data were considered for each study group (average, good, and excellent) separately. This process was intended to reveal overarching trends in teacher reflective practice and any differences in practices between groups with varying student achievement levels in order to answer Research Question 3. Data were displayed in a table showing mean Likert ratings by item for each study group. An ANOVA was used to determine the extent to which there was a statistically significant difference between the means of the groups (Urdan, 2017).

Qualitative analysis. After collecting qualitative data from open-ended survey and transcribed interview responses, the researcher followed a structured analysis plan to uncover and analyze emerging themes. Each piece of qualitative data was reviewed first. The researcher then focused on coding the qualitative data by identifying repeated ideas and phrases to determine emerging themes. Each theme was represented by a code consisting of one or two words. The researcher validated the codes and themes determined by having the notetaker who assisted with the interview process review the data and themes determined for accuracy. According to Creswell and Creswell (2018), “Coding is the process of organizing the material into chunks or segments of text, and

assigning a word or phrase to the segment in order to develop a general sense of it” (p. 247). The process followed Tesch’s Eight Steps in the Coding Process to assist the researcher in analyzing the data (Creswell & Creswell, 2018):

1. Read all the survey responses to obtain a sense of the overall findings. Make notes of key ideas.
2. Choose one document to review carefully to find its underlying meaning. Make notes in the margins.
3. Repeat step two for multiple documents. Make a list of topics. Cluster similar topics and form into columns of major, unique, and leftover topics.
4. Use the list to go back through data and abbreviate topics as codes. Write codes next to segments in the text. Look for new categories or emerging themes.
5. Find the most descriptive wording for topics and turn them into categories. Condense the list of categories by grouping topics that relate to each other.
6. Make a final decision about the abbreviation for each category and alphabetize codes.
7. Assemble the data material in each category and perform a preliminary analysis.
8. Recode existing data as needed.

Integrated analysis. After analyzing qualitative and quantitative data separately, the researcher merged the findings to interpret the results and answer the research questions. This was done by data transformation and side-by-side analysis. Data transformation was completed by quantifying themes from qualitative data and

combining them with the findings of the quantitative data (Creswell & Creswell, 2018).

A side-by-side analysis was used to merge data for each research question for the whole group and for each study group (Creswell & Creswell, 2018).

Validity

Due to the convergent design of the study, quantitative and qualitative validity were established. Primarily, construct validity was established for quantitative data by using the same concept, reflective practice, as the basis for each component. For qualitative data, validity was established through triangulation of survey and interview data, rich description, and open disclosure of all evidence related to themes. The researcher attempted to triangulate the findings using what both the quantitative survey results and qualitative analysis of what Likert, open-response, and interview items said about teacher reflective practices (Creswell & Creswell, 2018). Further, negative or discrepant information that did not align with the themes was presented (Creswell & Creswell, 2018). Although it was expected that evidence would build a strong case for the themes identified, an attempt was made to increase the credibility of the findings by disclosing those pieces of evidence which contradicted the theme (Creswell & Creswell, 2018). Efforts were taken to reduce threats to external validity by increasing transferability. To accomplish this, diversity of participants was maximized by including the most participants as possible in the scope of the study so the sample best represented the population.

Reliability

The researcher employed techniques to ensure reliability. Transcripts were checked for errors thoroughly by checking multiple times (Creswell & Creswell, 2018).

The researcher paid close attention to not alter the coding of data over time by making notes about the rationale behind code development (Creswell & Creswell, 2018).

Member checking was used to verify that the coding of themes was accurate and reliable.

This strategy provided reference throughout the process to ensure that inconsistencies did not interfere with the data analysis.

Ethical Considerations

Consent to collect data and perform research was obtained from the district superintendent. A letter was provided to explain the proposed study, and signed permission to proceed was secured (Appendix C). Principals of each school included in the study were contacted via email to explain the purpose of the research (Appendix D). The email also notified principals that teachers would be receiving an email inviting participation in the study and completion of the survey. Participants in the study indicated consent by agreeing to complete the survey after reading a statement of the purpose of the study, confidentiality, and freedom to withdraw at any time by choosing not to submit the survey. No names or identifying information were reported. All data will be deleted after the study is completed and approved.

Summary

The research study was designed to explore the reflective practices of teachers and the influence of those practices on student achievement. This chapter explained and delineated the procedures and methods used for this convergent mixed methods study. A description of the survey tools was included. Considerations and procedures for participant selection, data collection, analysis, and interpretation were described. The chapter also included steps taken to eliminate threats to the validity of the study. The

purpose of the chapter was to provide a clear plan for the researcher's methodology.

Chapters 4 and 5 present the findings of the study including a summary, conclusion, implications, and recommendations for further research.

Chapter 4: Results

Introduction

This research study was conducted for the purpose of examining teacher reflective practice and its influence on student achievement. Three research questions guided the study. The questions were

1. How do practicing teachers define and engage in reflective practice?
2. How do practicing teachers develop as reflective practitioners?
3. How does reflective practice influence student achievement?
 - a. To what extent is there a statistically significant difference between teacher reflective practice in schools with varying levels of student achievement?

Chapter 4 focuses on the results of the study. Data were collected from a survey of teacher reflective practices developed by the researcher and interviews. The chapter begins with a presentation of participant demographic data; then descriptive analysis of Likert survey data is provided. An analysis of themes that emerged from open-response and interview data is shown. Merged results are provided in side-by-side analysis tables for each research question, and the final section summarizes significant findings.

Survey Participant Results

The survey was administered to 429 teachers from eight K-8 schools. Subjects were divided into three study groups based upon 2018 school report card student achievement ratings of good, average, or excellent. Names of study groups align to the rating of schools in the group. Group G had a student achievement rating of good. Group A had a student achievement rating of average. Group E had a student

achievement rating of excellent. Of this participant pool, 169 teachers responded. The response rate of 39.4% was accepted as a reliable representation (Creswell & Creswell, 2018). Data were analyzed based upon responses of all K-8 teachers. Additionally, data from only math and ELA Grades 3-8 teachers were analyzed separately to examine the influence of reflective practice on student achievement. Responses were received from 71 of 172 possible participants which represented a 41% participation rate. Table 8 summarizes participation results in each group.

Table 8

Response Rates

Group	K-8 Population	K-8 Sample n (%)	3-8 Math/ELA Population	3-8 Math/ELA Sample n (%)
All	429	169 (39.4%)	172	71 (41%)
Average	67	31 (46.3%)	27	9 (33.3%)
Good	288	97 (33.7%)	120	46 (38.3%)
Excellent	74	41 (55.4%)	25	16 (64%)

Population and Demographic Information

Population and demographic data were collected related to gender, grade level(s) taught, subject area(s) taught, years of teaching experience, and highest earned degree. The majority of responses were received from females in all groups. Gender data are shown in Table 9.

Table 9

Male/Female Demographic of Groups Versus All Subjects

Group	Total n (%)	Male n (%)	Female n (%)	N/A n (%)
All	169 (100%)	12 (7%)	156 (92%)	1 (0.6%)
Average	31 (18%)	6 (19%)	25 (81%)	0 (0%)
Good	97 (57%)	5 (5%)	91 (94%)	1 (1%)
Excellent	41 (24%)	1 (2%)	40 (98%)	0 (0%)

Years of experience were also considered in the demographic information. A balance of teachers responded in each range of experience. Overall, each experience range represented 15-20% of the respondents, but only 13% of respondents were in the 1- to 4-year range. In the average group, 45% of respondents had 20 or more years of experience, while the good and excellent groups had 31% and 20% respectfully, with this level of experience. Conversely, the good and excellent groups had higher percentages of teachers with less than 10 years of experience at 28% and 37% respectfully, while the average group had only 25% of teachers with similar experience. Years of experience data are shown in Table 10.

Table 10

Years of Experience Demographic of Groups Versus All Subjects

Group	1-4 n (%)	5-9 n (%)	10-14 n (%)	15-19 n (%)	20-24 n (%)	25+ n (%)
All	22 (13%)	29 (17%)	29 (17%)	36 (21%)	23 (14%)	29 (17%)
Average	2 (6%)	6 (19%)	3 (10%)	6 (19%)	8 (26%)	6 (19%)
Good	14 (14%)	14 (14%)	15 (15%)	23 (24%)	13 (13%)	17 (18%)
Excellent	6 (15%)	9 (22%)	11 (27%)	7 (17%)	2 (5%)	6 (15%)

Teacher degree levels varied in the sample groups. In the overall group, 70% possessed a master's degree, 27% possessed a bachelor's degree, and 2% possessed a doctorate degree. These degree levels were consistent across each of the study groups with a slightly higher percentage of master's degree holders in the excellent group at 78%. Table X shows the highest earned degree data for survey participants.

Table 11

Highest Earned Degree Demographic of Groups Versus All Subjects

Group	Bachelor n (%)	Master n (%)	Doctorate n (%)
All	46 (27%)	119 (70%)	3 (2%)
Average	8 (26%)	27 (71%)	1 (3%)
Good	29 (30%)	65 (67%)	2 (2%)
Excellent	9 (22%)	32 (78%)	0 (0%)

The survey was administered to all K-8 teachers in the school district.

Participants represented elementary and middle level teachers of math, ELA, science, social studies, and other areas such as related arts and special education. The higher percentage of participants were from K-5 teachers and math and ELA subject areas.

Grade level and subject area data are shown in Table 12.

Table 12

Grade Level and Subject Area Demographic of Groups Versus All Subjects

Group	K-5 n (%)	6-8 n (%)	Math n (%)	ELA n (%)	Science n (%)	Social Studies n (%)	Other n (%)
All	112 (66%)	43 (25%)	86 (51%)	108 (64%)	11 (7%)	14 (8%)	39 (23%)
Average	18 (58%)	13 (42%)	11 (35%)	17 (55%)	4 (13%)	3 (10%)	9 (29%)
Good	59 (61%)	31 (31%)	49 (51%)	62 (64%)	5 (5%)	7 (7%)	19 (20%)
Excellent	35 (85%)	0 (0%)	26 (63%)	29 (71%)	2 (5%)	4 (10%)	11 (27%)

Respondents were also asked to indicate whether they taught in their current school during the 2018-2019 school year. These data were collected so analysis related to the influence on student achievement would only include those subjects who taught in the school during the year the student achievement data were collected. In the overall sample of all grade and subject areas, 147 of 169 teachers indicated they taught in the same school during the 2018-2019 school year. In the Grades 3-8 math and ELA sample group, 71 respondents taught in their current school during the 2018-2019 school year.

Selection of Interviewees

Interviewees were selected from a pool of participants indicating willingness to

participate in the interview phase of the research. Participants provided email contact information through an external link provided at the conclusion of the survey. Responses were sorted based upon the study group of the participant's school student achievement school report card rating (good, average, or excellent). Two subjects from each group were randomly selected via drawing. Only one agreed to participate from the average group; therefore, an additional participant was drawn from the good group. A total of six subjects were selected. Each interviewee was given a code name: 1A, 1G, 2G, 3G, 1E, and 2E.

Survey Description

The survey was administered using Qualtrics and distributed via email. Three identical forms (Form G, Form A, Form E) of the survey were used so each study group received its own copy and data could be collected and analyzed separately. The instrument began with six questions related to demographic factors followed by two Likert rating sections and one open-response section. Part 1 asked participants to rate frequency of reflective practices through 12 items. Ratings were selected on a Likert type sliding scale of 0-4, where 0=Never, 1=Yearly, 2=Quarterly, 3=Weekly, and 4=Daily. Practices included items related to the social context, content, and means of reflecting. Part 2 asked participants to rate the influence of reflective practices on student achievement. Ratings were selected on a Likert type sliding scale of 0-2, where 0=Not Influential, 1=Somewhat Influential, and 2=Very Influential. Practices included mirrored those included in Part 1 and related to social context, content, and means of reflecting. Part 3 was an open-response section consisting of four questions.

Survey Results

The results of the survey were analyzed first based upon all respondents. For Parts 1 and 2, a descriptive analysis of the data from each item was completed. Part 1 included 12 Likert type sliding scale items related to frequency of reflective practices. Respondents indicated whether they engaged in the practice yearly, quarterly, weekly, daily, or never. A summary of Part 1 descriptive item analysis is shown in Table 13.

Table 13

Reflective Practice Mean K-8 (0=Never/1=Yearly/2=Quarterly/3=Weekly/4=Daily)

Practice	All		Average		Good		Excellent	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Alone	3.69	0.54	3.74	0.51	3.64	.56	3.76	.49
Collaborative	3.05	0.71	3.1	0.6	3.03	.79	3.08	.57
St. Needs	3.42	0.63	3.48	0.72	3.44	.72	3.34	.86
St. Work	3.60	0.62	3.74	0.45	3.58	.67	3.56	.63
On Self	3.62	1.07	3.74	0.58	3.57	.64	3.51	.58
On Others	2.12	0.86	2.77	0.86	1.97	1.15	1.98	.86
Before	2.81	0.59	2.94	0.77	2.70	.89	2.98	.82
During	3.7	0.59	3.63	0.56	3.71	.63	3.7	.52
After	3.49	0.96	3.55	0.51	3.55	.61	3.23	.53
Writing	2.09	0.82	2.32	0.98	2.02	.95	2.05	.95
Dialogue	3.04	0.74	2.94	0.89	3.05	.82	3.1	.78
Video	0.72	0.51	0.79	0.66	0.67	.82	0.77	.65
All Items	3.01	.38	3.1	.38	2.99	.41	2.99	.30

General analysis of responses indicated the teachers engage most frequently in independent reflection, reflection on student work, reflecting on one's own teaching, and reflection during instruction with the mean of those ratings being between 3.5 and 4, or daily. Data indicate that collaborative reflection, reflection on student needs, reflection after teaching, and reflection through dialogue occur weekly with mean ratings in the 3-3.5 range. Reflecting on others, during teaching, and through writing have mean ratings between 2 and 2.8, indicating those practices happen on a quarterly basis. Finally, video

reflection had a mean rating of .72, indicating this practice was rarely used. The researcher used a one-way ANOVA to test for significant differences between the means of groups. The p value of .34 was calculated based upon overall mean rating of frequency of reflective practice. This value was greater than .05, thus not statistically significant.

A one-way ANOVA was also used to test for significant differences between the mean frequencies of each practice, or survey item, between groups. The p value calculated for each item is displayed in Table 14.

Table 14

Analysis of Variance (ANOVA p value) Between Groups All Respondents

Item	Practice	p value			
		All	Average/Good	Good/Excellent	Average/Excellent
All	All	.34	.17	.93	.18
1	Alone	.41	.37	.25	.91
2	Collaborative	.88	.67	.75	.88
3	Student Needs	.70	.76	.50	.46
4	Student Work	.40	.21	.89	.18
5	On Self	.38	.18	.57	.44
6	On Others	.001	.001	.96	.0003
7	Before	.16	.19	.10	.83
8	During	.81	.54	.91	.61
9	After	.07	1.0	.03	.05
10	Writing	.31	.13	.88	.24
11	Dialogue	.69	.50	.76	.41
12	Video	.73	.51	.57	.90

Based upon a p value of .34 ($p > .05$), there was no significant difference identified in the mean of all items between groups. Item 6, reflecting on colleague teachings, had a p value of .001, less than .05, thus it was determined that significant differences exist in this practice between groups. The average group's mean was 2.767, where the good and excellent groups each had means of 1.965 and 1.975 respectfully. While no significant

difference existed between the means of the good and excellent groups ($p=.96$), the mean of the average group was determined to be significantly different than both the good ($p=.001$) and excellent ($p=.0003$). Item 9, reflecting after practice, had a p value of .03 between the good and excellent group, indicating a statistically significant difference in the mean of reflecting after practice for these two groups. The mean of the good group was higher at 3.551 compared to 3.227 for the excellent group.

Part 2 of the survey asked respondents to indicate their perception of the impact of each reflective practice on student achievement. Ratings were based upon a sliding Likert scale of 0-2, where 0=Not Influential, 1=Somewhat Influential, and 2=Very Influential. A summary of the ratings is provided in Table 15.

Table 15

Influence on Student Achievement Mean All K-8 (0=None, 1=Somewhat, 2=Very)

Practice	All		Average		Good		Excellent	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Alone	1.68	.51	1.87	.35	1.62	.55	1.68	.47
Collaborative	1.77	.45	1.73	.45	1.75	.49	1.85	.36
Student Needs	1.83	.41	1.87	.35	1.80	.45	1.88	.33
Student Work	1.89	.31	1.83	.38	1.89	.32	1.95	.22
On Self	1.9	.30	1.9	.31	1.92	.28	1.85	.36
On Others	1.21	.61	1.35	.55	1.15	.59	1.28	.66
Before	1.7	.5	1.77	.50	1.69	.49	1.67	.53
During	1.76	.46	1.8	.41	1.75	.48	1.73	.45
After	1.93	.26	1.9	.31	1.92	.28	1.97	.16
Writing	1.15	.56	1.37	.49	1.07	.55	1.16	.60
Dialogue	1.58	.54	1.52	.51	1.54	.56	1.73	.51
Video	0.72	.70	0.81	.75	0.69	.7	.75	.69
All Items	1.6	.25	1.65	.26	1.57	.26	1.64	.22

When rating the influence of teacher reflective practice on student achievement, the highest rated items for the overall group included reflection on student needs, student work, and one's own teaching and reflecting after teaching. Overall, collaborative

reflection was seen as more influential than reflecting alone; however, the average group indicated the opposite. Reflecting through dialogue was rated more influential than reflecting through writing or video. The excellent group had a mean rating of 1.725 for reflecting through dialogue which was slightly higher than the other groups who rated at 1.5.

Using a Pearson's r , a test of the correlation between frequency of practice and perception of the influence of the practice was conducted. Figure 8 shows a scatter plot representation of the correlation.

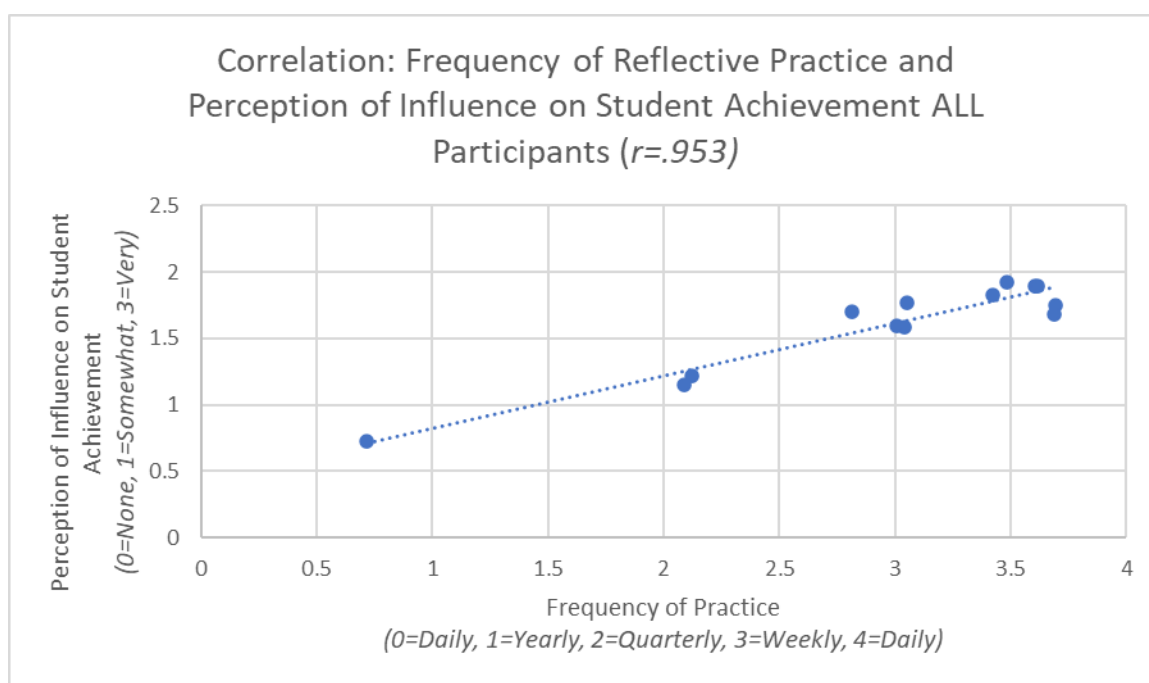


Figure 8. Scatterplot of Frequency of Practice and Perception of Influence. The scatterplot shows the correlation of frequency of reflective practice and teacher perception of the influence of the practice on student achievement.

A strong positive correlation, $r=.953$, was found. This indicated that the higher the ratings of the influence of each practice on student achievement, the higher the

frequency of use of that practice. The trendline in the figure highlights this relationship.

Next, the survey results were analyzed only for Grades 3-8 teachers of math and ELA because these subjects were used to determine the school report card student achievement ratings which were the basis for the study group determination. Results of the survey were summarized by mean rating of each item for all groups and then for each group separately. A summary of the ratings is shown in Table 16.

Table 16

MATH/ELA 3-8 Reflective Practice Frequency

Practice	All		Average		Good		Excellent	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Alone	3.72	.57	4.0	.58	3.65	.60	3.75	0.0
Collaborative	3.31	.58	3.33	.54	3.36	.61	3.19	.50
Student Needs	3.53	.68	3.78	.89	3.49	.63	3.50	.44
Student Work	3.59	.55	3.78	.50	3.54	.59	3.63	.44
On Self	3.61	.64	3.67	.60	3.57	.66	3.69	.71
On Others	2.24	1.08	2.89	.93	2.22	1.17	1.94	.60
Before	2.93	.85	3.11	.68	2.78	.87	3.25	.93
During	3.67	.66	3.63	.48	3.67	.74	3.69	.52
After	3.07	1.36	3.83	1.71	3.60	.60	1.63	.41
Writing	2.22	.89	2.44	1.03	2.26	.86	2.00	.73
Dialogue	3.27	.72	3.33	.78	3.27	.72	3.25	.71
Video	.77	.72	.75	.68	0.80	.82	.70	.46
All Items	3.08	.36	3.21	.31	3.11	.38	2.92	.28

*(0=Never, 1=Yearly, 2=Quarterly, 3=Weekly, 4=Daily)

Overall, math and ELA teachers indicated reflecting alone more frequently, daily, than reflecting collaboratively, weekly. Reflecting during instruction and reflecting on student needs and student work had mean ratings between 3.5-4, indicating these are used almost daily. A rating of 3.6, almost daily, for reflecting on oneself was much higher than 2.2, quarterly, for reflecting on others. Reflecting through dialogue and reflecting before and after teaching were rated as a weekly practice for all Grades 3-8 math and ELA teachers. A one-way ANOVA was used to test for statistically significant

differences between the means of groups where $p < .05$. Table 17 shows the p value calculated for each item based between all groups, between the average and good groups, between the good and excellent groups, and between the average and excellent groups.

Table 17

Analysis of Variance (ANOVA p value) Between Groups Math/ELA

Item	Practice	p value			
		All	Average/Good	Good/Excellent	Average/Excellent
All	All	.57443	.429395	.65088	.24464
1	Alone	.23546	.092426	.574914	.210846
2	Collaborative	.61092	.91871	.334224	.514823
3	Student Needs	.500567	.194019	.956943	.301387
4	Student Work	.49233	.261038	.621003	.452967
5	On Self	.77535	.6763672	.5142707	.9385487
6	On Others	.10433	.10435	.39316	.01134
7	Before	.13158	.30848	.05558	.67195
8	During	.7652	.512012	.661069	.771721
9	After	.15003	.37021	.13274	.00898
10	Writing	.44211	.57381	.32423	.26701
11	Dialogue	.96071	.80025	.9381	.79259
12	Video	.93352	.87093	.73419	.86082

A p value of .57443 was calculated, $p > .05$, thus no significant difference was determined between the overall mean ratings of groups for frequency of reflective practices. A one-way ANOVA was also used to test for statistically significant differences between the mean ratings of each item, or practice, between groups. For item 6, reflecting on others' teaching, a p value of .01134 was calculated for the difference in the mean of the average group, 2.89, and the excellent group, 1.94. This difference was found to be statistically significant based upon $p < .05$. For item 9, reflecting after teaching, a p value of .00898 was calculated for the difference in the mean of the average group, 3.83, and the excellent group, 1.63. This difference was found to be statistically significant based upon $p < .05$.

Math and ELA teachers of Grades 3-8 also indicated their perceptions of the influence of each reflective practice on student achievement. The summary of these ratings is shown in Table 18.

Table 18

Influence on Student Achievement Mean MATH/ELA 3-8

Practice	All		Average		Good		Excellent	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Alone	1.74	.44	1.88	.48	1.73	.45	1.69	.35
Collaborative	1.87	.34	1.75	.40	1.91	.29	1.81	.46
Student Needs	1.88	.32	1.88	.25	1.87	.34	1.94	.35
Student Work	1.90	.30	1.88	.25	1.89	.32	1.94	.35
On Self	1.91	.28	1.88	.34	1.93	.25	1.88	.35
On Others	1.19	.64	1.25	.73	1.21	.65	1.07	.46
Before	1.67	.50	1.75	.51	1.68	.52	1.60	.46
During	1.75	.47	1.75	.49	1.77	.48	1.67	.46
After	1.97	.17	1.88	.00	1.98	.15	2.00	.35
Writing	1.09	.58	1.38	.70	1.10	.54	0.93	.52
Dialogue	1.68	.50	1.75	.41	1.62	.54	1.80	.46
Video	0.78	.66	1.13	.77	0.76	.77	0.62	.64
All Items	1.62	.22	1.68	.21	1.61	.21	1.59	.31

*(0=None, 1=Somewhat, 2=Very)

The group of teachers combined indicated reflecting collaboratively, reflecting on student needs and work, reflecting on oneself, reflecting after teaching, and reflecting through dialogue as being most influential to student achievement. Reflecting on colleagues' teaching and reflecting through writing were considered somewhat influential. Reflecting through video was considered the least influential. Ratings were very similar between groups; however, there was a slightly higher rating for the influence of writing for the average group. The average group also rated reflecting alone more influential than reflecting collaboratively which was opposite of the good and excellent groups' ratings.

Using a Pearson's r , a test of the correlation between frequency of practice and perception of the influence of the practice was conducted. Figure 9 shows a scatter plot representation of the correlation.

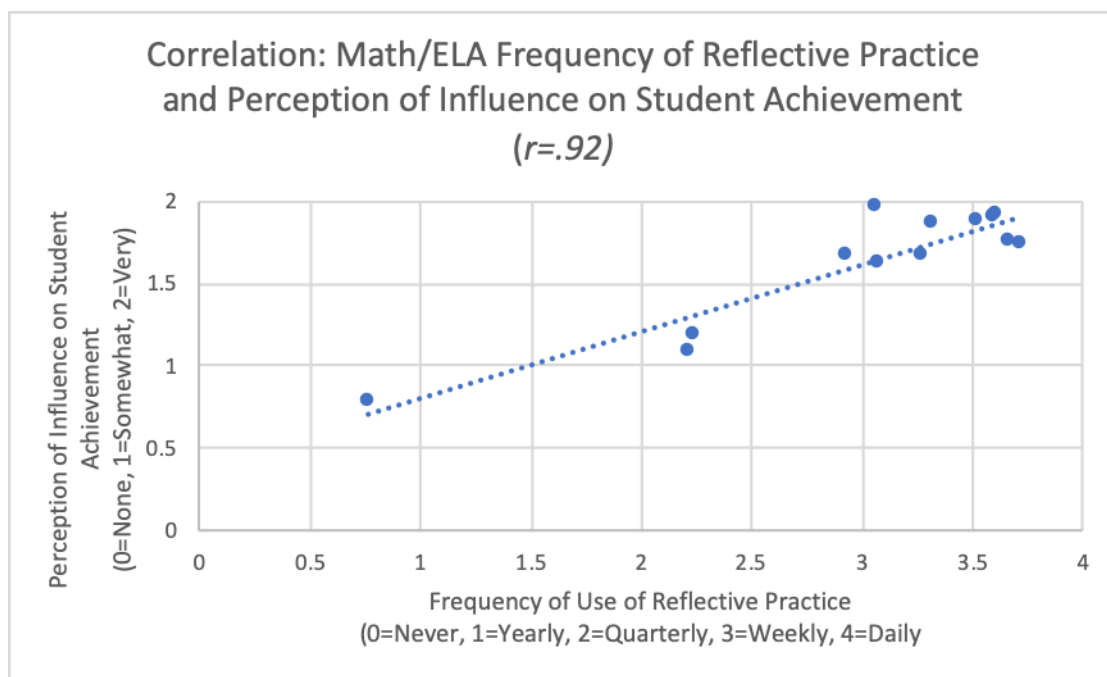


Figure 9. Scatterplot of Frequency of Practice and Perception of Influence (3-8 Math/ELA). The scatterplot shows the correlation of frequency of reflective practice and teacher perception of the influence of the practice on student achievement.

A strong positive correlation, $r=.92$, was found. This indicated that the higher the ratings of the influence of each practice on student achievement, the higher the frequency of use of that practice. The trend line in the figure highlights this relationship.

Part 3 of the survey included four open-response items. These items were intended to examine teacher thoughts and practices in more detail to expand upon the findings of the Likert items. The questions are shown in Table 19.

Table 19

Part 3 Open-Response Survey Questions

Item Number	Question
1	How would you define reflective practice?
2	Describe how you reflect.
3	What is your belief about the influence of teacher reflection on student achievement?
4	What experiences/opportunities support your development as a reflective practitioner?

For each question, responses were coded for themes. After identifying themes, the frequency of each theme was tallied. The researcher checked themes for accuracy through member checking by having another educator review responses and identify themes. These findings were verified with the researcher's findings, and themes were finalized.

Question 1 asked teachers how they would define reflective practice. The themes identified were thinking, teaching practice, what's working, changing or refining, continuous improvement, data and student outcomes, and student needs. Table 20 shows the themes and frequencies first by all responses and then by each group.

Table 20

Open-Response Item 1: Teacher Definition of Reflective Practice

Theme	Frequency (All) n (138)	Frequency (Average) n (25)	Frequency (Good) n (78)	Frequency (Excellent) n (35)
Thinking	62	10	32	20
Teaching Practice	58	11	29	18
What's Working	50	7	28	15
Changing/Refining	39	4	23	12
Continuous Improvement	38	8	18	12
Data/Student Outcomes	33	4	16	13
Student Needs	18	2	13	3

Frequencies of responses indicate that the act of thinking about teaching practice was prominent in teacher definitions of reflective practice. The idea of “what’s working” emerged as teachers discussed thinking about what they had done, what colleagues were doing, and evidence of student learning to determine what was effective, what was not effective, and what to change. Frequently, teachers mentioned changing and refining practices based upon reflection and that the act of reflection facilitated their own continuous improvement. Many responses described using student data to reflect and using reflection to address varying student needs. Rates of responses were similar across groups.

Question 2 asked teachers to describe how they engage in reflective practice. Themes identified included reflecting independently, collaboratively, on student work, through thinking, through dialogue, through writing or “jotting” notes, with a coach or administrator, and with students. Other minor themes were included based upon the literature review findings. These included reflecting through video, reading and researching, peer observation, and feedback. Table 21 shows the themes and frequencies

for each by all respondents and by group.

Table 21

Open-Response Item 2: Teacher Engagement in Reflective Practice

Theme	Frequency (All) n (139)	Frequency (Average) n (24)	Frequency (Good) n (80)	Frequency (Excellent) n (35)
Independent	89	18	54	17
Data/Student Work	77	12	47	20
Collaborative	60	9	27	24
Thinking	46	4	33	9
Dialogue	41	2	27	12
Writing/Jotting Notes	24	6	12	6
Coach/Administrator	11	3	3	5
With Students	7	3	3	1
Video	2	0	1	1
Reading/Researching	1	1	0	0
Peer Observation	1	0	1	0
Feedback	1	0	1	0

As shown in Table 21 teachers describe engaging in reflection mostly independently by practices such as thinking and jotting notes. Collaborative reflection was also mentioned frequently, and dialogue emerged as a key practice. Many responses discussed using student work and data to facilitate reflection, and some discussed the leadership of a coach or administrator in the reflective process. Frequencies were similar across groups and no theme stood out as different between the groups.

Open-response item 3 asked teachers how they would describe the influence of teacher reflective practice on student achievement. The themes identified included positive impact, drives instructional change, improves the teacher, helps meet student needs, and the importance of student self-reflection. The frequencies of each theme by all respondents and for each group are shown in Table 22.

Table 22

Open-Response Item 3: Influence of Reflective Practice on Student Achievement

Theme	Frequency (All) n (139)	Frequency (Average) n (24)	Frequency (Good) n (81)	Frequency (Excellent) n (34)
Positive Influence	97	18	60	19
Drives Instructional Change	57	4	41	12
Improves Teacher	32	1	17	14
Meet Student Needs	31	2	19	10
Student Self-Reflection	21	7	9	5

The overall perception of the influence of reflective practice on student achievement was overwhelmingly positive in all groups. Responses discussed the importance of reflective practice to drive instructional change that ultimately impacts student learning and achievement. Additionally, it was seen as important to facilitate teacher improvement that would lead to a more effective learning environment. Many teachers discussed how reflection helps them better determine student needs and how to best respond to those needs. The idea of students using self-reflection was a theme that stood out as well as teachers considered this as part of their own reflective practice.

Item 4 asked teachers to describe any experiences or opportunities that support their development as reflective practitioners. Themes that emerged included meeting collaboratively and with Teaching and Learning Teams (TLTs), professional development, giving and receiving observation feedback, examining best practice, and independent reflection. Minor themes included the process of National Board certification, journaling, and curriculum work. Table 23 summarizes these themes by overall response and by group.

Table 23

Open-Response Item 4: Development of Reflective Practice

Theme	Frequency (All) n (124)	Frequency (Average) n (21)	Frequency (Good) n (72)	Frequency (Excellent) n (31)
Meeting Collaboratively	93	13	51	29
Professional Development	23	2	12	9
Observation/Feedback	18	4	12	2
Examining Best Practice	13	5	3	5
Independent Reflection	11	0	10	1
National Board Certification	3	1	1	1
Journaling	4	0	3	1
Curriculum Work	4	1	3	0

The experience reported most frequently as developing reflective practice was meeting collaboratively. Teachers described their meeting formally and informally to share ideas, discuss practices, examine student works, and ultimately determine “what works.” Additionally, teachers valued professional development and both giving and receiving feedback. The findings were consistent between groups.

After examining frequencies of themes in each open-response item separately, the researcher combined themes from all responses to examine collective themes related to teacher reflective practice. The collective themes determined were refinement (what’s working/best practice), collaboration, improving teacher practice, using data/student work, thinking, reflecting independently, meeting student needs, dialogue, student reflection, and writing or jotting notes. The themes are displayed in Table 24 and sorted from highest to lowest frequency.

Table 24

Collective Themes from All Open-Response Items

Theme	Frequency (All)	Frequency (Average)	Frequency (Good)	Frequency (Excellent)
Refinement (What's Working/Best Practice)	159	20	95	44
Collaboration	153	22	78	53
Improves Teacher Practice	128	20	64	44
Data/Student Work	110	16	63	33
Thinking	108	14	65	29
Independently	100	18	64	18
Meet Student Needs	49	4	32	13
Dialogue	41	2	27	12
Student Reflection	28	10	12	6
Writing/Jotting Notes	28	6	15	7

Collaborative reflective practice and reflection for refinement, or determining what works, were the themes with the highest frequency in all groups, and each was mentioned over 150 times. Reflection to improve teacher practice was also a very high frequency theme mentioned 128 times. Using data and student work to reflect were reported over 100 times along with reflecting independently and through thinking. Meeting student needs, using dialogue, student reflection, and writing or jotting notes were also overarching themes with somewhat lower frequencies each under 50.

Interview Results

Six interviews were conducted after the surveys were complete. Subjects

indicated willingness to participate in follow-up interviews by submitting their email address via external link embedded in the survey. Two responses were received from the average and excellent groups, and 15 were received from the good group. Only one participant from the average group agreed to the interview, and both participants selected from the excellent group were interviewed. The researcher randomly selected three participants from the good group via drawing. Figure 10 shows a summary of the interview subjects' experience, certification, and current teaching position.

Subject	Group	Current Position	Years of Experience	Certification(s)
A1	Average	Middle Level Project Lead the Way	10	Associate's-Industrial Technology Bachelor's-Career and Technology Education Master's-Career and Technology Education
G1	Good	Middle Level Math	9	Bachelor's-Middle Level Math and Social Studies Master's-School Administration
G2	Good	3 rd Grade	3	Bachelor's-Elementary Education
G3	Good	Middle School ELA and Social Studies	12	Bachelor's-Middle Grades Education Master's Degree-Literacy and Technology
E1	Excellent	Preschool	5	Bachelor's-Comprehensive Special Education Master's-Special Education
E2	Excellent	K-5	5	Bachelor's-Elementary and Special Education

Figure 10. Description of Interview Subjects. Interview subjects' position, years of experience, and areas of certification.

Interview subjects represented a variety of grade levels, certifications, and years

of experience. Elementary and middle grades were each represented by three interview subjects. The areas taught included special education, general elementary and preschool areas, middle school math, middle school ELA, middle school social studies, and middle school Project Lead the Way. The elementary teachers were all within their first 5 years of teaching, while the middle level teachers were nearing the middle of their career with between 9 and 12 years of experience. Certifications included bachelor's degrees in elementary education, middle level education, special education, and career and technology education. Four participants held master's degrees in the areas of school administration, literacy and technology, special education, and career and technology education.

Interviews were conducted by the researcher and voice recordings were taken. An assistant took notes during interviews and helped with recording. Interviewees were asked five questions related to reflective practice. Responses to questions were transcribed. Transcriptions were reviewed by each interviewee for verification. The researcher coded responses for themes by question. Themes were checked by the assistant to ensure validity.

Interview questions were aligned to the survey open-response questions and themes identified were aligned to themes determined in the survey open-response data. Interview question 1 corresponded to open-response question 1 and explored teacher definitions of reflective practice. Interview question 2 produced themes that corresponded to both open-response items 1 and 2. Interview item 2 asked respondents to describe an experience that exemplified their reflective practice. This question generated ideas that supported teacher definition of reflective practice and ways teachers

engage in reflective practice. Therefore, themes from interview item 2 were divided and merged with corresponding themes in items 1 and 3. Interview question 3 corresponded to open-response question 2 and explored teacher engagement in reflective practice. Interview question 4 corresponded to open-response question 3 and inquired about teacher perceptions of the influence of reflective practice on student achievement. Finally, interview question 5 corresponded to open-response question 4 which asked teachers to identify any experiences that have encouraged their development as a reflective practitioner. Figure 11 shows the themes and frequencies revealed in interview data. Themes are organized by alignment to open-response items.

Open-Response Question	Interview Question (s)	Themes	Frequency of Themes			
			All	Ave.	Good	Exc.
1. How do you define reflective practice?	1. How would you define reflective practice? 2. Describe an experience that is an example of your use of reflective practice.	Thinking	10	0	7	3
		Teaching Practice	3	0	2	1
		What's Working	9	2	4	3
		Changing/Refining	17	5	5	7
		Continuous Improvement	0	0	0	0
		Data/Student Outcomes	5	1	3	1
		Student Needs	6	2	2	2
2. How do you engage in reflective practice?	2. Describe an experience that is an example of your use of reflective practice. 3. In what ways (formal or informal) do teachers in your school engage in reflective practice?	Independently	6	1	4	1
		Data/Student Work	11	0	11	0
		Collaboratively	32	3	21	8
		Thinking	9	0	7	2
		Dialogue	24	2	16	6
		Writing/Jotting Notes	0	2	2	0
		Coach/Administrator	5	0	1	4
		With Students	0	0	0	0
		Video	0	0	0	0
		Reading/Researching	2	0	2	0
		Peer Observation	4	0	2	2
		Feedback	0	0	0	0
3. How does reflective practice influence student achievement?	4. How does engaging reflective practice influence student achievement?	Positive Influence	3	1	1	1
		Drives Instructional Change	3	1	1	1
		Improves Teacher	4	1	1	2
		Meet Student Needs	11	3	3	5
		Student Self-Reflection	0	0	0	0
4. What experiences throughout your career have encouraged or supported your development as a reflective practitioner?	5. What experiences throughout your career have encouraged or supported your development as a reflective practitioner?	Meeting Collaboratively	16	4	10	2
		Professional Development	0	0	0	0
		Observation/Feedback	10	2	4	4
		Examining Best Practice	0	0	0	0
		Independent Reflection	3	0	3	0
		National Board Certification	0	0	0	0
		Journaling	1	0	1	0
		Curriculum Work	0	0	0	0

Figure 11. Thematic Analysis of Interview Responses. This display shows frequency of themes by interview questions aligned to open-response items.

Interview responses for items 1 and 2 reflect similar ideas as the open response data. Interviewee definition and description of reflective practice commonly included thinking, identifying ‘what’s working’, and a process of changing and refining. Responses to items 2 and 3 also described engagement in reflective practice. Responses overwhelmingly included formal and informal collaboration with peers and dialogue. Interview item 4 asked how reflective practice influenced student achievement. Responses focused on the power of reflective practice to enable teachers to meet student needs. Finally, item 5 asked about experiences support development as reflective practitioner. Meeting collaboratively and observation with feedback were the predominant experiences discussed.

Significant Findings

Findings from quantitative and qualitative data were merged using a side-by-side analysis template. Data for each research question were reviewed to identify any significant findings.

Research Question 1. Research Question 1 asked, “How do practicing teachers define and engage in reflective practice?” To answer this question, data were merged and analyzed from survey items 1-12, open-response items 1-2, and interview items 1-3.

Figure 12 shows the side-by-side display of these data.

Likert Items 1-13					Open-Response Item 1 (n=138) Interview Item 1 (DEFINITION)					Open-Response Item 2 (n=139)/Interview Items 2 & 3 (ENGAGEMENT)				
Item	Mean Rat. 3.01	A 3.1	G 2.99	E 3.0	Theme	Freq	A 23	G 80	E 36	Theme	Freq	A 24	G 79	E 34
1 ind	3.686	3.74	3.64	3.76	Think	62 45%	10 43%	32 40%	20 56%	Video	2/1%	0	1	1
2 coll	3.054	3.1	3.03	3.08		10	0	7	3	Write/ jot	24/17%	6	12	6
3 st. need	3.423	3.48	3.44	3.34	Refine	39 28%	4 17%	23 29%	12 33%	Dial.	41/29%	2	27	12
4 st. work	3.604	3.74	3.58	3.56		17	5	5	7	St. Data	77/55%	10	47	20
5 own tch	3.615	3.74	3.57	3.4	Impr.	38 28%	8 35%	18 23%	12 33%	Think	46/33%	4	33	9
6 col. tch	2.122	2.77	1.97	1.98		0	0	0	0	Collab	60/43%	9	27	24
7 bef.	2.813	2.94	2.7	2.98	What Works	50 36%	7 30%	28 35%	15 42%	Indep.	89/64%	18	54	17
8 dur	3.695	3.63	3.71	3.7		9	2	4	3	Coach/ Admin	11/8%	3	3	5
9 after	3.486	3.55	3.55	3.23	T. Pract.	58 42%	11 48%	29 36%	18 50%	With Stud.	7/5%	3	3	1
10 write	2.086	2.32	2.02	2.05		3	0	2	1	Rdg/ Res.	1	1	0	0
11 dial	3.042	2.94	3.05	3.1	St. Needs	18 13%	2 9%	13 16%	3 8%	Peer Obs.	4	0	2	2
12 video	0.718	0.79	0.67	0.77		6	2	2	2	Fd. back	1	0	1	0
					St. Data	33 24%	4 17%	16 20%	13 36%					
						5	1	3	1					

Figure 12. Side-By-Side Analysis Table for Research Question 1.

Teachers defined reflective practice using the terms and concepts thinking, refining, improving, and determining what's working. The "what's working" theme was

overwhelmingly dominant throughout the qualitative responses. Teachers described thinking about and discussing “what went well and what didn’t work” followed by “what can I do better” or “what needs to change.” Definitions reference using data and examining student outcomes to improve teaching practice and to better understand and meet student needs. Teachers describe their engagement in reflective practice to be both independent and collaborative and characterized by thinking, jotting notes, dialogue, and examining student work. These processes were reported to occur before, during, and after instruction with a higher frequency of reflection occurring during the teaching process and after a lesson or unit. Using video, peer observation, feedback, reading or researching, and reflecting with a coach or administrator were reportedly at a very low frequency in Likert, open-response, and interview items. A definition was formulated to reflect the findings of this data analysis. Practicing teachers define reflective practice as, “The independent and collaborative process of thinking or looking back on an experience, determining what’s working and refining teaching practice to better meet student needs and increase student learning.”

Research Question 2. Research Question 2 asked, “How do practicing teachers develop as reflective practitioners?” Data from open-response item 4 and interview item 5 were analyzed thematically, and frequency of themes was merged into a side-by-side analysis table shown in Figure 13.

Open-response Item 4 (n=122) Interview Item 5				
Theme	Freq	A 21	G70	E 31
Collaborating/meeting/comm planning	51 42%	10 48%	40 57%	21 68%
	16	4	10	2
PD	23 19%	2 10%	12 17%	9 29%
	0	0	0	0
Observation & Feedback	18 15%	4 20%	12 17%	2 6%
	10	2	4	4
Examining best practice	13 11%	5 24%	3 4%	5 16%
	0	0	0	0
Independent Reflection	11 9%	0	10 14%	1 3%
	3	0	3	0
Nat'l board	3 2%	1 5%	1 1%	1 3%
	0	0	0	0
Journaling	4 3%	0	3 4%	1 3%
	1	0	1	0
Curriculum Work	4 3%	1 5%	3 4%	0
	0	0	0	0

Figure 13. Side-By-Side Analysis Table for Research Question 2. For each theme, the frequency from open-response item 4 is shown on the first row and frequency from interview item 5 is shown on the second row. The percentages represent the percent of responses that included the theme.

Teacher responses indicated that development of reflective practice is most supported by collaboration through informal conversations and team meetings. In addition, some indicate that professional development as well as observation and feedback support reflective practices. Three interview subjects spoke of undergraduate and first year teaching programs that required journaling to reflect. No interview or

survey reported using journaling formally to develop as reflective practitioners. Teachers describe being able to observe peers to provide feedback and to gather ideas. Some report this helps to problem solve and find new strategies to improve their practice. A few responses discuss the value of being observed by peers, administrators, and coaches. These collaborative activities offer “different perspectives” and help teachers “bounce ideas” off each other.

Research Question 3. Research Question 3 asked, “How does reflective practice influence student achievement?” This question was examined through analysis of Likert items 13-24, open-response item 3, and interview item 4. Figure 14 shows the side-by-side display of all data for this question.

Likert Items 14-26					Open-response Item 3 (N=139) Interview item 4					
Item	Mean Rating 1.597	A 1.65	G 1.57	E 1.64	Theme		Freq	A n=24	G n=80	E n=35
13ind	1.68	1.87	1.62	1.68	Positive Impact	Open response	97 70%	18 75%	60 75%	19 54%
14coll	1.77	1.73	1.75	1.85		Interview	3	1	1	1
15s.nd	1.83	1.87	1.80	1.88	Raises aware- ness of student needs	Open response	31 22%	2 8%	19 24%	10 29%
16s.wk	1.89	1.83	1.89	1.95		Interview	11	3	3	5
17o.tc	1.9	1.9	1.92	1.85	Improve teacher	Open response	32 23%	1 4%	17 21%	14 40%
18col.tc	1.21	1.35	1.15	1.28		Interview	4	1	1	2
19before	1.7	1.77	1.69	1.67	Student Self Refl.	Open response	21 15%	7 29%	9 11%	5 14%
20during	1.76	1.8	1.75	1.73		Interview	0	0	0	0
21after	1.93	1.9	1.92	1.97	Drives instr. Change	Open response	57 41%	4 17%	41 51%	12 34%
22writing	1.15	1.37	1.07	1.16		Interview	3	1	1	1
23dial	1.58	1.53	1.54	1.73						
24video	0.72	0.81	0.69	0.75						

Figure 14. Side-By-Side Analysis Table for Research Question 3. This display shows the mean rating of Likert items 13-24. Thematic analysis is shown on the right with open-response frequency in the first line for each theme and interview frequency in the second row. Percentages represent the percent of open responses that included each theme.

Responses indicated teachers believe reflective practice positively impacts student learning and ultimately student achievement. Themes express the idea that reflection drives instructional changes and raises awareness of student needs. These products of reflective practice were described to help improve and refine so student engagement and “accountability” could be increased to increase learning and student outcomes. Some teachers discussed the value of student reflection to increase student achievement in partnership with teacher reflection. One statement was, “If we are constantly looking for what’s working and looking at our data to see how our students are learning, how can it not have a positive impact?”

The sub question for Research Question 3 asked, “To what extent is there a statistically significant difference between teacher reflective practice in schools with varying levels of student achievement?” This was examined using a one-way ANOVA to test for differences in the mean ratings of Likert items between groups. This test was used for all respondents and then for only math and ELA teachers. Results indicated there was no statistically significant difference in the overall frequency of reflective practice between the average, good, and excellent groups. The test also was used to determine any differences in each of the practices rated on the Likert items. Tests of all respondents as well as only math and ELA teachers indicated statistically significant differences in frequency of reflecting on colleagues’ teaching and frequency of reflecting after practice. For these practices, the average group had higher frequencies of practice than the good and excellent groups.

Summary

This research study used a combination of Likert survey, open-response

questions, and interviews to collect data and answer research questions related to how teachers define and engage in reflective practice and develop as reflective practitioners and how reflective practice influences student achievement. Quantitative data were analyzed descriptively to better understand the frequency of use of reflective practices and teacher perceptions of the influence of those practices on student achievement. Qualitative data were analyzed thematically to gain a deeper understanding of teacher reflective practice and for the purpose of triangulation.

Merging of data through side-by-side analysis enabled the researcher to glean significant findings related to each of the research questions. A definition of reflective practice was developed and presented. Based upon findings of this study, practicing teachers define reflective practice as, “The independent and collaborative process of thinking or looking back on an experience, determining what’s working, and refining teaching practice to better meet student needs and increase student learning.” Primary means of engaging in this process were through a combination of independent thinking or “looking back,” collaboration, and dialogue. An overarching theme of “what’s working” dominated all qualitative data. A one-way ANOVA was used to test for statistically significant differences between the overall reflective practices of the three study groups of average, good, and excellent student achievement. The test indicated no significant difference in overall reflective practice; however, tests of each practice indicated significant differences in the frequency of reflecting on colleagues’ teaching and reflecting after teaching. For these practices, teachers in the average group had a significantly higher mean rating of frequency than the good and excellent group. Additionally, a Pearson r indicated a strong positive relationship between teacher

perception of the influence of reflective practices on student achievement and frequency of use of reflective practices.

Chapter 5: Discussion

Overview

This research study was conducted for the purpose of examining teacher reflective practice and its influence on student achievement. Three research questions guided the study. The questions were

1. How do practicing teachers define and engage in reflective practice?
2. How do practicing teachers develop as reflective practitioners?
3. How does reflective practice influence student achievement?
 - a. To what extent is there a statistically significant difference between teacher reflective practice in schools with varying levels of student achievement?

This chapter discusses the results of the study. Theoretical and practical implications are presented. The chapter concludes with recommendations for further research.

Data Collection

This study was conducted to determine how practicing teachers define and engage in reflective practice, how practicing teachers develop as reflective practitioners, and the influence of teacher reflective practice on student achievement. A survey developed by the researcher was used to quantify the frequency of practices and perception of the influence of those practices on student achievement. Open-response and interview items were used to gather more information to support the survey data and gain a better understanding of reflective practice.

Data were collected in two phases that included a survey and follow-up

interviews. The survey consisted of 24 Likert items measuring frequency of reflective practices and perception of the influence of those practices on student achievement. The survey also included open-response items which prompted respondents to discuss how they define and engage in reflective practice, how they perceive the impact of reflective practice on student achievement, and how they have developed as reflective practitioners.

At the conclusion of the survey, participants indicated willingness to participate in a follow-up interview. Six subjects were chosen for interviews. Subjects represented the three study groups (average, good, excellent) that were determined based upon school report card student achievement ratings. One subject was selected from the average group, three from the good group, and two from the excellent group. Interviewees were asked questions regarding their definition and engagement in reflective practice, experiences that exemplify their practice, school practices, development of reflective practice, and the impact of reflective practice on student achievement.

Quantitative data collected from the survey were analyzed descriptively. Results were analyzed first by all respondents and then by math and ELA teacher data only. An examination of the differences between the practices of groups indicated by survey items 1-12 was conducted using a one-way ANOVA where $p < .05$ was considered statistically significant. Qualitative data were coded for themes and then merged with quantitative data in a side-by-side analysis.

Discussion of Results: Practical Implications

Defining and engaging in reflective practice. Past literature offers numerous definitions of reflection, but no clear consensus exists. Common to most theorists is the concept of reflection as thinking or considering an experience to guide actions and make

decisions to improve future experiences (Dewey, 1910; Johns, 2017; Mezirow, 1990; Tremmel, 1993; Tripp & Rich, 2012). Dewey (1910) pointed out critical components of reflection being a “state of doubt” (p. 9) that prompts thinking and the “act of searching, hunting, inquiring” (p. 9) to find a solution. Mezirow (1990) emphasized that taking action and testing out new ideas was a critical element that defined the difference between thinking and reflection, or reflective action. In an effort to define reflective practice from the perspective of in-service teachers, this study examined the concept through three lenses: social context, practices/processes, and frequency. Figure 15 shows the conceptual framework of the study and includes the key findings determined in each component of teacher reflective practice examined.

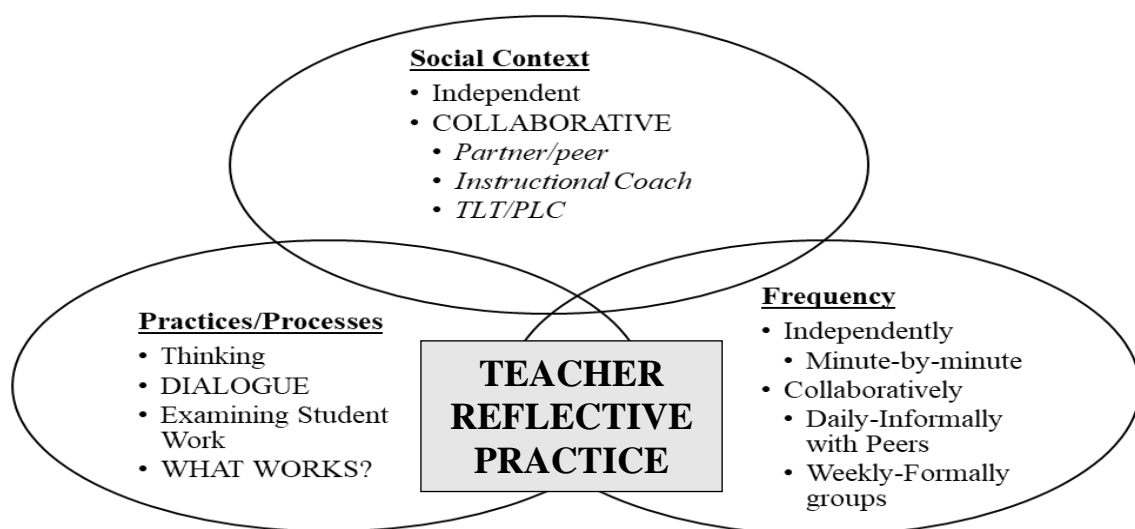


Figure 15. Teacher Reflective Practice Conceptual Framework. This framework summarizes the key concepts determined in this study of reflective practice through three lenses: social context, practices/processes, and frequency.

The framework includes the frequencies, practices, and social contexts through which reflective practice occurs. The model shown in Figure 15 is a dynamic illustration. Depending on the situation, need, and professional, the model may shift to indicate a higher frequency of independent or collaborative social context. Additionally, in different situations, there may be more frequent use of one process over another. The data collected through this research indicates that reflective practice is a dynamic process that supports continuous improvement and increased student outcomes. Based on the findings of this research, although teacher reflective practice integrates independent and collaborative reflection, the collaborative processes were the defining element that distinguished reflective thinking from reflective practice. Thinking and dialogue dominated the practices described to facilitate reflective action. Teachers considered reflection first as an act of thinking independently about their instruction. The thinking described was indicative of Schon's (1983) reflection-in and reflection-on-action. During lessons, teachers reported thinking about what worked and making quick notes. Teachers described questioning internally what went well, what did not, and what needed to change. Student engagement and learning needs were the primary concern as teachers discussed practices of rapid and repair reflection that occur routinely and automatically during instruction to monitor and adjust (Zeichner & Liston, 1996). Teachers used phrases such as "looking back" to illustrate thinking about experiences after they occur. These reflective practices were reported to happen continuously during instruction, after each session, at the end of a day, and after a 9 weeks or semester (Hall & Simeral, 2015).

This independent act of thinking in and on action translated to the collaborative act of dialoguing to deliberately reflect on and for action (Disu, 2017; Valli, 1997;

York-Barr et al., 2006; Zeichner & Liston, 1996). Informally, professionals noted reaching out to colleagues, coaches, mentors, administrators, and other experts to consider other perspectives and gather ideas that might improve their own practice or better meet student needs. Common practices were “hallway chats” with team members that occur informally between classes, at lunch, or at the end of school days. These conversations were reported to focus on what went well and what did not and sharing ideas to adjust instruction in the short term. These informal practices were complemented by formal gatherings of small groups such as TLTs or PLCs that involve a more critical analysis of formative assessment data and engage teachers in deep discussion of strategies that are most effective to meet learning goals (Blythe et al., 2015; Carpenter, 2017; Danielson, 2006; Disu, 2017; DuFour et al., 2008; Graham & Ferriter, 2010; Nilsson et al., 2017; Slavit et al., 2012). According to subjects, these meetings occur weekly and engage teachers of common grades and subject areas in reflective conversation and planning facilitated by coaches and administrators. While the literature suggested many questions used to guide reflective conversations, three questions emerged from data collected in this research. These questions were What worked; What didn’t; and What do I need to change? As teachers described examining these questions, it appeared that the true reflection for action occurred after these were considered. These questions prompted the inquiry stance necessary to motivate a quest for instructional change and improvement. The search for new strategies and perspectives led teachers to engage in collaborative processes that were believed to positively impact teaching and could not be achieved alone (Carpenter, 2017).

While many of the practices included in previous research were confirmed by this

research, the data collected in this study suggested that some commonly discussed reflective practices are not characteristic of the reflective practice of in-service teachers. While reflection through formal writing or journaling is prominent in the literature (Farrell, 2016; Jaeger, 2013; Risko & Vogt, 2016; York-Barr et al., 2006), findings indicate the act of “jotting notes” is more frequently used by practicing teachers, and formal journaling is rare to nonexistent. Most open responses and interviewees indicated that these were heavily used during preservice and induction years, but they simply do not take the time to formally journal. While this was the predominant finding, interviewee G2, who was in her third year of teaching, did report journaling regularly at the end of a day or week primarily to write about her experiences. While the literature proposed the benefit of using video to critically reflect on teaching segments to identify elements of personal practice that could be improved (Jaeger, 2013; McCullagh, 2012; Reitano & Sim, 2010; Wieser, 2016), this study suggested that teachers do not commonly use video as a means of reflecting. Other collaborative practices suggested in the literature such as peer review, lesson study, and action research were not observed in the data collected for this study; thus, the study implied that while these may be examples of collaborative practices, they are not commonly used by in-service teachers (Gutierrez, 2015; Impedovo & Malik, 2016; Lewis et al., 2004; Samaranayake et al., 2018; Verhoef et al., 2015).

The literature suggested a range of categories and levels of reflection involved in teaching. These ranged from practical and technical consideration of elements such as pedagogy and curriculum to deliberative and critical examination focused on transforming practice and continuous improvement (Butke, 2006; Valli, 1997; Zeichner

& Liston, 1996). This study indicated that practicing teachers' engagement in reflective practice is centered on the latter and characterized by a focus on refinement. Teachers were concerned with improving to better meet student needs. Practical elements such as pacing, sequencing, content, and management were not at the forefront of teacher explanation of reflective practice. The concern with "what's working" and meeting student needs indicated that practicing teachers engage regularly in deliberative and critical reflection (Valli, 1997). Deliberative reflection was evidenced by the value of examining colleagues' teaching and gleaning insight from other's experiences and expertise. The overarching concern with meeting student needs and addressing inequities aligned with Valli's (1997) description of critical reflection. This suggested practicing teachers engage in more rigorous processes to evaluate effectiveness based upon evidence of student learning and apply inquiry-based approaches for continuous improvement with the goal of increasing student outcomes (Blythe et al., 2015; Cheung & Wong, 2017; Hattie, 2015; Slavit et al., 2012). Further, the teachers' focus on "what works" for student learning and their use of collaborative reflection to facilitate continuous improvement support the assertion that continuous cycles of reflective practice result in transformational learning (Carey, 2017; Johns, 2017).

Developing reflective practitioners. York-Barr et al.'s (2006) Reflective Practice Spiral described the continuous development of reflective practice from the individual to the group to the school/organization. The study found that practicing teachers attribute their development as reflective practitioners to collaboration with peers. Teachers reported benefitting from opportunities to share ideas and learn from others with more experience or from new teachers possessing fresh ideas. Collaborative

activities discussed included informal conversations in the hallway or after class as well as more formal team and department meetings. Teachers touted the benefit of working together with other teachers not only in their grade and subject but throughout their school and even extending out to teachers in other schools. These opportunities included graduate course work or school and district level professional development. The value in these experiences was not described to be the content but the availability of other possible experts in the field who possess knowledge that may be beneficial. Teachers seemed to value the sharing of ideas and perspectives that occur naturally in the mixed setting of professional learning opportunities. Findings supported previous work that discussed the benefits of collaborative reflection for problem-solving and continuous improvement (Darling-Hammond et al., 2017; York-Barr et al., 2006). Specific to the district of study, teachers indicated the TLTs helped facilitate the habits of reflection (Blythe et al., 2015; Carpenter, 2017; Darling-Hammond et al., 2017; Farrell, 2016; McArdle & Counts, 2010; Nilsson et al., 2017; Saylor, 2014). Open-response and interview data expressed teacher awareness that they reflect all the time; but when they have opportunities to get together, they are more intentional about making changes. Additionally, teachers discussed the benefit of observing others that triggers thinking about how they can apply practices in their own classroom and ways they can improve. These thoughts supported Poulos et al.'s (2016) research that reported teachers attribute classroom improvement to reflective peer conversations.

Some evidence suggested reflective practice developed through shared learning from planning and feedback sessions with instructional coaches and administrators. Farrell (2016) noted these engagements were essential to challenging assumptions and

encouraging necessary changes in practice.

Much of the literature on reflective practices proposed the power of opportunities to engage in continuous inquiry cycles as a means to increase reflective capacity (Cheung & Wong, 2017; Dufour et al., 2008; Hall & Simeral, 2008; Johns, 2017; York-Barr et al., 2006). Participants in this study explained reflection that drives change results from constantly looking back together and figuring out what works. The collaborative practices described by teachers in this study reflected continuous processes of questioning, both formally and informally, what worked, what did not, and what should change and then seeking out ways to refine (Cheung & Wong, 2017; Hall & Simeral, 2008; Jaeger, 2013; Johns, 2017; Race, 2006; Tripp & Rich, 2012).

Influencing student achievement. The study did not reveal any statistically significant difference in overall reflective practice between teachers in schools with varying levels of student achievement. Practices were consistent within and across groups in both quantitative and qualitative data. Analysis of differences between frequencies of specific practices indicated statistically significant differences in the frequency of reflecting on colleagues' teaching and reflecting after teaching (Butke, 2006; Erkens, 2008; Nilsson et al., 2017; Van Manen, 1977; Zeichner & Liston, 1996). These practices were more frequently used by teachers in the average student achievement group as compared to the good and excellent groups. This finding was true for analysis of groups including all teachers in the study as well as analysis of only Grades 3-8 math and ELA teachers.

As much of the literature suggests, the study produced evidence that teachers believe reflective practice has a positive impact on student learning (Furtado &

Anderson, 2012; Saylor, 2014; Wright, 2019; Zepida & Ponticell, 2018). A common statement was, “If we are constantly working to improve then how can it not impact student learning.” A positive relationship was found between teacher perception of the influence of specific reflective practices on student achievement and the frequency of those practices. The most influential practices identified were independent and collaborative reflection; reflecting on oneself, student work, and student needs; reflecting through dialogue; and reflecting before, during, and after teaching. While no overall significant difference exists between frequency of reflective practices between teachers in schools with average, good, and excellent student achievement ratings, there was a statistically significant difference in the frequency of reflecting on colleagues’ teaching and reflecting after teaching. Teachers in schools with average achievement ratings reported higher frequency of these practices than teachers in the good and excellent groups. Dewey (1910) pointed out critical components of reflection being a “state of doubt” (p. 9) that prompts thinking and the “act of searching, hunting, inquiring” (p. 9) to find a solution. This finding could indicate that those teachers were spending more time searching for “what’s working” and reflecting after teaching to refine practices in order to increase student achievement. These actions would reflect Dewey’s (1933) assertion that being an effective teacher required the reflective capacity to be open and eager to find new approaches out of concern for consequences or outcomes. This perception seemed to be driven by beliefs that reflective practice drives instructional changes that better meet student needs and improve teaching practice, thus increasing student learning and achievement.

Discussion of Results: Theoretical Implications

The findings of this study support and expand upon the theoretical frameworks that ground the research. This framework focused on Kolb's (1984) Experiential Learning Cycle and Gibbs's (1988) Cycle of Reflection. Kolb's (1984) cycle presents learning as a process of having an experience, reflecting on the experience, and experimenting with new approaches to transform experience to new learning. Gibbs's cycle expands upon the reflecting component of Kolb's (1984) work. Gibbs illustrated the reflective cycle in six stages: description of an experience, examining feelings related to the experience, evaluating the experience as good or bad, analyzing the experience, drawing conclusions about alternative actions, and developing an action plan for future experience.

While the data collected in this study mirrors the components of these cycles, findings suggest teacher reflective practice more specifically as a process of identifying what works based upon evidence of student learning to refine and continuously improve pedagogy. While Gibbs's (1988) cycle speaks of examining feelings and evaluating experiences as good or bad, teachers are more focused on examining student learning outcomes to evaluate what works. Further, teacher reflective practice cycles emphasize the critical elements of collaboration and dialogue to determine alternative actions and plan for future actions. These elements of collaboration, dialogue, and examining evidence of student learning present factors of reflective practice that are more specific to educators. Figure 16 presents the phases of the teacher reflective practice cycle that emerged from this research.

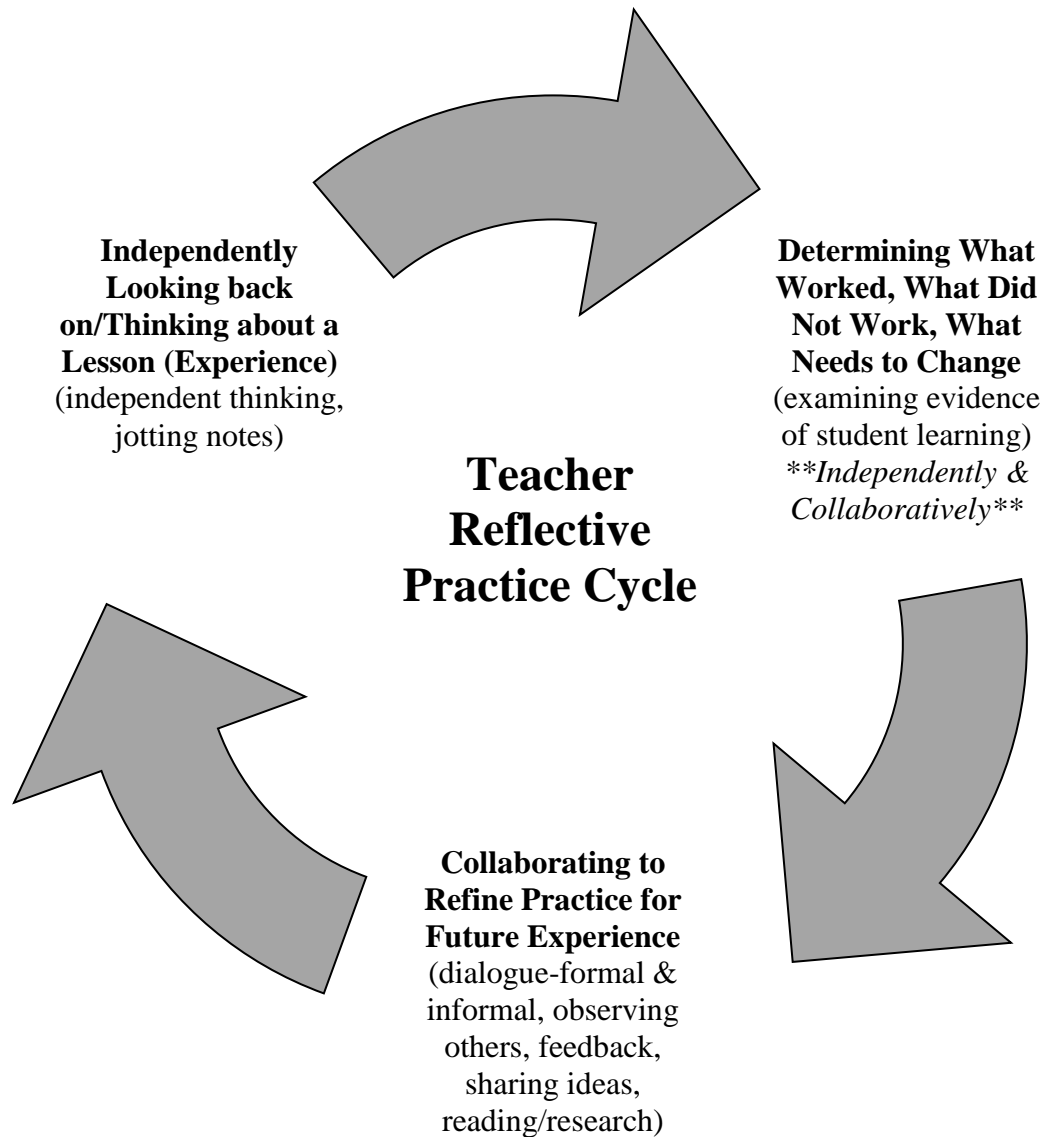


Figure 16. Teacher Reflective Practice Cycle. This figure illustrates the cycle of reflective practice described by teachers participating in this research study.

The study concluded this teacher reflective practice cycle happens continuously before, during, and after the teaching process. Teachers frequently “jot” notes that can be revisited after teaching or when planning for the same lesson or unit in the future. Although teachers reflect independently throughout each day, the process is largely perceived as more productive when colleagues reflect collaboratively through dialogue

and examining student work or data. After determining what worked, what did not, and what needs to change, teachers seek ways to refine practices. This happens through talking to colleagues, sharing ideas, observing others, giving and receiving feedback, and reading or researching strategies (Darling-Hammond et al., 2017; Farrell, 2016; Nilsson et al., 2017; Poulos et al., 2016).

The study sought to address the lack of a clear definition of reflective practice in teaching (Saric & Stey, 2017). Analysis of qualitative and quantitative data revealed prevalent themes in how teachers describe reflective practice and how they use it in their daily work. The concepts of independent and collaborative thinking and dialoguing were repeated throughout each phase of data analysis. Additionally, the recurring theme of “what’s working” was observed frequently as teachers discussed the purpose of their reflective practice and how it impacts student achievement. Based upon these themes, the researcher composed a definition of teacher reflective practice as, “The independent and collaborative process of thinking or looking back on an experience, determining what’s working, and refining teaching practice for continuous improvement and increased student learning.”

Conclusions

Analysis of data collected through this research study offered insight into reflective practice of in-service teachers. Through merged analysis of Likert survey items and open-response and interview questions, the researcher gleaned three main conclusions:

1. Teacher reflective practice is ultimately concerned with determining what works and refining practice to positively impact student learning (Blythe et

al., 2015; Carpenter, 2017; Disu, 2017; Hall & Simeral, 2015; Johns, 2017; Marzano, 2012; Muhammad, 2017; York-Barr et al., 2006).

2. Educators are self-reflective first but rely heavily on collaboration with other professionals to develop as reflective practitioners (Hall & Simeral, 2015; McArdle & Coutts, 2010; Nilsson et al., 2017; Saylor, 2014; York-Barr et al., 2006).
3. Collaborative reflective practice drives experiential learning that transforms professional practice (Camburn & Han, 2015; Darling-Hammond et al., 2017; Disu, 2017; Farrell, 2016; Golding, 2017; Kolb, 1984; Kolb, 2014; Poulos et al., 2016).

Recommendations for Practice

Based upon the findings of this research study, the researcher recommends the schools and district provide opportunities for teachers to collaborate and reflect together on “what’s working” using student needs and data to facilitate dialogue (Blythe et al., 2015; Carpenter, 2017; Danielson, 2006; Finlay, 2008; Graham & Ferriter, 2010; Hall & Simeral, 2015; Hattie, 2015; McArdle & Coutts, 2010). While formal opportunities may help develop self-reflective capacity and habits of reflective practice, informal dialogue and collaboration should be encouraged and embedded in daily practice (Camburn & Han, 2015; Cheung & Wong, 2017; Disu, 2017; Nilsson et al., 2017; Risko & Vogt, 2016; Saylor, 2014). Further, it may benefit teachers to expand collaboration to include observing and conferring with teachers in other schools and districts to gather ideas and offer fresh perspectives on strategies and best practices (Danielson, 2006; Darling-Hammond et al., 2017; Farrell, 2016; York-Barr et al., 2006). The findings could also

have implications for teacher preparation programs. Evidence indicated practicing educators continuously engage in collaborative reflective practice (Hall & Simeral, 2015). This may suggest that preservice teachers could benefit from training or exposure to collaborative communities of practice that use an inquiry cycle to examine and question student data to make instructional decisions (Blythe et al., 2015; Carpenter, 2017; Graham & Ferriter, 2010; Hattie, 2015; Saylor, 2014).

Limitations

This study was limited to a population of elementary and middle school teachers in a school district in the upstate of South Carolina, thus generalizations of findings may differ across the state and nation. The study of the impact on student achievement was limited to Grades 3-8 teachers of math and ELA.

Recommendations for Further Research

For further study, the researcher recommends replication of the study to include more teachers both within and outside the district to strengthen generalizations and test the definition proposed in this study. Additionally, more research is needed to determine the extent of the impact of specific reflective practices on student academic achievement. Finally, study of the relationships between specific professional development activities or characteristics and increased capacity for reflective practice is needed to better inform the field on those opportunities with the greatest impact on developing reflective practitioners and transformational learning.

Summary

This study of teacher reflective practice sought to better understand how practicing teachers define and engage in reflective practice, how teachers develop as

reflective practitioners, and how reflective practice influences student academic achievement. The study used a combination of qualitative and quantitative data to best answer the research questions. This chapter presented an analysis of the findings for each research question. Three key conclusions were shared along with explanations of theoretical and practical implications of the findings. The chapter concluded with recommendations for practice and further research in the area of teacher reflective practice.

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Appendix A

Teacher Reflective Practice Survey

Dear Teacher in _____ (School District),

My name is Laura Wyatt and I am a doctoral student at Gardner-Webb University. I am completing the requirements for my doctoral degree by writing a dissertation on teacher use and development of reflective practice and the influence of reflective practice on student achievement.

Spartanburg School District Two educators who taught grades three through eight during the 2018-2019 school year are invited to participate. Participation in this research study is strictly voluntary and any data collected will remain anonymous. You, your school, nor your district will be identified at any time. The survey will be administered online, and individual responses will only be viewed by the researcher. Your name will not be collected. Completion of the survey is estimated to take 5 minutes, and you may opt out at any time.

Selecting “Yes” indicates your consent to participate in the research study and will allow you to complete survey. Selecting “No” will close this survey.

___ Yes, I agree to participate.

___ No, I do not agree to participate.

TEACHER REFLECTIVE PRACTICE SURVEY

Please respond to each of the following questions.

What subject area did you teach during the 2018-2019 school year?

_____ English-language arts _____ Math _____ Both

What grade level(s) did you teach during the 2018-2019 school year?

How many years have you been teaching at your current school? ____

What is your gender?

What is your highest earned degree?

How many years of teaching experience do you have? ____

Please read and answer the following statements concerning reflective practice. For the purpose of this survey, reflective practice refers to a process in which the teachers consider instructional practices and events to inform future practice.

PART 1: FREQUENCY OF REFLECTIVE PRACTICES

How often do you do the following activities? *Please rate each statement 0-4, where 0=Never, 1=Yearly, 2=Quarterly, 3=Weekly, 4=Daily*

1. Reflect alone
2. Reflect with a partner/group
3. Reflect on diverse student needs (equity, social, etc)
4. Reflect on student work
5. Reflect about your own teaching, formally or informally
6. Reflect about other's teaching, formally or informally
7. Reflect on past practices before teaching to create a teaching plan to implement
8. Reflect to adjust your teaching during a lesson
9. Reflect on teaching practices after teaching to adjust future teaching practices
10. Reflect in writing
11. Reflect through dialogue
12. Reflect through video recording of teaching

PART 2: REFLECTIVE PRACTICE AND STUDENT ACHIEVEMENT

How beneficial is each of the following activities to impacting student achievement?

Please rate each statement 0-2 where 0=Not Beneficial, 1=Somewhat Beneficial, and 2=Very Beneficial.

13. Reflecting alone
14. Reflecting with a partner/group
15. Reflecting on diverse student needs (equity, social, etc)
16. Reflecting on student work
17. Reflecting about your own teaching
18. Reflecting about another person's teaching
19. Reflecting before teaching
20. Reflecting during teaching
21. Reflecting after teaching
22. Reflecting in writing
23. Reflecting through dialogue
24. Reflecting through video recording of teaching

PART 3: OPEN RESPONSE ITEMS

Please answer the following questions about your personal beliefs about reflection and your professional practices.

1. How would you define reflective practice?
2. What is your belief about the role reflection plays in increasing student achievement?
3. What strategies do you use to reflect?
4. What experiences/opportunities support your development as a reflective practitioner?

If you would be willing to participate in a follow-up interview of 30 minutes or less, please provide your name and email address.

The interview will be audiotaped to assist the researcher in the collection of data. Your identity will be kept strictly confidential. No information will be provided that would identify you. The audiotape will be destroyed at the conclusion of the study.

Thank you for taking time to complete the reflective practice survey. When the study is completed by the researcher, the results of the study will be sent to your principal.

Appendix B

Interview Protocol

Date:

Location:

Interviewer:

Instructions:

Thank for participating in this interview focused on teacher reflective practice. I am Laura Wyatt, a doctoral candidate enrolled in the Curriculum and Instruction program at Gardner-Webb University. My research will explore teacher definition, use, and development of reflective practice and the influence of reflective practice on student achievement. This interview session will be audio-recorded for the purposes of accurate transcription and analysis. The expected duration of the session is 30 minutes. Please respond openly and honestly to the questions posed so that an accurate description of views of your reflective practice is provided. At any point in time, you are free to withdraw from the interview or choose not to respond. Your name will remain confidential in the publication of the study. All records will be destroyed within three years of the research publication.

Opening question:

- 1) Please share your name, teaching position (grade level/subject area), years of experience, and any degrees you hold.

Introductory Question:

- 2) How would you define reflective practice?

Transition Question:

- 3) Describe an experience that is an example of your use of reflective practice.

Key Questions:

- 4) In what ways (formal or informal) do teachers in your school engage in reflective practice? Which are most beneficial?
- 5) How does engaging reflective practice impact student achievement?
- 6) What experiences throughout your career have encouraged or supported your development as a reflective practitioner?
- 7) Is there anything else you would like to share in regards to your reflective practices?

Closing Questions:

- 8) *(The researcher will provide an oral summary of the discussion and provide an opportunity for the interviewee to add to, clarify, or amend the content reviewed.)*

Is this an accurate representation of your responses? Is there anything you would add or amend?

- 9) Is there anything else that should be discussed that was omitted?

Note: Throughout the interview, the interviewer might ask the interviewee to elaborate or clarify if necessary. The interviewer may also prompt the interviewee back to the focus of the question if the discussion strays.

Statement of Appreciation:

Thank you for agreeing to participate in this interview and research study. Your time and responses are valued and appreciated. All information will remain anonymous as the exploration of teacher reflective practice is conducted.

Appendix C

District Informed Consent

Dear Superintendent,

I am currently working to complete an educational doctorate in Curriculum and Instruction at Gardner-Webb University. Completion of this program requires a dissertation. My research interest is in teacher's use and development of reflective practice and influence of teacher reflective practice on student achievement.

The instrumentation includes a survey consisting of 26 Likert scale items and 5 open-response questions. The survey is expected to take 5 minutes for completion, and participation is voluntary. In addition to the survey, participants will be given the opportunity to volunteer to participate in an interview. Six participants will be selected for follow up interviews. Interview sessions are expected to last approximately 30 minutes.

All information about the district, schools, and teachers will remain anonymous and confidential. The invitation to participate in the survey and interviews will be extended via email to all teachers of grades three through eight. Participation is completely voluntary, and the electronic format makes it easy to opt out of participation.

If you have questions, you may contact me via phone at XXXX or via email at XXXX. Any questions regarding the research or requirements for Gardner-Webb University may be directed to Dr. Mary Beth Roth, the chair of my dissertation committee, at XXXX or via email at XXXX.

If you agree of this proposed study, please sign on the following page. Thank you for your time and interest in my study.

Sincerely,

Laura Wyatt
Doctoral Candidate, Gardner-Webb University

Superintendent Signature

Date

Appendix D

Principal Notification Email

Dear Principal,

I am currently enrolled as a doctoral candidate at Gardner-Webb University. Completion of the program requires completion of a dissertation research study. My study concerns teacher reflective practice and its influence on student achievement. In the next week, teachers within your school, as well as the other elementary and middle schools in the district, will receive an email inviting them to participate in a survey. Participation is completely voluntary, and participants may choose to opt out at any point in the survey. All information will be kept confidential, and no identifying information will be disclosed when the research is published. At the close of the survey, participants will have the opportunity to express interest in a follow-up interview. If interested, an email address will need to be provided so that interview contact can be made.

If you have any questions regarding this study or the survey being sent to teachers, please contact Laura Wyatt at XXXX or at XXXX. Thank you for your time.

Sincerely,

Laura Wyatt