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Teacher Clarity Strategies of Highly Effective Teachers

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This is to certify that the doctoral dissertation by

Megan Hall

has been found to be complete and satisfactory in all respects,
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Walden University
2019

Abstract

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MA, St. Catherine University, 2003

BA, Macalester College, 2000

Proposal Submitted in Partial Fulfillment

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Doctor of Philosophy

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Specialization: Learning, Instruction, and Innovation

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Abstract

Teacher clarity supports both cognitive and affective learning for all learners. The scholarly literature lacks research related to teacher clarity in nonlecture learning environments. The purpose of this qualitative study was to discover teacher clarity strategies that effectively promote student learning, particularly in nonlecture learning environments. The conceptual framework involved cognitive load theory and constructivism. The research questions explored how highly effective teachers experience clarity to promote student learning in nonlecture learning environments and what innovative strategies highly effective teachers practice to ensure clarity in nonlecture learning environments. For this in-depth qualitative interview study, data were collected through virtual synchronous focus groups and interviews with 10 State Teachers of the Year and State Teacher of the Year finalists and analyzed using manual and digital coding of emergent themes. Key nonlecture teacher clarity strategies discovered emphasized the importance of interaction, facilitation, and responsiveness through the establishment of safe and inclusive learning environments, active monitoring of student work and understanding, individualized application of strategic ambiguity, and utilization of technology tools. Further research is recommended in strategic ambiguity, interaction through facilitation, safe and inclusive environments, and teacher clarity through technology tools. By contributing to the body of knowledge of educational practices that improve student learning, my study has the potential to empower individual teachers to benefit all learners, and to support organizations in delivering equitable instruction in diverse secondary school settings.

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Dedication

This study is dedicated to my children, Dylan and Rosalea, who shared me with the world of ideas for five long years; to my mother, Dr. Lea Hall, who drew me a map to this world by earning her Ph.D. when I was a young girl; and to my husband, Leo, who made sure I had a nutritious lunch packed for every day of the journey.

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With heartfelt gratitude, I would like to thank my fabulous dissertation committee: Dr. Cheri Toledo for her tireless academic and emotional coaching, Dr. Gladys Arome for her dynamic methodology feedback, and Dr. Narjis Hyder for meticulous attention to detail. The incredible spirit of inquiry and collaboration at the National Network of State Teachers of the Year was foundational to this study, and I would like especially to thank NNSTOY staff members Katherine Basset, Laurie Calvert, Eric Isselhardt, Megan Allen, and Lauren Cantell for their warm encouragement and logistical support. Finally, I wish to acknowledge the 10 exemplary teachers who elevated my understanding of great teaching by sharing their experiences and expertise as participants in this study.

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Chapter 1: Introduction to the Study

Through in-depth qualitative interviews with State Teachers of the Year and State Teacher of the Year finalists, I explored teacher clarity strategies that effectively promote student learning, particularly in nonlecture learning environments. Although quantitative research studies conducted through collegiate institutions have shown significant correlations between teacher clarity and student cognitive and affective learning, there have been very few studies addressing teacher clarity from qualitative perspectives or in K-12 or nonlecture learning environments (Titsworth, Mazer, Goodboy, Bolkan, & Myers, 2015). Because teacher clarity is an effective instructional approach for learners of diverse backgrounds (Arends, Winnaar, & Mosimege, 2017; Phuong, Nguyen, & Marie, 2017; Titsworth et al., 2015), discovery of teacher clarity practices has the potential to meet the needs of diverse learners in K-12 American public schools and empower teachers to meet high-stakes accountability measures.

Chapter 1 is a description of the background, problem statement, and purpose of this study. The research questions are presented in alignment with the conceptual framework, which I developed from cognitive load theory and constructivism. The qualitative nature of the study is outlined, followed by operational definitions of key concepts. The assumptions, scope and delimitations, and limitations are explained. The chapter concludes with an explanation of the significance of the study and its potential contributions to social change.

Background of the Study

Teacher clarity is a well-established strategy for promoting student learning. Early studies in teacher clarity recognized that "being clear and easy to understand" (Bush, Kennedy, & Cruikshank, 1977, p. 53) correlated positively with cognitive learning (Fendick, 1990; Rosenshine & Furst, 1971). Teacher clarity studies in the 1970s and 1980s developed a variety of metrics for assessing teacher clarity (Bolkan, 2017a; Bush at al., 1977; Chesebro & McCroskey, 1998; Kennedy, Cruickshank, Bush, & Myers, 1978; Mazer & Graham, 2015; Titsworth et al., 2015). Although a widely accepted operational definition of teacher clarity was not developed, researchers agreed that teacher clarity consisted of the communication behaviors necessary for effective content delivery in lecture settings (Mazer & Graham, 2015).

Eventually, the definition of teacher clarity expanded to include interaction between teachers and students. Researchers began to include interactive communication behaviors in teacher clarity studies, including eliciting and responding to student clarification questions (Civikly, 1992; Simonds, 1997). Researchers also expanded the concept of the type of material involved in teacher clarity. Instead of focusing solely on the course content, researchers began addressing process clarity, which involved clear and organized instruction around course processes and procedures (Simonds, 1997). Building on the consensus that teacher clarity encompasses the strategies and approaches that instructors use to ensure that students master course content and processes (Bolkan, 2017a; Linvill & Crammer, 2017), Bolkan (2017a) described teacher clarity as straightforward, efficient, coherent, interactive, and structured instruction.

Teacher clarity literature provides strong and convincing testimony for the positive influence of teacher clarity. Teacher clarity may promote cognitive learning by reducing extrinsic cognitive load (Bolkan, 2016, 2017b), providing organization guidance (Bolkan, 2017b), and helping students connect new information to prior knowledge (Bolkan, Goodboy, & Kelsey, 2016). Teacher clarity may promote affective learning through interactions with teacher immediacy (Mazer, 2013; Titsworth et al., 2015). Clear and organized instruction appears to be necessary for the success of complementary teaching strategies, especially those that initiate deeper learning (Blaich, Wise, Pascarella, & Roksa, 2016) and critical thinking (Loes & Pascarella, 2015; Wang, Pascarella, Laird, & Ribera, 2015). While the quantitative studies cited here proposed a number of mechanisms, little is known about how or why teacher clarity works. Very little qualitative teacher clarity research has been conducted.

At present, there is also a gap in the scholarly literature for teacher clarity in nonlecture learning environments, with little research regarding teacher clarity in "novel learning situations involving extensive group work or other experiential learning activities" (Titsworth, et al., 2015, p. 410). I addressed these gaps by contributing a conceptual framework of educational practice based on qualitatively explored teacher clarity experiences of highly effective teachers. By discovering effective teacher clarity strategies for nonlecture learning environments, my study has the potential to empower teachers to facilitate improved cognitive and affective growth for diverse learners.

Problem Statement

The problem related to this qualitative study is the lack of research related to teacher clarity in nonlecture learning environments. American public education seeks to promote learning for all students, regardless of socioeconomic status, gender, or race (Sampson & Horsford, 2017), while education systems hold teachers accountable for equitable student achievement outcomes that result in accountability pressure (von der Embse, Pendargast, Segool, Saeki, & Ryan, 2016). It is this pressure that contributes to workload and stress crises, resulting in high teacher attrition across the country (Kelchtermans, 2017; Newberry & Allsop, 2017; von der Embse et al., 2016). Teachers need evidence of effective instructional strategies that they can apply independently in order to reach all students, regardless of school programming, administrative support, or funding streams (Blaich et al., 2016). One such strategy with the possibility of increasing teacher effectiveness is teacher clarity (Blaich et al., 2016; Bolkan, 2017a; Dozoby & Dalziel 2016; Loes & Pascarella, 2015; Titsworth et al., 2015). Teacher clarity is defined as the strategies and approaches that instructors use to ensure that students master course content and processes (Bolkan, 2017a; Linvill & Crammer, 2017). Specifically, teacher clarity involves straightforward, efficient, coherent, interactive, and structured instruction (Boklan, 2017a).

Teacher clarity supports both cognitive and affective learning (Titsworth et al., 2015). This significant, positive impact on student learning occurs across diverse cultural groups (Arends et al., 2017; Phuong et al., 2017; Powell & Harville, 1990; Titsworth et al., 2015; Zhang & Zhang, 2005). Teacher clarity can be learned (Simonds, 1997, p.

287), which provides an avenue for research that explores the experiences of teacher clarity that may contribute to educational practice. More research about teacher clarity is needed. In particular, there is a gap in the scholarly literature for teacher clarity in nonlecture learning environments (Titsworth, et al., 2015). I addressed this gap by contributing to a conceptual framework of educational practice based on qualitatively explored teacher clarity experiences of highly effective teachers. This could empower teachers to independently elevate student learning, addressing, in part, the problem of teacher shortages brought about by accountability pressures.

Purpose of the Study

The purpose of this qualitative study was to discover teacher clarity strategies that effectively promote student learning, particularly in nonlecture learning environments. Although the research literature has established a consistent and cross-cultural correlation between teacher clarity and cognitive and affective learning, teacher clarity has yet to be studied in nonlecture learning environments (Titsworth, et al., 2015). Through in-depth qualitative interviews with State Teachers of the Year and State Teacher of the Year finalists, I sought to discover effective strategies and approaches to providing clear and organized instruction in nonlecture learning environments. In a series of three synchronous focus groups and six synchronous individual interviews with follow-up asynchronous interviews, I discovered how State Teachers of the Year and State Teacher of the Year finalists experience clarity to promote student learning in nonlecture learning environments as well as the teacher clarity strategies they practice in nonlecture learning environments.

Research Questions

Two research questions guided this in-depth qualitative interview study.

RQ1: How do highly effective teachers experience clarity to promote student learning in nonlecture learning environments?

RQ2: What innovative strategies do highly effective teachers practice to ensure clarity in nonlecture learning environments?

Conceptual Framework

Although teacher clarity is well-studied, there is not agreement on the definition of the phenomenon. Since the early 1970s, researchers have simultaneously shown significant positive correlations between clear and organized teaching and student learning (Titsworth et al., 2015). However, consensus on the definition for teacher clarity has not yet been reached (Bolkan, 2017; Linvill & Crammer, 2017; Titsworth et al., 2015). In Chapter 2, I explore seminal works in the ongoing process of defining teacher clarity and explore the components of the phenomenon that researchers have discovered.

There are two major theories that contribute to the conceptual framework for this study of teacher clarity: cognitive load theory and adaptive teaching. Cognitive load theory recognizes that individuals' working memories have finite capacities, with a limited availability to process information itself (intrinsic load), the nuances of information delivery (extrinsic load; Bolkan, 2016), and the process of committing new information to long-term memory (germane load; Sweller, van Merrianboer, & Paas, 1998). Teacher clarity supports learning by reducing the extrinsic cognitive load and maximizing use of cognition to process course content (Bolkan, 2016; Bolkan et al.,

2016). To a limited extent, cognitive load theory explains cognitive learning gains associated with teacher clarity.

Cognitive load theory considers teacher communication a one-way phenomenon. Adaptive teaching is an application of constructivism that addresses the interactive component of teacher clarity (Roksa, Trolian, Blaich, & Wise, 2016). Constructivism posits that learners use their experiences to construct knowledge for themselves (Allen, Webb, & Matthews, 2016; Piaget, 1953; Powell & Kalina, 2009). This theory can explain how clear and organized interactions between teachers and students relate to issues of engagement, motivation, affect, culture, prior knowledge, peer interactions, as well as cognitive gains (Roksa et al., 2016). The adaptive teaching lens explains how teacher clarity supports student construction of knowledge through responsive and multidirectional communication strategies (Titsworth et al., 2015).

Nature of the Study

An in-depth qualitative interview approach, a form of basic qualitative research, was selected for this study. Basic qualitative research supports discovery of real-world application through the perspectives and experiences of participants (Creswell, 2013; Merriam, 2009; Patton, 2015; Worthington, 2013; Yin, 2016). According to Worthington (2013), "a basic qualitative study can be used to uncover strategies, techniques, and practices of highly effective teachers" (p. 2). This approach provides opportunities for researchers to gain insight into the perspectives and experiences of knowledgeable individuals (Rubin & Rubin, 2012).

In this study, I used in-depth qualitative interviews to discover the teacher clarity strategies of State Teacher of the Year and State Teacher of the Year finalists. Teacher clarity is defined as the strategies and approaches that instructors use to ensure that students master course content and processes (Bolkan, 2017a; Linvill & Crammer, 2017). Specifically, teacher clarity involves straightforward, efficient, coherent, interactive, and structured instruction (Boklan, 2017a). The in-depth qualitative research approach supported the purpose of this study: to discover teacher clarity strategies that effectively promote student learning, particularly in nonlecture learning environments. Prior to this study, teacher clarity was not yet explored in nonlecture learning environments, such as group work and experiential learning (Titsworth, et al., 2015).

Data were collected from State Teachers of the Year and State Teacher of the Year finalists who are members of the National Network of State Teachers of the Year (NNSTOY). Data were collected in three 60-minute synchronous focus groups of three to four participants; totaling 10 focus group participants. The focus groups allowed participants to build off of shared experiences in a broad initial data collection process (Yin, 2016). Six 60-minute in-depth interviews were conducted with individuals from the focus groups who demonstrated the most experience with teacher clarity strategies in nonlecture learning environments. A third round of interviews were conducted for clarification, as needed.

Data were analyzed by coding interview transcripts using Yin's (2016) model, in which researchers compile, disassemble, reassemble, and interpret codes. I had the recordings of the focus groups and individual interviews transcribed by a professional

transcriptionist, conducted a basic hand-coding survey of the data, and disassembled and reassembled the codes using diagramming software (Creately.com). The conceptual framework provided the initial structure for the coding process. I took a flexible approach to analysis, exploring codes and themes that emerged from the data.

Definitions

Adaptive instruction: A type of instruction in which teachers continuously change their instruction through iterative communication and negotiation with students (Titsworth et al., 2015).

Content clarity: Teacher clarity behaviors that communicate the content material of a course (Simonds, 1997).

Nonlecture learning environment: Any approach to classroom or online learning that involves activities instead of or in addition to lectures, such as group work or experiential learning (Titsworth, et al., 2015).

Process clarity: Teacher clarity behaviors that communicate anything other than the content material of a course (Simonds, 1997).

Teacher clarity: the strategies and approaches that instructors use to ensure that students master course content and processes.

Teacher immediacy: Teacher behaviors that establish a sense of student-teacher closeness through verbal and nonverbal strategies behaviors (Brooks & Young, 2015; Cakir, 2015; Dickinson, 2017).

Assumptions

This study was based on several assumptions, which are:

1. Due to the facts that State Teachers of the Year and State Teacher of the Year finalists are noted for their high level of effective teaching and teacher clarity is a common characteristic of effective teachers (Loes, Salisbury, & Pascarella, 2015), it is assumed that State Teachers of the Year and State Teacher of the Year finalists teach with a higher level of clarity than teachers who have not been recognized at the state and national level.
2. Participants were honest and willing to share their experiences.
3. In-depth qualitative interviews with recognized leaders in a profession supported the discovery of unique and important perspectives (Patton, 2015).
4. Data analysis through qualitative coding resulted in the emergence of meaningful themes (Yin, 2016).
5. It is possible to monitor the impact of my influence and viewpoints in a qualitative study (Rubin & Rubin, 2012).

Scope and Delimitations

The purpose of this qualitative study was to discover teacher clarity strategies that effectively promote student learning, particularly in nonlecture learning environments. This research explored the teacher clarity experiences and perspectives of highly effective teachers, using an asset-based inquiry approach in which the expertise of the participants helped build a conceptual framework for effective instructional approaches.

The scope of the study was defined by the following boundaries. Purposive sampling was used to select 10 participants. Criteria for selection were membership in NNSTOY and experience teaching in nonlecture learning environments. NNSTOY staff were excluded from the study. The study was not bounded by the geographical locations of participants.

Teacher clarity has a positive impact on learning for students of diverse cultural backgrounds (Arends et al., 2017; Phuong et al., 2017; Powell & Harville, 1990; Titsworth et al., 2015; Zhang & Zhang, 2005). The findings of this study suggest effective instructional approaches that are transferrable to a variety of diverse nonlecture learning environments. Because teacher clarity strategies can be learned (Simonds, 1997, p. 287), transferability may extend to the development of professional learning opportunities for teachers.

Limitations

Limitations of this study included several issues that are specific to the in-depth qualitative interview approach. Interview data were limited to the experiences and perceptions that participants self-report, not their actual behaviors (Yin, 2016). During interviews, the researcher acted as the data collection tool, and the biases of the researcher may have influenced the data collection process (Patton, 2015; Rubin & Rubin, 2012). Peer feedback and researcher journaling are two techniques for identifying and mitigating researcher bias (Rubin & Rubin, 2012; Shenton, 2004). I engaged with my supervisor for feedback in frequent debriefing sessions and kept a researcher journal with ongoing reflection during the data collection process.

Technological aspects of this study introduced additional limitations. The use of technology for distance interviewing may have limited participation for individuals without access to necessary technology (Tuttas, 2015). Specific technologies used in conducting distance interviewing present specific limitations (Tuttas, 2015). To address such limitations as the number of participants allowed and data privacy issues, I selected Zoom, a password-secured application that can accommodate larger groups through an accessible login process, for distance interviewing. Even with Zoom, only the head and shoulders of each participant were visible, limiting the nonverbal data that could be collected (Tuttas, 2015). The use of software in data analysis presented additional limitations. Qualitative data analysis software may have introduced rigidity into the coding process, as compared to a hand-coding approach (Yin, 2016). To reduce this effect, I conducted the majority of the coding process by hand.

Transferability and dependability were important considerations for this qualitative study (Tracy, 2010). To support transferability, I provided a detailed, or thick description of the study context (Tracy, 2010). This description included the culture of NNSTOY as an organization as well as the professional settings of the study participants. To support dependability, I included peer review, researcher reflexivity, and audit trails in my qualitative research design (Merriam & Tisdell, 2016). For peer review, I integrated feedback from my dissertation committee in all stages of the study (Merriam & Tisdell, 2016). Reflexivity was achieved through journaling during data collection and analysis (Merriam & Tisdell, 2016). Finally, I conducted an audit trail by maintaining a detailed research log throughout the data collection and analysis phases of the study

(Merriam & Tisdell, 2016). These components of my study strengthened transferability and dependability.

Significance of the Study

The phenomenon of teacher clarity as a significant contributor to cognitive and affective learning has been identified in quantitative research (Titsworth et al., 2015). However, the impact of teacher clarity had yet to be explored in nonlecture learning environments, in secondary settings (Titsworth et al., 2015), or using qualitative methods. My in-depth qualitative interview study addressed these gaps by exploring teacher clarity strategies that effectively promote student learning, particularly in secondary nonlecture learning environments. By exploring teacher clarity in previously unstudied nonlecture K-12 learning environments, this study uncovered the experiences of teacher clarity that could be applied in teacher preparation, professional development, and evaluation frameworks. The revelation of effective and innovative teacher clarity strategies and approaches has the potential to elevate instruction, improving student learning and empowering teachers (Blaich et al., 2015). Because teacher clarity effectively promotes learning for diverse learner populations (Arends et al., 2017; Phuong et al., 2017; Powell & Harville, 1990; Titsworth et al., 2015; Zhang & Zhang, 2005), becoming aware of teacher clarity strategies has the potential to address some of the issues of racial equality and cultural differences that are long-standing challenges for American public schools (Durden, Dooley, & Truscott, 2016; Sampson & Horsford, 2017). My study has the potential for positive social change because it contributes to the body of knowledge of

educational practices that improve student learning, empower teachers, and support equitable instruction in diverse secondary school settings.

Summary

In this chapter, I began by providing background information through an overview of historical and current teacher clarity research. Quantitative teacher clarity research conducted in collegiate settings has demonstrated significant relationships between teacher clarity and student cognitive and affective learning (Titsworth et al., 2015). However, qualitative explorations of teacher clarity have been rare, and there is no current research on teacher clarity in K-12 or nonlecture learning environments (Titsworth et al., 2015). I will expand the discussion of teacher clarity research literature in Chapter 2.

After describing the background information on teacher clarity, I explained the problem statement, purpose, and research questions for this study. I introduced the conceptual framework, which I developed with cognitive load theory and constructivism. I described the nature of this in-depth qualitative interview study and continued with key definitions, assumptions, scope and delimitations, and limitations. The significance of this study encompasses theory, practice, and social change; as I discovered teacher clarity strategies that effectively promote student learning, I addressed gaps in the teacher clarity research literature, contributed to K-12 educational practice in nonlecture learning environments, and promoted positive social change for individual students and teachers.

In Chapter 2, I discuss the conceptual framework and the teacher clarity research literature in greater detail. I describe the teacher clarity research literature for five topics:

cognitive learning, affective learning, race, technology, and a qualitative approach to teacher clarity research. Chapter 2 provides the grounding for this study in existing research literature.

Chapter 2: Literature Review

Introduction

American public education seeks to promote learning for all students, regardless of socioeconomic status, gender, or race (Sampson & Horsford, 2017), while education systems hold teachers accountable for equitable student achievement outcomes that result in accountability pressure (von der Embse at al., 2016). It is this pressure that contributes to workload and stress crises, resulting in high teacher attrition across the country (Kelchtermans, 2017; Newberry & Allsop, 2017; von der Embse et al., 2016). Teachers need evidence of effective instructional strategies that they can apply independently in order to reach all students, regardless of school programming, administrative support, or funding streams (Blaich et al., 2015). One such strategy with the possibility of increasing teacher effectiveness is teacher clarity (Blaich et al., 2016; Bolkan, 2017a; Dozoby & Dalziel 2016; Loes & Pascarella, 2015; Titsworth at al., 2015). Teacher clarity is defined as the strategies and approaches that instructors use to ensure that students master course content and processes (Bolkan, 2017a; Linvill & Crammer, 2017). Specifically, teacher clarity involves straightforward, efficient, coherent, interactive, and structured instruction (Boklan, 2017a).

Teacher clarity supports both cognitive and affective learning (Titsworth et al., 2015). This significant positive impact on student learning occurs across diverse cultural groups (Arends et al., 2017; Phuong et al., 2017; Powell & Harville, 1990; Titsworth et al., 2015; Zhang & Zhang, 2005). Teacher clarity can be learned (Simonds, 1997, p. 287), which provides an avenue for research that explores the experiences of teacher

clarity that may contribute to educational practice. This could empower teachers to independently elevate student learning, addressing, in part, the problem of teacher shortages brought about by accountability pressures.

Although researchers have not come to consensus on the definition of teacher clarity (Bolkan, 2017a; Titsworth et al., 2015), a generalized definition of teacher clarity encompasses the strategies and approaches that instructors use to ensure that students master course content and processes (Bolkan, 2017a; Linvill & Crammer, 2017). Specifically, teacher clarity involves straightforward, efficient, coherent, interactive, and structured instruction (Boklan, 2017a).

The purpose of this qualitative study was to discover teacher clarity strategies that effectively promote student learning, particularly in nonlecture learning environments. I explored the teacher clarity experiences and perspectives of highly effective teachers through in-depth qualitative interviewing with focus groups and individual interviews. This built on current literature demonstrating that teacher clarity significantly improves cognitive and affective learning (Titsworth et al., 2015) across diverse cultures (Arends et al., 2017; Titsworth et al., 2015), suggesting teacher clarity as potential strategy for equitable instruction in diverse classrooms (Phuong et al., 2017). While teachers may use technology to apply teacher clarity in today's classrooms, very little research has explored this topic. Although teacher clarity has been extensively studied in collegiate lecture halls, explorations of teacher clarity in K-12 settings and nonlecture learning environments are also absent from the literature (Titsworth et al., 2015). Qualitative research in teacher clarity research is rare, presenting a gap in the literature.

Chapter Organization

In this chapter, I will provide the research base for this study on the teacher clarity strategies of State Teachers of the Year and State Teacher of the Year finalists. In the first section, I explain the strategies I used to locate and retrieve relevant peer-reviewed scholarly literature. In the second section, I build the conceptual framework for this study by identifying and describing the central phenomenon of study, synthesizing primary and seminal writings for each component of the framework, and defining key concepts within the framework. I then describe how teacher clarity has been applied and articulated in previous studies, connecting previous research to this study. In the third section, I review current teacher clarity through the lenses of the following five topics: cognitive learning, affective learning, race, technology, and a qualitative approach to teacher clarity research. I conclude this chapter with a summary.

Literature Search Strategy

From March 2016 until July 2017, I utilized the ERIC database through the Walden University Library to locate peer-reviewed scholarly literature focused on *teacher clarity*. Beginning in July 2017, I expanded my search, accessing Education Source, SAGE Premier, ProQuest, Expanded Academic ASAP, Academic Search Complete, the Social Sciences Citation Index, the Directory of Open Access Journals, Communication and Mass Media Complete, and Google Scholar. I used the following search terms: *teacher clarity, instructional clarity, clarity, cognitive load theory, visible learning, adaptive instruction, adaptive teaching constructivism, constructivist, multimedia learning, social learning, social learning theory, role clarity, social media,*

engagement, social constructivism, social cognitive theory, teacher immediacy, technology, teacher-student, communication, teacher attrition, teacher accountability, pressure, race, equity, public education, United States, qualitative, case study, grounded theory, heuristics, narrative inquiry, systems theory, ethnography, autoethnography, teacher communication, participatory, basic qualitative research, and *in-depth qualitative interview studies*. To identify seminal works, I accessed the reference lists in scholarly articles, particularly those focused primarily on teacher clarity, and analyzed broad *teacher clarity* search results in Education Source, ERIC, and Google Scholar by the frequency with which studies were referenced. Although I limited the resources for the literature review to those published in the past 5 years, I also studied older peer-reviewed literature to strengthen my understanding of the scholarly history of teacher clarity and in-depth qualitative interview studies.

Throughout the literature search process, I maintained two literature review tracking databases in Excel. I used the first database to generate a focused list of citations for introductory grouping and analysis. I used the second database to track my searches by the databases, search engines, and key terms used.

Conceptual Framework

Two theories contribute to the conceptual framework for teacher clarity: cognitive load theory and adaptive teaching. From a cognitive load theory perspective, teacher clarity effectively manages cognitive load to maximize learning. The adaptive teaching lens integrates cognitive and social constructivism, demonstrating the interactive nature of teacher clarity. These two approaches provide a foundation for exploring the

relationship between teacher clarity and student learning. In this section, I describe teacher clarity and explain how this central concept is grounded in cognitive load theory and the concept of adaptive teaching.

Teacher Clarity

A rich, empirical history describes the development of the central concept of this study, teacher clarity. Originally, in 1971, Rosenshine and Furst identified a single dimension of teacher clarity: content clarity. Rosenshine and Furst (1971) argued that teacher clarity consisted of clarity, variability, enthusiasm, task orientation, criticism, teacher indirectness, criterion material, structuring comments, and levels of questions.

Even in early studies, a debate emerged regarding how to best measure teacher clarity. Some instructional communication researchers measured teacher clarity using high-inference metrics that defined teacher clarity through student perceptions (Kennedy et al., 1978). However, the high-inference approach resulted in a vague and non-measurable understanding of teacher clarity: "being clear and easy to understand" (Bush et al., 1977, p. 53). In response, researchers at Ohio State University in the late 1970's began exploring directly observable, or low-inference, teacher clarity behaviors (Bolkan, 2017; Kennedy et al., 1978; Titsworth, et al., 2015). Efforts to determine a conclusive low-inference definition for teacher clarity continued through the 1980s and 1990s. Self-inventories (Cruickshank, 1985; Wlodkowski, 1985, as cited in Simonds, 1997, p. 280) and quantitative behavioral rating instruments (Bolkan, 2017a; Chesebro & McCroskey, 1998; Powell & Harville, 1990; Simonds, 1997) emerged, with ongoing redefinition of

the specific observable attributes of clear teaching in lecture settings. No single definition reigned.

In the 1990s, researchers expanded the definition of teacher clarity to include student-teacher interactions. In 1990, Fendick defined teacher clarity as a four-part construct consisting of clarity of organization, clarity of explanation, clarity of examples and guided practice, and clarity of assessment of student learning. In regard to the fourth component of teacher clarity, Fendick wrote, "The teacher cannot hope to achieve clear communication unless she or he studies the students' written, verbal, and nonverbal responses that indicate whether they have understood" (p. 10). Previous researchers focused on teacher delivery of content with little attention for reciprocal communication. Fendick's definition introduced the concept of student-teacher interaction (through assessment) as a component of teacher clarity.

Simonds (1997) repeated Fendick's call for incorporating student-teacher interaction into the definition of teacher clarity, building on Civikly's (1992) inclusion of student clarification questions in the evolving definition teacher clarity. Simonds (1997) and Civikly (1992) regarded teacher clarity as a "relational variable" (Civikly, 1992, p. 138), stating that the manner in which teachers respond to students' clarification questions is an essential component of teacher clarity. The concept of teacher clarity as a responsive behavior has endured, appearing in the work of Bolkan (2017a), Titsworth and Mazer (2010), and Linvill and Crammer (2017).

Simonds (1997) also expanded the definition of teacher clarity, introducing process clarity in an argument that clear teaching communicates more than course

content. For example, a clear teacher ensures that students understand classroom procedures and processes, such as assignment structure and submission guidelines, as well as course content (Simonds, 1997).

Shortly after Simonds (1997) introduced process clarity to the teacher clarity definition, Chesebro and McCroskey (1998) defined teacher clarity, in a frequently cited study featuring the development of the most commonly used teacher clarity metric (Titsworth et al., 2015), as the "process by which an instructor is able to effectively stimulate the desired meaning of course content and processes in the minds of students through the use of appropriately-structured verbal and nonverbal messages" (Chesebro & McCroskey, 1998, p. 262). This definition carried Simonds's (1997) argument for process clarity inclusion into the working definition of teacher clarity.

The challenge of generating consensus on an operational definition of teacher clarity remains unresolved (Linvill & Crammer, 2017; Titsworth, et al., 2015). However, researchers are approaching consensus through a continuously evolving defining process in which quantitative teacher clarity inventories are developed and tested. The most recently published operational definition of teacher clarity, developed from the Chesebro and McCroskey (1998) definition quoted above, includes five medium-inference components (Bolkan, 2017a). Three components are negative, and two are positive. Teacher clarity is observable when these three negative components are absent:

1. Disfluency: Lack of simple explanations, examples, and straightforward lesson delivery.

2. Working memory overload: Excessive pace of information delivery that exhausts students' cognitive capacities.
3. Coherence: Inclusion of superfluous information that distracts or confuses students.

Teacher clarity is observable when these two positive components are present:

4. Interaction: Eliciting student feedback to assess comprehension and modify instruction in response.
5. Structure: Well-organized presentation of information (Bolkan, 2017a).

Bolkan (2017a) found that in lecture settings, teacher clarity involves straightforward, efficient, coherent, interactive, and structured instruction.

The definition of teacher clarity used in this study emerged from synthesis of existing literature. According to this generalized definition, teacher clarity encompasses the strategies and approaches that instructors use to ensure that students master course content and processes (Bolkan, 2017a; Linvill & Crammer, 2017). Although this definition only encompasses lecture-based instruction (Titsworth et al., 2015), findings from this study of teacher clarity applications in nonlecture learning environments confirmed the existing definition.

Historically, there are two broad approaches to understanding the impact of teacher clarity on student learning: cognitive load theory and adaptive instruction (Dobozy & Dalziel, 2016; Titsworth et al., 2015). The most recent operational definition of teacher clarity incorporates elements from both approaches (Bolkan, 2017a). Cognitive load theory addresses four of the five elements: disfluency, working memory

overload, coherence, and structure. Adaptive instruction addresses the fifth element: interactivity. Together, cognitive load theory and adaptive instruction provide a comprehensive conceptual framework for teacher clarity.

Cognitive Load Theory

According to cognitive load theory, learning is a linear process that occurs when teachers present information for students to process (Bolkan, 2016; Titsworth et al., 2015). Cognitive load theory addresses learning from a cognitivist perspective (Bolkan, 2016; Titsworth et al., 2015). Cognitivism describes learning as a process in which learners take in, process, and store knowledge in schema, or symbolic cognitive structures (Dobozy & Dalziel, 2016). Schema are internal frameworks for storing knowledge (Dozoby & Dalziel, 2016). As learners engage in this process, they assume a cognitive burden, known as cognitive load (Bolkan, 2016; Sweller, 1988; Sweller et al., 1998). The cognitive load is observed in the availability of working memory, the memory available for processing information immediately (Bolkan, 2016). As researchers apply cognitive load theory to instructional design, researchers must use their awareness of the limitations of students' working memory during the instructional design process (Bolkan, 2016; Sweller, 1988; Sweller et al., 1998).

According to cognitive load theory, when learners process information, they experience three types of cognitive loads: intrinsic, extrinsic, and germane (Sweller et al., 1998). Intrinsic cognitive load refers to the commitment of working memory to the actual content being learned (Sweller et al.,1998). Extrinsic cognitive load results from the commitment of working memory to retrieval of the content, for example, when

learners decipher information from incongruent or unclear sources (Sweller et al., 1998). Germane cognitive load occurs when learners invest cognitive capacity in developing long-term memory in the form of schema (Sweller et al., 1998).

When the cognitive load theory is applied within the context of teacher clarity, the theory helps the understanding that when teachers are clear, they can decrease or eliminate extraneous cognitive load, allowing for greater cognitive commitment to processing content deeply (Bolkan, 2016; Bolkan et al., 2016). The more clearly teachers present information, the less students must invest to organize information (extraneous cognitive load) and the more students can invest in processing content (intrinsic cognitive load) and develop deeper understanding of the material (germane cognitive load; Sweller et al., 1998). For example, scaffolding understanding by providing advance organizers increases the likelihood that learners will develop long-lasting understandings of the meaning of the content presented (Mayer, 1977).

Cognitive load theory is especially applicable to the first, second, third, and fifth components of teacher clarity: disfluency, working memory overload, coherence, and structure. Disfluent instruction inflates extrinsic cognitive load as students work to sort through irrelevant information to and identify essential knowledge. When instruction is too fast-paced for students' working memory, excessive extrinsic cognitive load is similarly increased as the effort to process information overwhelms cognitive processing. Similarly, incoherent presentations polluted with off-topic information exhaust students' working memory by requiring ongoing separation from essential and non-essential content. Finally, when teachers organize information prior to presenting it to students,

students may bypass the organization task associated with extrinsic cognitive load. This liberates working memory for intrinsic cognitive tasks, enabling more efficient information uptake (Mayer, 1977) and deeper learning tasks through germane cognition (Boklan, 2016). Cognitive load theory provides a mechanism for the relationship between teacher clarity and improved student learning by discriminating between and suggesting ideal teacher behaviors related to content, organization, and deeper learning tasks.

Learning, through the lens of the cognitive load theory, is considered a unidirectional interaction in which instructors provide information for students to process (Titsworth et al., 2015). Cognitive load theory can account for four of the five components of teacher clarity, but not interactivity. In response to the limits of the cognitive load theory approach to understanding teacher clarity, Civikly (1992) and Simonds (1997) conceptualized learning as a continuous communicative process in which instructors and students co-create understanding. Many studies that followed sought to identify and quantify the interactive component of teacher clarity, in explorations of student affect (Comadena, Hunt, & Simonds, 2007; Mottet et al., 2008; Sidelinger & McKronsky, 1997; Titsworth, Quinlan, & Mazer, 2010; Zhang & Zhang, 2005), including student anxiety (Roger, Murray, & Cummings, 2007; Zhang & Zhang, 2005); student empowerment (Finn & Schrodt, 2012; Houser & Bainbridge, 2009); student engagement (Mazer, 2013); student motivation (Bolkan et al., 2016; Loes & Pascarella, 2015; Roger, Murray, & Cummings, 2007; Zhang & Zhang, 2005); student perceptions of instructors (Linvill & Crammer, 2017; Loes & Pascarella, 2015; Loes, Salisbury, &

Pascarella, 2015; Schrodt et al., 2009); student enjoyment, hope, and pride (Titsworth, McKenna, Mazer, & Quinlan, 2013); and school climate (Fan, Williams, & Corkin, 2011). Two recent meta-analyses revealed that although teacher clarity is responsible for 13% of the variance in cognitive college student learning, teacher clarity has an even greater impact on affective learning (Titsworth et al., 2015). To address the interactive and affective aspects of teacher clarity, an addition to the conceptual framework is needed beyond the cognitivist approach.

Adaptive Instruction: Constructivism

There are two approaches to understanding teacher clarity: cognitive load theory and adaptive instruction. Titsworth et al. (2015) defined *adaptive instruction* as an approach to teaching that engages students in ongoing communications and negotiations that inform instruction. Adaptive instruction aligns with the fourth component of Bolkan's (2017a) definition of teacher clarity: interaction. In the following paragraphs, I describe cognitive and social constructivism, the theoretical fields within adaptive instruction that are most closely related teacher clarity (Roksa et al., 2016).

Cognitive constructivism. Cognitive constructivism, originally posited by Piaget (1953), describes learning as the construction of knowledge by individuals within their own minds. As individuals advance through four stages of cognitive development, they are capable of constructing increasingly abstract knowledge (Piaget, 1953). During the sensorimotor stage, from birth to about 2 years of age, infants and toddlers construct knowledge through the use of their senses and through movement (Piaget, 1953). In the preoperational stage, from 2 to 7 years of age, children construct knowledge using

symbols (Piaget, 1953). From ages seven to eleven, individuals begin to use logic as they construct knowledge; this is the concrete operational stage (Piaget, 1953). During the years of secondary education, from 11 years on, individuals in the formal operational stage can construct knowledge using abstract concepts and higher-level thinking (Piaget, 1953).

According to the cognitive constructivist lens, an individual builds their own schemas from their experiences (Piaget, 1953; Powell & Kalina, 2009). Individuals actively seek out developmentally appropriate experiences and environments (Bransford, Brown, & Cocking, 2000; Piaget, 1953). Effective educators design learning environments rich with developmentally appropriate stimuli, allow time and space for students to construct knowledge (Allen, Webb, & Matthews, 2016; Bransford, Brown, & Cocking, 2000; Piaget, 1953), observe and question students to gauge their level of understanding (Piaget, 1953; Powell & Kalina, 2009), and adapt their instruction accordingly (Allen, Webb, & Matthews, 2016). Adaptive instruction scaffolds cognitive construction of knowledge with stimulating and responsive teaching strategies, including teacher clarity.

Social constructivism. Vygotsky (1972) expanded upon Piaget's (1953) original theory by considering the social and emotional sphere of experience. Social constructivism includes learners' social interactions, especially those with peers, as vital components of their experience – and, therefore, their learning environment (Krahenbuhl, 2016; Powell & Kalina, 2009; Vygotsky, 1972). During the formation of a schema within a learner's mind, help from another individual can substantially support schema

formation (Vygotsky, 1978). In education, the role of the teacher is to include intentional social interactions, with both peers and through direct instruction, as a vital component of the learning environment from which learners will draw in their construction of knowledge.

Two decades after Vygotsky's seminal work, four components of the constructivist model of teacher were delineated by Brunning, Schraw, and Ronning (1995). These four tenets have become canonized in teacher preparation programs and professional development:

1. Learners construct their own meaning
2. Social interaction plays a key role
3. Authentic learning tasks are crucial for meaningful learning
4. Learning is dependent on existing understanding (Krahenbuhl, 2016, p. 98).

Constructivism is one of the most dominant pedagogical approaches in education today (Krahenbuhl, 2016). Constructivism informs culturally relevant instruction, metacognitive approaches, reciprocal teaching, and assessment design (Bransford, Brown, & Cocking, 2000). Constructivism is especially relevant to teacher clarity because it may explain how teacher clarity so profoundly promotes student learning.

Roksa et al. (2016) used a constructivist lens to explicate possible mechanisms for the positive correlation between teacher clarity and student learning. Using data from the Wabash National Study of Liberal Arts Education, which included 7116 students in 38 different 4-year colleges, Roksa et al. (2016) analyzed the factors that might explain the

powerful impact of teacher clarity on student GPA. The authors found that instructors' interest in their own teaching and their students' development, academic motivation, and academic engagement accounted for the majority of the correlation between teacher clarity and GPA in students' first year of college (Roksa et al., 2016). This pathway was strongest for those students who were the least prepared for college (Roksa et al., 2016).

Constructivism does more than frame the one teacher clarity component unexplained by cognitive load theory: it explains *how* teacher clarity impacts learning. Roksa et al. suggested, "By emphasizing the contextual dimension of learning, the constructivist approach also implies that learning is not just a cognitive process but also an affective one" (2016, p. 7). Considering teacher clarity's substantial impact on affective learning and behaviors, constructivism provides a pathway connecting teacher clarity to student outcomes via affective pathways.

Definitions

In this section, I provide key statements and definitions for the conceptual framework for this study. The central phenomenon, teacher clarity, consists of the strategies and approaches that instructors use to ensure that students master course content and processes (Bolkan, 2017a; Linvill & Crammer, 2017). Content clarity includes teacher clarity behaviors that communicate the content material of a course (Simonds, 1997). Process clarity includes teacher clarity behaviors that communicate anything other than the content material of a course (Simonds, 1997). Teacher clarity behaviors can be measured through high-inference or low-inference means; low-inference measurements have higher validity (Bolkan, 2017a). High-inference refers to

measurements of teacher clarity based on perceptions of whether a teacher is clear or unclear (Bolkan, 2017a). Low-inference refers to specific, observable behaviors that contribute to teacher clarity (Bolkan, 2017a).

Cognitive load theory is an additional component of my conceptual framework. In this paragraph, I present the key terms that are relevant to cognitive load theory. Cognitive load theory addresses the individual's capacity for working memory. Working memory is memory available for processing information immediately (Bolkan, 2016). According to cognitive load theory, learning tasks require and occupy working memory in three ways: with intrinsic load, extrinsic load, and germane load (Bolkan, 2016). Intrinsic load is working memory committed to processing information (Bolkan, 2016). Extrinsic load is working memory committed to retrieving and interpreting information from sources (Sweller et al., 1998). Germane load is working memory committed to developing long-term memory in the form of schema (Sweller et al., 1998). According to cognitive load theory, clear teaching supports learning by minimizing extrinsic load, freeing working memory for comprehending and assimilating content into long-term memory (Bolkan, 2016).

The following key terms are relevant to another important component of the conceptual framework for this study, constructivism. Constructivism describes learning as a process in which learners construct their own understanding and knowledge (Krahenbuhl, 2016). Interaction is a component of teacher clarity in which clear student-teacher communication facilitates learner construction of knowledge (Bolkan, 2017a; Roksa et al., 2016). Adaptive instruction is an element of teacher clarity in which

teachers continuously change their instruction through iterative communication and negotiation with students (Bolkan, 2017a; Roksa et al., 2016; Titsworth et al., 2015). Adaptive instruction provides meaningful context for learning that positively engages student affect (Roksa et al., 2016). Teacher immediacy, another factor that positively engages student affect, includes teacher behaviors that establish a sense of student-teacher closeness through verbal and nonverbal strategies and behaviors (Brooks & Young, 2015; Cakir, 2015; Dickinson, 2017).

Effects of Teacher Clarity

The concept of teacher clarity has been primarily applied and articulated in quantitative studies performed in college lecture-based learning environments in an effort to demonstrate the correlation between teacher clarity behaviors and student cognitive and affective learning. Teacher clarity is difficult to describe or isolate because of its still-evolving definition (Linvill & Crammer, 2017; Titsworth et al., 2015). Differences in teacher clarity definitions have resulted in variations in effect sizes and produced heterogeneous effects (Titsworth, et al., 2015). However, teacher clarity significantly promotes cognitive learning, and has approximately twice as strong an impact on affective learning (Titsworth et al., 2015).

The powerful correlation between teacher clarity and affective learning suggests a mechanism for the manner in which teacher clarity promotes student success. Teacher clarity may trigger positive emotional responses that move students to higher levels of engagement and motivation (Bolkan, 2017a; Titsworth et al., 2015). Student motivation, student engagement, and faculty interest (in both teaching and students) account for two-

thirds of the correlation between teacher clarity and academic success (Roksa et al., 2016). Previous research also showed that teacher clarity significantly correlates with affective learning across cultural groups (Phuong et al., 2017; Powell and Harville, 1990; Zhang & Zhang, 2005), suggesting that teacher clarity may be an effective teaching strategy for use in diverse school settings.

In the United States, today's public schools serve diverse populations of learners – often through nonlecture learning environments. Evidence of connections between teacher clarity, cognitive learning, and affective learning for diverse learners in college lecture-based environments, combined with the drive to provide effective instruction to diverse learners in public schools, invites explorations of specific experiences with effective strategies for clear teaching. One way to explore this topic is to study how effective teachers experience teacher clarity.

The purpose of this qualitative study was to discover teacher clarity strategies that effectively promote student learning, particularly in nonlecture learning environments. This study is grounded in the framework asserted by previous teacher clarity research applications and articulations that have established strong evidence for the significant positive impact of teacher clarity on students' cognitive and affective learning. Previous teacher clarity research also contributed a framework incorporating both cognitive (cognitive load theory) and affective (constructivism) elements of student learning. Previous teacher clarity research has called for further research exploring teacher clarity in nonlecture learning environments, a primary focus of this study. In summary, previous teacher clarity research has articulated the foundation, effects, and universality of the

phenomenon of study, inviting deeper investigation into its meaning and application.

Teacher Clarity and Cognitive Learning

Five themes emerged in my review of teacher clarity literature: cognitive learning, affective learning, race, technology, and a qualitative approach to teacher clarity research. While the largely quantitative teacher clarity literature has shown significant correlations between teacher clarity and student learning, gaps in the literature were found in regard to teacher clarity in nonlecture learning environments, how students of different races experience teacher clarity, teacher clarity's potential to improve student-teacher communication in diverse American public schools, the use of technology in teacher clarity, and qualitative teacher clarity studies.

The literature indicates that the initial approach to understanding the relationship between teacher clarity and student learning stemmed from cognitivist paradigms, embraced a positivist quantitative approach, and reflected the cognitive load theory portion of the conceptual framework for this study. Subsequent studies demonstrated well-established positive correlations between teacher clarity and student learning, for both cognitive (Arends et al., 2017; Blaich et al., 2015; Pinter, Merritt, Berry, & Rimm-Kaufman, 2018; Roksa et al., 2016; Titsworth et al., 2015; Wang et al., 2015) and affective learning (Finn & Schrodt, 2012; Houser & Bainbridge, 2009; Roksa, 2016; Titsworth et al., 2015). In this section, I will describe recent studies related to the relationships between teacher clarity and cognitive learning. I will then analyze research comparing teacher clarity to other pedagogical strategies for cognitive learning. Next, I will provide a synthesis of proposed mechanisms for the ways in which teacher clarity

may support cognitive learning. I will conclude with a brief analysis of classroom approaches and strategies for promoting teacher clarity as described in the literature. In the following section, I will review evidence pertaining to the relationship between teacher clarity and affective learning.

The research literature presents significant evidence of the positive correlation between teacher clarity and cognitive learning. Teacher clarity is correlated with higher test scores (Arends et al., 2017; Bolkan, 2017b; Bolkan et al., 2017; Pinter, Merritt, Berry, & Rimm-Kaufman, 2018), higher grades (Roksa et al., 2016), deeper informational processing (Bolkan, 2016), higher critical thinking skills (Loes & Pascarella, 2015; Wang et al., 2015), and higher need for cognition (Wang et al., 2015). Overall, teacher clarity positively accounts for 13% of the variation in student cognitive outcomes (Titsworth et al., 2015). Students with lower levels of academic skills are most likely to benefit from teacher clarity (Hollo & Wehby, 2017; Roksa et al., 2016).

In a 2009 meta-analysis, Hattie cited a single unpublished dissertation (Fendick, 1990) as the sole evidence for an argument that teacher clarity was more significantly correlated with cognitive learning than socioeconomic status or race. At first glance, Hattie's (2009) claim that teacher clarity was the eighth most influential factor for student learning appeared poorly supported; Hattie himself demoted teacher clarity to the 25th-ranked factor in 2017 (Visible Learning, 2017).

A more recent meta-analysis found a more significant correlation between teacher clarity and cognitive learning than Hattie originally claimed (Titsworth et al., 2015). The meta-analysis in Fendick's (1990) dissertation generated an r-value of 0.33 for the

relationship between teacher clarity and cognitive learning. For teacher clarity studies conducted after the Fendick (1990) dissertation, the r-value showing the correlation of teacher clarity with student learning was a much higher value, at 0.46 (Titsworth et al., 2015). For teacher clarity studies published in communication journals after Fendick's (1990) work, the r-value showing the correlation of teacher clarity with student learning was 0.5 (Titsworth et al., 2015). Teacher clarity appears to correlate with student learning even more strongly than Fendick suggested.

Clear and organized instruction may support student learning more profoundly than other innovative teaching practices (Bolkan et al., 2016; Hattie, 2009, 2012), including active pedagogies, an explicit focus on diversity, opportunities to conduct research, and academic challenge (Blaich et al., 2016). Although these findings may suggest that teacher clarity could replace other innovative teaching practices, it is more likely that teacher clarity is a prerequisite for the success of other innovative instructional approaches and strategies. In 2013, Pascarella, Wang, Trolian, and Blaich's analysis of the Wabash National Study, a longitudinal survey of students at 17 different 4-year colleges and universities, demonstrated that teacher clarity increased deeper cognitive learning. The authors also found that together, teacher clarity and deeper learning led to increased critical thinking and need for cognition (Pascarella et al., 2013). Teacher clarity may work in synchronicity with other innovative practices to stimulate higher-level thinking.

In contrast, Klyukovski and Medlock-Klyukovski (2015) suggested instructor strategic ambiguity, or teaching strategies that provoke students to seek information and

create their own clarity, as a tool to increase student cognition. Instructor strategic ambiguity was positively correlated with cognitive learning and need for cognition, as well as learner empowerment and motivation (Klyukovski & Medlock-Klyukovski, 2015). Similarly, Sidelinger, Bolen, McMullen and Nyeste (2015) found that students' out-of-classroom communication and peer learning were negatively correlated with teacher clarity, suggesting that in the absence of clear and organized instruction, students may actively work to seek their own clarity.

Although these studies may seem to justify an argument against teacher clarity practices, suggesting that intentional ambiguity provides students with important problem-solving opportunities, teacher clarity is nevertheless an essential component of optimal learning environments. Blaich et al. (2105) used a compelling analysis of the Wabash National Survey and Csíkszentmihályi's (2005, as cited in Blaich et al., 2015) flow theory to demonstrate that clear and organized instruction is necessary for the initiation of deeper learning. "When it comes to clarity/organization and intellectual challenge, it is not either/or; it is both/and," Blaich et al., concluded (2015, p. 10). Although ambiguity and challenge are sometimes beneficial for learning, disorganized instruction is never beneficial (Blaich et al., 2015; Bolkan, 2017b). New teachers especially need to focus on clear instruction before incorporating intentional vagueness (Lee & Kim, 2016). Teacher clarity establishes a necessary foundation for cognitive understanding that supports other innovative teaching strategies in stimulating deeper cognitive learning.

Proposed Mechanisms

The research literature proposes three mechanisms explaining how teacher clarity promotes cognitive learning. First, teacher clarity reduces students' extraneous cognitive load (Bolkan, 2016, 2017b). When course information is provided in a clear and organized fashion, students may be free to spend more of their cognitive resources interacting with the content (Bolkan, 2016, 2017b). Second, teacher clarity may help students to organize course content in meaningful ways (Bolkan, 2017b). When students are not able to organize information on their own, teacher clarity provides needed organizational guidance and results in improved student learning (Bolkan, 2017b). Third, teacher clarity may help students connect new information to prior knowledge (Boklan et al., 2016). It is easier for students to connect well-organized information to existing knowledge (Bolkan et al., 2016). Teacher clarity may support cognitive learning by reducing students' extraneous cognitive load, helping students organize course content, and supporting student connections between new information and prior knowledge. Additional research is needed to fully explore these and other potential mechanisms for teacher clarity's promotion of cognitive learning.

Specific Instructional Strategies

The research literature describes many components of teacher clarity, ranging from directly observable teacher behaviors and strategies to student perceptions and emotions Bolkan, 2017a). Because the purpose of this qualitative study was to discover teacher clarity strategies that effectively promote student learning, particularly in nonlecture learning environments, strategies are more relevant than behaviors here. For

this reason, I focused on specific pedagogical strategies suggested in the teacher clarity literature.

Most of the teacher clarity research literature focuses on lecture settings. In lecture settings, instructors can lower cognitive load by organizing their instruction, using multiple communication methods (i.e., visuals in addition to oral recitation), and providing notes or notes outlines in advance (Bolkan et al., 2016). Additional strategies include "previewing and reviewing main points of a lesson, defining major concepts, providing relevant examples, and creating appropriate linkages among concepts and examples" (Mazer, 2013, p. 93). These strategies contribute structure and depth to instructor presentations.

In lecture settings, instructors can increase student motivation by working to develop relevant lessons (Bolkan et al., 2016). When students are able to connect course material to their personal or professional lives, they may be more motivated to master it (Bolkan et al., 2016). By increasing student motivation through relevant instruction, teachers increase the likelihood that their clarity strategies will have an impact (Bolkan et al., 2016). Relevant curricula support the effectiveness of teacher clarity for cognitive learning.

For decades, quantitative researchers have focused on the impact of teacher clarity on student learning, yielding significant knowledge on the topic. Consistent and significant correlations have been established between clear and organized instruction and cognitive gains at surface and deeper learning levels. Teacher clarity may, by supporting students' basic grasp of course materials, promote the success of additional

innovative pedagogies. While some researchers argue that ambiguity is a useful teaching strategy, research focused on students' cognitive outcomes demonstrates that ambiguity is only effective in the context of clear and organized instruction. Although some mechanisms for how teacher clarity elevates cognitive learning have been proposed and some teacher clarity strategies have been described, these topics remain to be studied in greater detail. In the next section, I will explore the relationship between teacher clarity and affective learning.

Teacher Clarity and Affective Learning

Teacher clarity is also associated with affective, or emotional dimensions, of learning. Although teacher clarity correlates significantly with cognitive learning, it has an even more significant relationship with affective learning. In a recent meta-analysis, Titsworth et al. (2015) found that, "Clear teaching increases the probability of perceived cognitive learning by over 100% and affective learning by over 200%" (p. 407). In this section, I will describe studies demonstrating that affective learning, represented by student empowerment (Finn & Schrodt, 2012; Houser & Bainbridget, 2009), engagement (Mazer, 2013), motivation (Bolkan et al., 2016; Loes & Pascarella, 2015), and academic persistence (Loes & Pascarella, 2015), is elevated in learning environments led by clear teachers. I will then discuss the relationships between teacher immediacy, teacher clarity, and affective learning. Finally, I will explore the importance of the fourth component of teacher clarity, interaction, with regard to student affect.

Teacher clarity positively correlates with learner empowerment. In 2012, Finn and Schrodt described the results of a quantitative survey of 261 undergraduate students'

perceptions of teacher clarity and nonverbal immediacy. When students perceived their teachers to be clear, their perceived understanding and learner empowerment (impact, meaningfulness, and competence regarding classroom tasks) increased (Finn & Schrodt, 2012). When students experienced clear and organized instruction, they perceived that they understood the course content and processes. Consequently, they felt that their learning work was impactful and meaningful, and they felt competent to complete learning tasks (Finn & Schrodt, 2012). This work built off of Houser and Bainbridge's (2009) discovery that teacher clarity had far more impact on learner empowerment than student temperament or learner orientation. Although no additional research on the relationship between teacher clarity and empowerment has been conducted yet, these studies persuasively established the impact of teacher clarity on student empowerment, a notable component of affective learning.

In 2016, Roksa et al. developed a constructivist interpretation of the interaction between teacher clarity and student learning, placing student engagement at the center of learning processes. In doing so, the authors described teacher clarity as a mechanism for increasing student motivation (Roksa et al., 2016). In their analysis of the Wabash National Study, Roksa et al. (2016) demonstrated showed that clear and organized instruction could serve as a signal of faculty investment in student learning (Roksa et al., 2016). Their data showed that students with clear teachers perceived higher levels of faculty investment in their learning, spent more time studying, asked more questions in class, and were more motivated to learn (Roksa et al., 2016). These significant

connections between teacher clarity and student engagement and motivation further linked teacher clarity and affective learning.

Although teacher clarity and student motivation are linked, the nature of the relationship is not yet understood. One recent study found that teacher clarity only promotes learning when students are already motivated (Bolkan et al., 2016). Specifically, in a study of the relationship between teacher clarity and motivation, the authors found that although teacher clarity had a significant positive correlation with student learning overall, there was no significant relationship between teacher clarity and learning for the 16.41% least-motivated students (Bolkan et al., 2016). It is possible that clear and organized instruction only elevates existing motivation and cannot introduce motivation where it does not yet exist. Further research is needed in this area.

Another affective area influenced by teacher clarity is academic persistence (Loes & Pascarella, 2016; Roksa et al., 2016). Loes and Pascarella's analysis of the National Wabash Study showed that students who perceived their instructors to be clear and organized were more likely to persist to the second year of college, earn bachelor's degrees, have plans to attend graduate school, and show an inclination for lifelong learning (2016). Loes and Pascarella (2016) synthesized evidence suggesting that "overall exposure to clear and organized instruction during the first year of college may contribute to student persistence at a particular institution by enhancing students' satisfaction with the education being received" (p. 8). Indeed, positive classroom interactions in general have been found to promote student persistence and involvement in learning (Marx, Simonsen, & Kitchel, 2016; Sidelinger et al., 2015). This suggests

that teacher clarity may support academic persistence via positive affective influences, including student satisfaction. The complex relationships between student affect and teacher clarity warrant further study.

Teacher Immediacy

When discussing affective learning, teacher clarity researchers often discuss the phenomenon of teacher immediacy. Teacher immediacy behaviors establish a sense of student-teacher closeness through verbal strategies (such as tone, humor, personal stories, encouraging student questions, and inquiring about and using students' preferred names) and nonverbal behaviors, such as including smiling, eye contact, head-nodding, vocal expressiveness, relaxed posture, and physical proximity (Brooks & Young, 2015; Cakir, 2015; Dickinson, 2017).

Teacher clarity and teacher immediacy are closely related constructs. Clear communication of course expectations is a component of teacher immediacy (Marx, Simonsen, Kitchel, 2016). Interactivity is a component of teacher clarity (Bolkan, 2017a). Although teacher clarity and teacher immediacy have some overlapping components, research demonstrates that they are independent constructs that work independently of one another (Comadena, Hunt, & Simonds, 2007; Titsworth et al., 2015). One suggested mechanism proposes that teacher clarity stimulates cognitive interest while teacher immediacy stimulates emotional interest (Mazer, 2013). However, teacher clarity and teacher immediacy may interact to support student learning. The additivity hypothesis, which suggests that the positive effects of teacher clarity and teacher immediacy "combine to create an ideal learning situation for students," is the

best-supported explanation for the interaction of teacher clarity and teacher immediacy (Titsworth et al., 2015, p. 391). The significant correlation between teacher clarity and student affect also supports the possibility of connections between teacher clarity and teacher immediacy interactions.

Teacher immediacy, like teacher clarity, has positive correlations with affective learning (McKluskey, Dwyer, & Sherrod, 2016). Teacher immediacy promotes student empowerment (Cakir, 2015) and engagement (Marx, Simonsen, & Kitchel, 2016) while decreasing student anxiety (Kelly, Rice, Wyatt, Ducking, & Denton, 2015). Nonverbal immediacy appears to sustain student attention, especially for students with low levels of self-regulation (Bolkan, Goodboy, & Myers, 2017). Verbal immediacy impacts students significantly in online learning environments (Brooks & Young, 2015; Chakraborty & Nafukho, 2015; Dickinson, 2017; Fahara & Castro, 2015). Applications of teacher immediacy in online environments are an emergent field of study with much more to be discovered (Fahara & Castro, 2015).

In a study of 306 collegiate agriculture students, Estepp and Roberts provided evidence supporting Pintrich and Zusho's mechanism for teacher immediacy's impact on affective learning (2007, as cited in Estepp and Roberts, 2015, p. 156). Verbal and nonverbal teacher immediacy significantly promoted student motivation and engagement, with a much stronger relationship between teacher immediacy and student motivation (Estepp & Roberts, 2015). Teacher immediacy's capacity for enhancing student motivation is well-established (Kelly et al., 2015; Mazer & Stowe, 2016). This may account for the positive relationship between teacher clarity and teacher immediacy. If

teacher immediacy promotes student motivation, and student motivation is a prerequisite for student receptiveness to teacher clarity, then teacher immediacy makes students more receptive to clear and organized teaching.

Both teacher clarity and teacher immediacy involve relationship-building skills (Mazer & Graham, 2015). The correlations between teacher clarity and teacher immediacy and affective learning may be due, in part, to teacher clarity's potential to contribute to positive student-teacher relationships (Mazer & Graham, 2015). The relational approach is especially central when teachers serve as facilitators instead of experts (Mazer & Graham, 2015), as they often do in nonlecture learning environments. One important aspect of the relational approach involves how teachers interact with students to gauge their levels of understanding. According to Bolkan (2017a), one of the five definitive components of teacher clarity is interaction, in which teachers ask and answer questions to determine student understanding. Because teacher clarity is interactive, teacher clarity strategies may promote positive student-teacher relationships through the relational approach.

Interaction and Student Affect.

According to Bolkan (2017a), one of the key elements of teacher clarity is interaction, which involves instructors "answering students' questions and asking students whether or not they comprehend course material" (p. 23). Bolkan's decision to include interaction in the definition of teacher clarity was deeply grounded in previous research literature, including the work of Civikly (1992) and Simonds (1997) supporting the concept of teacher clarity as a relational variable. Students co-create the classroom

environment by eliciting specific teacher behaviors (Linvill & Crammer, 2017). Teacher interaction guides and shapes this process.

When teachers elicit and respond effectively to student questions, they support students' construction of knowledge (Arends et al., 2017; Titsworth et al., 2015). The most common antecedent to active student clarification tactics is teacher questioning or prompting (Pearson & West, 1994, as cited in Titsworth et al., 2015, p. 393). Teacher prompts (for example, "Does anyone have a question before I move on?") signal students to engage in clarification tactics and train students in clarification communication skills. Student communication skill correlates with academic success (Mazer & Graham, 2015). Therefore, although interaction scaffolds student interpersonal, not cognitive skills, interaction may support cognitive gains by empowering students to negotiate access to necessary information.

Bolkan (2016) and Goldman, Cranmer, Sollitto, Labelle, and Lancaster (2017) suggested potential connections between the positive cognitive and affective influences of teacher clarity. The positive correlations between teacher clarity and student affect (empowerment, engagement, motivation, and academic persistence), the overlap between the meaning of teacher immediacy and teacher clarity, and the data showing that clear teachers engage in interactions with students support this proposal. These established relationships, demonstrated through quantitative research, invite qualitative investigation into the meaning of the correlations. The relationship between teacher clarity and affective learning remains to be studied through qualitative approaches. Future studies are needed to determine why clear teaching elevates so many components of student

affect, if teacher immediacy primes students to be motivated to make the most of clear and organized instruction, and how the experience of learning in an interactive classroom is uniquely conducive to learning. In the next section, I will describe current research regarding the teacher clarity across diverse cultural contexts.

Teacher Clarity and Race

Race is a factor that impacts all interpersonal interactions in American schools (Durden, Dooley, & Truscott, 2016; Kirker, 2017). Overcoming barriers to racial equity and cultural differences are long-standing challenges for American public schools (Durden, Dooley, & Truscott, 2016; Sampson & Horsford, 2017). When students learn from teachers of the same or similar races as themselves, they are more likely to feel happy, cared for, and motivated (Egalite & Kisida, 2018). They experience higher quality student-teacher communications (Egalite & Kisida, 2018). Race plays a significant role in educational interactions, including the quality of communication. Because teacher clarity is a component of student-teacher interactions, the relationship between teacher clarity and race bears noting. Considering this dynamic, teacher clarity researchers regularly control for race in quantitative studies (Blaich, et al., 2015; Loes & Pascarella, 2015; Roksa et al., 2016; Wang et al., 2015).

Teacher clarity researchers have also explored, to a limited extent, the extent to which teacher clarity's positive influence on cognitive and affective learning translates across diverse cultural groups. Powell and Harville (1990) found in their analysis of multiple teacher behaviors, teacher clarity correlated across all cultural groups studied (Latinos, Asian Americans, and Whites) with "judgments about the class and willingness

to engage in the behaviors taught in the class" (p. 376). Zhang and Zhang (2005) discovered similar teacher clarity effects in Chinese classrooms to those observed in American settings, with a significant positive correlation between clear teaching and affective gains. Titsworth et al.'s (2015) analysis this finding suggests that "regardless of culture, clear teaching appears to [positively] influence student affect" (p. 392). Further support for this analysis emerged in 2017, when Arends, Winnaar, and Mosimege found a significant ($p < 0.01$) correlation between teacher clarity and student learning in South African schools. The correlation was present in both fee-paying and non-fee-paying schools (Arends et al., 2017), suggesting that teacher clarity may correlate significantly with student learning regardless of student socioeconomic status. In a study analyzing the relationship between students' preferences for instructor characteristics and student entitlement, Goldman et al. (2017) found that regardless of their degree of entitlement, all students preferred clear teachers.

Teacher clarity seems to have universal appeal. However, it is not necessarily universally experienced. Blaich et al. (2015) found in their analysis of almost 8,200 Wabash National Study collegiate student surveys that African American college students experienced teacher clarity less often than the overall average. Further study of how students of different races experience teacher clarity is needed.

The potential for teacher clarity to bridge student-teacher cultural differences, such as race dynamics in the diverse American public schools, is largely unexplored. It is possible that strategies for teacher clarity support racial equity by providing universally effective instruction (Hattie, 2009, 2012; Phuong et al., 2017). In a study analyzing the

relationship between students' preferences for instructor characteristics and student entitlement, Goldman et al. (2017) found that regardless of their degree of entitlement, all students preferred clear teachers. However, teacher clarity's potential to improve student-teacher communication in diverse American public schools remains to be studied.

Teacher Clarity and Technology

Most teacher clarity researchers have focused on face-to-face communication in brick-and-mortar college learning environments. However, one study focused on online learning suggested that teacher clarity is also an important factor in virtual learning environments (Brooks & Young, 2015). Online learning is rapidly growing in usage and quality (Chakraborty & Nafukho, 2015; Dickinson, 2017), and resistance to technology use is fading (Gan & Balakrishman, 2017). In modern secondary classroom settings, teachers may have access to technology tools, including online platforms, email, and social media, which can serve as channels for teacher clarity.

Online learning environments may supplement secondary face-to-face classroom instruction. In these settings, teacher clarity may play an import role. Teacher behaviors in general have significant influence over cognitive and affective student outcomes in online learning environments (Chakraborty & Nafukho, 2015). Teacher clarity positively contributes to students' emotional response to online teaching (Brooks & Young, 2015). The organization of the online learning environment is an especially influential factor in student learning experiences (Chakraborty & Nafukho, 2015). Because structure is a component of teacher clarity (Bolkan, 2017a), organization of online platforms may be one way that teacher clarity is evident in online learning environments.

Although most teacher clarity research focuses on face-to-face and written communication behaviors, the increase of technology integration introduces digital communication as a potential channel for teacher clarity. No studies have explored teacher clarity in email communication yet. However, teacher immediacy in email communication was found to influence student passing rates and teacher evaluations in an online class (Dickinson, 2017). It is possible that teacher clarity in digital communication formats, such as email, may also influence student learning.

Teachers can use social media to interact with students, guiding discussions and providing feedback. Online discussions are forums in which timely, supportive, and constructive instructor feedback can guide the online learning environment, and as a result, student experiences, in a positive direction (Chakraborty & Nafukho, 2015). FaceBook has been found to provide a platform for instructor and peer multi-source feedback that is rich, timely, reliable, and trustworthy (Kio, 2015). Teacher clarity may impact the effectiveness of the use of social media for feedback and other learning activities. When students have clearly defined roles, their engagement with social media increases (Mostafa, 2015). As technology use continues to increase, teacher clarity may emerge as an important factor in digital learning environments, including online platforms, email, and social media.

A Qualitative Approach to Teacher Clarity Research

There are no dedicated qualitative teacher clarity studies in the research literature. Quantitative analysis of surveys is by far the most common approach to studying teacher clarity (Titsworth et al., 2015). In this section, I will describe the few mixed-methods

and qualitative studies that mention teacher clarity and justify my choice of a qualitative approach for this study.

Several mixed-methods and qualitative studies touch on the subject of teacher clarity, suggesting that more might be learned about the mechanisms and contexts for effective teacher clarity implementation. Two studies explored the lack of teacher clarity. One mixed-methods survey study explored several causes for the lack of teacher clarity (low pedagogical knowledge and skill, detachment from students, and lack of interaction), in a college physics class (Hativa, 1998), showing that a qualitative approach can provide rich and descriptive detail on the topic of teacher clarity. More recently, authors of a quantitative study mentioned informal interviews with college professors (Blaich et al., 2015). These interviews revealed a pervasive distain for teacher clarity practices and a reluctance to engage in perspective-taking, or interactivity (Blaich et al., 2015).

Several case studies focused on topics related to teacher clarity hinted that qualitative research might reveal more about teacher communication, teacher-generated structure, and teacher techniques for improving student engagement. Case studies on teacher feedback (Kio, 2015; Walters et al., 2015) suggest that more might be learned about teacher communication through qualitative research. The discovery of the importance of curriculum clarity in a qualitative case study points to the possibility that more might be learned about the role of structure in teacher clarity (Bondie & Zusho, 2017). In a quantitative study on teacher immediacy, Max, Simonsen, and Kitchen (2016) called for more qualitative research on factors influencing student engagement.

Although teacher clarity was not the primary focus of these studies, the information on related topics that was discovered through qualitative research supports a qualitative approach to teacher clarity research.

Quantitative teacher clarity research has demonstrated strong correlations between teacher clarity and cognitive and affective learning. The strength inherent in this approach is evident in the widely accepted understanding that straightforward, efficient, coherent, interactive, and structured instruction is beneficial to students and promotes their learning. However, little is known about what approaches and strategies teachers employ to deliver teacher clarity or experiences related to teacher clarity. A qualitative approach to this study is meaningful because it supports the discovery of experience and meaning, two aspects of teacher clarity that are absent from the research literature.

Chapter Summary

This literature review focused on five themes: teacher clarity and cognitive learning, teacher clarity and affective learning, teacher clarity and race, teacher clarity and technology, and a qualitative approach to teacher clarity research. By freeing students' cognitive resources to focus on content, organizing content in meaningful ways, and connecting new information to students' knowledge, teacher clarity facilitates cognitive learning. Teacher clarity may be a pre-requisite for the success of other teaching approaches, working in synchronicity with them to stimulate higher-order thinking. In regard to student affect, teacher clarity correlates with increased student empowerment, engagement, motivation, and academic persistence. Teacher clarity overlaps and interacts with teacher immediacy, a term including a variety of teacher

behaviors that establish a sense of student-teacher closeness. The intricate interactions between teacher clarity, teacher immediacy, and student affect, especially in the area of student motivation, warrant further study.

Many additional gaps in the teacher clarity literature emerged in Chapter 2. Teacher clarity appears to support learning for all students, regardless of race. Little is known, however, about teacher clarity's potential to bridge student-teacher cultural differences. Although technology has introduced new venues for communication, and teacher clarity is important in online learning environments, the role of technology as a support for teacher clarity has not yet been studied. Specific teacher clarity strategies presented in the literature are relevant to lecture-based instruction only. Very few teacher clarity studies have used a qualitative approach.

This study addressed several of the gaps in the literature by using a qualitative approach to discover teacher clarity strategies that effectively promote student learning, particularly in nonlecture learning environments. Through in-depth qualitative interviews with highly effective teachers, I explored experiences of teacher clarity in nonlecture learning environments. The strategies I discovered will extend knowledge of teacher clarity by presenting strategies that secondary teachers can apply in nonlecture learning environments. In Chapter 3, I will present the methods I used for conducting this study. I will address issues of trustworthiness related to credibility, transferability, dependability, and confirmability, as well as a detailed description of ethical procedures.

Chapter 3: Research Method

Introduction

The purpose of this qualitative study was to discover teacher clarity strategies that effectively promote student learning, particularly in nonlecture learning environments. I explored, through responsive qualitative interviews, the experiences, reflections, innovations of highly effective teachers on the topic of teacher clarity. Although a great deal of quantitative research has demonstrated the strong correlation between teacher clarity and positive student outcomes (Arends et al., 2017; Bolkan, 2016; Bolkan et al., 2016; Chesebro, 2003; Finn & Schrodt, 2012; Hattie, 2009, 2012; Loes & Pascarella, 2015; Marbach-Ad, et al., 2010; Mazer, 2013; Rodger, Murray, & Cummings, 2007; Roksa et al., 2016; Titsworth et al., 2015; Wang et al., 2015), very few qualitative studies have explored the meaning of teacher clarity (Bondie & Zusho, 2017; Hativa, 1998; Kio, 2015; Walters et al., 2015). By describing how highly effective teachers ensure that their students understand course content and procedures, this study expanded and deepened scholarly understanding of teacher clarity, an important tool for elevating student learning.

In the first section of this research method chapter, I will describe the research design and rationale. Next, I will delineate my role as the researcher for this study. In the third section, focused on methodology, I will discuss procedures for participant selection, instrumentation, recruitment, participation, data collection, and data analysis. Finally, I will discuss issues of trustworthiness and ethical considerations related to this qualitative study. I will conclude the chapter with a summary of the research method.

Research Design and Rationale

Research Questions

The research design for this study will include two research questions:

RQ1: How do highly effective teachers experience clarity to promote student learning in nonlecture learning environments?

RQ2: What innovative strategies do highly effective teachers practice to ensure clarity in nonlecture learning environments?

These questions are grounded in all three components of the conceptual framework: teacher clarity, cognitive load theory, and adaptive teaching (Table 1). The first research question aligns with cognitive load theory and constructivism. The second research question aligns with constructivism.

Table 1

Alignment of Research Questions within Conceptual Framework

Research Question	Relevant Concepts
RQ1: How do highly effective teachers experience clarity to promote student learning in nonlecture learning environments?	Cognitive load theory Adaptive teaching: Constructivism
RQ2: What innovative strategies do highly effective teachers practice to ensure clarity in nonlecture learning environments?	Adaptive teaching: Constructivism

Phenomenon of Interest

The phenomenon of interest for this study is teacher clarity. Teacher clarity is defined as the strategies and approaches that instructors use to ensure that students master course content and processes (Bolkan, 2017a; Linvill & Crammer, 2017). Specifically, teacher clarity involves straightforward, efficient, coherent, interactive, and structured instruction (Boklan, 2017a).

Research Tradition

To explore highly effective teacher experiences of clarity, I used a qualitative in-depth interview study approach, a form of basic qualitative research. Qualitative research provides unique opportunities to explore the meaning of real-world experiences through the perspectives of participants (Creswell, 2013; Patton, 2015; Worthington, 2013; Yin, 2016). Basic qualitative research is a tradition frequently employed in applied research settings and is likely to be the most common tradition used in education studies (Merriam, 2009; Worthington, 2013). In basic qualitative research, a constructivism approach emphasizes human interpretation and meaning-making that emerge from experiences (Merriam, 2009; Yin, 2016), without the additional lenses associated with specialized qualitative studies (Merriam, 2009). A basic qualitative research approach was selected because, according to Worthington, "a basic qualitative study can be used to uncover strategies, techniques, and practices of highly effective teachers" (2013, p. 2). I explored the perspectives of highly effective teachers on real-world clarity practices as well as their experiences with ~~t~~eacher clarity strategies and approaches through in-depth interviews.

Consideration for Other Designs

Unlike specialized qualitative traditions, the in-depth qualitative interview approach allowed me, as the researcher, to interpret and describe teacher clarity at an exploratory level based on real-world experiences (Merriam, 2009; Worthington, 2013). Teacher clarity is a concept with an emerging definition (Bolkan, 2017a; Linvill & Crammer, 2017; Titsworth, et al., 2015). An exploratory study was the ideal approach for unveiling the meaning of teacher clarity and describing relevant teacher practices and processes. I chose to design my study according to the in-depth qualitative interview tradition because I was interested in exploring the practical meaning of teacher clarity. A basic qualitative inquiry approach fit my research question better than other qualitative approaches, such as phenomenology, ethnography, or systems theory research, which would examine related cultures, systems, or the "shared essence" of the phenomenon, respectively (Worthington, 2013, p. 2).

Role of the Researcher

In this study, my primary role was that of an observing researcher. In this role, I built upon existing peer professional relationships to develop respectful partnerships with study participants. Participants for this study were members of the National Network of State Teachers of the Year (NNSTOY). Because I have been a member of this organization since 2013, I had existing collegial relationships with many potential participants. I had completed two freelance contracts obtained through NNSTOY, and, as a result, regarded NNSTOY staff (NNSTOY, 2018a) as supervisors. Because

NNSTOY staff members had influence over my freelance contracts, I did not include current or previous NNSTOY staff members in this study.

Although the remaining relationships I had with NNSTOY members were separate from my work environment and power-neutral, I had a strong positive bias towards NNSTOY members with a strong regard for their expertise. Management of researcher bias is an essential component of credible qualitative research (Shenton, 2004; Rubin & Rubin, 2012). Techniques for managing researcher bias include supervisor feedback through frequent debriefing sessions (Shenton, 2004) and self-examination through journaling (Rubin & Rubin, 2012). During the design stages of this study, I worked in collaboration with my dissertation committee to craft unbiased interview questions. During data collection, I maintained a researcher journal with the goal of observing and addressing my biases. During data analysis, I solicited additional supervisor feedback through my dissertation committee to ensure that my interpretation of data was balanced and free from preconceptions.

The purpose of this qualitative study was to discover teacher clarity strategies that effectively promote student learning, particularly in nonlecture learning environments. My approach to this in-depth qualitative interview study was an exploratory form of appreciative inquiry, a type of research focused on strengths (Cooperrider & Sekerka, 2006). In some qualitative research, researchers may explore others' strengths through the role of a novice (Rubin & Rubin, 2012). However, because I had been a member of NNSTOY and a fellow State Teacher of the Year since 2013, I had substantial professional experience relevant to this study. A novice approach was not appropriate for

this study. An appreciative peer approach, in which I, as the researcher, sought to discover and communicate colleagues' innovative ideas, was the most appropriate and relevant researcher role for this study. Although my primary focus was on participant expertise, I also needed to present myself as a trustworthy researcher, demonstrating articulate familiarity with the phenomenon of interest.

Methodology

In this section, I will describe the methodology for this in-depth qualitative interview study. I will begin by describing participant selection logic. Additional components of the methodology are instrumentation; procedures for recruitment, participation, and data collection; and the data analysis plan.

Participant Selection Logic

For in-depth qualitative interview studies, it is imperative that participants have pertinent experience with the phenomenon of interest and are accessible to the researcher (Rubin & Rubin, 2012). The logic for selection of participants in this study encompasses the target group of interest, the sampling strategy, the criteria for selecting participants, the ideal sample size for achieving data saturation, and the approach for identifying, contacting, and recruiting participants to participate in the study.

The target group of interest consisted of State Teachers of the Year and State Teacher of the Year finalists. These professional educators have been extensively vetted by State Teacher of the Year selection committees and are widely regarded as highly effective teachers. The vetting process also tends to acknowledge innovative practices,

and as a result, educators selected as State Teachers of the Year and State Teacher of the Year finalists often employ nonlecture teaching strategies.

The sampling strategy for this in-depth qualitative interview study was purposive sampling. Purposive sampling includes participants according to criteria aligned with the research questions for a study (Guest, Bunce, & Johnson, 2006). Because the research questions for this this study explore the unique and specific perspectives of highly effective teachers with experience in nonlecture learning environments, purposive sampling is justified. One approach to purposive sampling involves identifying "key knowledgeables," selecting participants based on professional reputations (Patton, 2015, p. 268). In education, State Teachers of the Year comprise a population of key knowledgeables. For this study, I purposively selected participants by recruiting through NNSTOY, a professional network with membership limited to the target group of interest: State Teachers of the Year and State Teacher of the Year finalists from all 50 United States, the U.S. Department of Defense, and U.S. Territories (NNSTOY, 2018b). Participants will be drawn from K-12 Teachers of the Year.

There were three criteria for inclusion in the participant selection pool. The first and second criteria aligned with the research questions. The third criterion limited bias and supported the credibility of the study. Firstly, prospective participants needed to be members of NNSTOY. Secondly, prospective participants needed experience in nonlecture learning environments. Thirdly, participants could not be NNSTOY staff. All individuals who did not meet these three criteria were excluded from the study.

The appropriate number of participants for an in-depth qualitative interview study should equal the number of interviews needed for data saturation (Guest, Bunce, & Johnson, 2006; Mason, 2010; Rubin & Rubin 2012). For specific, purposively sampled inquiry studies, such as this study, data saturation is generally reached at six to twelve interviews (Guest, Bunce, & Johnson, 2006). Studies exploring overarching themes may only require six interviews to achieve data saturation, whereas nuanced coding may require up to twelve interviews to delineate more detailed themes (Guest, Bunce, & Johnson, 2006). A sample size of only four participants may deliver a study to the saturation point when "participants possess a certain degree of expertise about the domain of inquiry," (Guest, Bunce, & Johnson, 2006, p. 74). Follow-up interviews provide depth to data collection, an approach that may also lower the number of participants needed to arrive at data saturation (Mason, 2010). For these reasons, I interviewed 10 participants in focus groups, and then conducted six follow-up interviews with participants with the most experience in implementing teacher clarity practices in nonlecture learning environments.

Qualitative studies reach data saturation when no new information, concepts, or themes arise from additional data collection (Guest, Bruce, & Johnson, 2006; Rubin & Rubin, 2012). In-depth qualitative interview studies are said to have reached the data saturation point when ongoing interviews repeat previously explored concepts or themes without introducing new perspectives (Guest, Bruce, & Johnson, 2006; Rubin & Rubin, 2012). Once data saturation is reached, interviewing additional participants can waste

resources (Guest, Bunce, & Johnson) and delay researchers, preventing a conclusion to the study (Mason, 2010).

Inclusion criteria. Of the three criteria for inclusion in the participant selection pool, two aligned with the research questions and one limits bias and supported the credibility of the study. Prospective participants needed to be members of NNSTOY. Prospective participants needed to have experience in nonlecture learning environments. Participants could not be NNSTOY staff. All individuals who did not meet these three criteria were excluded from the study.

Participants were identified, contacted, and recruited through NNSTOY. I posted the Social Media Invitation on the private NNSTOY Facebook group. NNSTOY emailed my Electronic Newsletter Invitation to all members of NNSTOY, excluding the staff. NNSTOY regularly conducts research studies and collaborates with external researchers (NNSTOY, 2018c). Within NNSTOY, there exists a culture of mutual support for member projects, including scholarly research. For this reason, NNSTOY members are accustomed to receiving and responding to invitations to participate in research studies. The invitation specified the criteria for participant selection. When individuals responded to the invitation by providing informed consent through a secure Google survey, I confirmed that they meet the criteria for participation, ensured that they received the full invitation, and provided a link to the background information and focus group schedule surveys.

Instrumentation

For in-depth qualitative interview studies, the primary data collection instrument is an interview guide with interview protocol, interview procedures, and interview questions (Jacob & Furgeson, 2012; Turner, 2010). Audio and/or video recording tools, a real or virtual location for the interviews, and a consent form are also required (Creswell, 2013). In this section, I will describe the data collection instruments for this study, focusing on the interview guide. Because interviews serve as the sole data source for in-depth qualitative interview studies, these instruments are sufficient for answering the research questions in this study (Creswell, 2013; Rubin & Rubin, 2012).

When I, the researcher, produced the interview guide for this study, I integrated a responsive, semi-structured approach (Myers & Newman, 2007; Rubin & Rubin, 2012). Essential questions and statements were prepared in advance for the sake of consistency, but some flexibility was permitted so that I could interact responsively with interviewees (Myers & Newman, 2007; Rubin & Rubin, 2012). In addition to the interview questions and protocol, the interview guide for this study included a review of the literature that I used to develop the interview questions, procedures for obtaining informed consent, and guidelines for consistent opening and closing interview statements (Jacob & Furgeson, 2012; Turner, 2010). The interview guide is in Appendix A. The background information survey questions, which participants will complete prior to participation in the study, are in Appendix B.

The primary data-collection instrument for this study was an interview guide (Appendix A) that I developed. The first section of the interview guide draws on

quantitative teacher clarity research literature, demonstrating the positive impact of teacher clarity on learning (Arends et al., 2017; Bolkan et al., 2016; Chesebro, 2003; Finn & Schrodt, 2012; Loes & Pascarella, 2015; Marbach-Ad, et all., 2010; Rodger et al., 2007; Wang, Pascarella, Nelson Laird, & Ribera, 2015) and elements of student affect (Bolkan, 2016; Bolkan et al., 2016; Finn & Schrodt, 2012; Goldman, Cranmer, Sollitto, Labelle, & Lancaster, 2017; Loes & Pascarella, 2015; and Mazer, 2013). I then outlined the three-part conceptual framework that forms the basis for the research questions. Table 4 in Appendix A shows the alignment of the questions in the interview guide instrument with the research questions and conceptual framework. The first section of the interview guide closes with an explanation of the methodological framework justifying the structure of the interview guide.

The second section of the interview guide includes the introductory script, interview questions, and closing script. The introductory script welcomes participants, explaining the purpose of the study. The interview questions are open-ended and neutral. The first interview questions provide contextual information and help participants relax into the experience by explaining their teaching settings. Content-rich questions follow, inviting participants to engage in an asset-based exploration of their perspectives on teacher clarity strategies. This context-content sequence is suggested in qualitative interview literature (Jacob & Furgeson, 2012; Turner, 2010). This semiscripted format provided consistency between interviews, supporting the establishment of trustworthiness, while allowing enough flexibility for building rapport through responsive interviewing (Rubin & Rubin, 2012; Shenton, 2004).

To establish sufficiency of the interview guide to answer the research questions, I relied on reviews from experts. Five individuals with advanced degrees in education contributed to the development of the interview guide. In the beginning stages, Dr. Darci Harland provided guidance in the sequencing of questions. In the early development of the guide, Dr. Kathleen Lynch reviewed the alignment of the initial instrument to the research questions. Throughout the remainder of the study, Dr. Gladys Arome, Dr. Cheri Toledo, and Dr. Narjis Hyder reviewed the alignment of these instruments to the research questions.

Because this was a qualitative study, trustworthiness was a primary concern, as opposed to content validity, a priority in quantitative research (Shenton, 2004). The four components of trustworthiness in qualitative research are credibility, transferability, dependability, and confirmability (Shenton, 2004; Toma, 2014). Credibility is the element of trustworthiness addressed by the interview guide. Credibility was established by basing the interview guide on pre-existing qualitative interview techniques (Rubin & Rubin 2012; Shenton, 2004; Toma, 2014). Responsive interviewing is a well-established qualitative research method that establishes rapport and elicits open communication through a welcoming environment, flexible communication, and a respectful demeanor towards participants (Rubin & Rubin, 2012). In addition to utilizing this established technique, I sequenced my interview questions according to research-based interviewing methods (Jacob & Ferguson, 2012; Turner, 2010).

Procedures for Recruitment, Participation, and Data Collection

Once this study was approved by my dissertation committee and the Walden University Institutional Review Board (IRB), I invited participants through NNSTOY communication channels, using NNSTOY membership email list and a private NNSTOY Facebook page. The invitation included the purpose of the study, the time commitment for participants, and a link to the online consent agreement. NNSTOY members who indicated their agreement to participate by selecting "Yes – I consent" on the online consent agreement within 2 weeks of the invitation were considered as potential participants. Within 2 weeks of the invitation, sixty NNSTOY members responded and thirteen were invited to complete the background information survey. I contacted selected participants by email to discuss the interview process, issued the Full Invitation for Participation in the Study, and provided links for the focus groups to the background information survey and to the Doodle scheduling tool. All thirteen invitees completed the background information survey, but three were unable to attend focus groups due to scheduling conflicts.

For both research questions, I collected data using the Interview Guide (Appendix A) in two to three 60-minute synchronous focus groups of three to four participants; totaling 10 focus group participants as well as six 60-minute in-depth follow-up synchronous interviews with those individuals demonstrating the most experience with teacher clarity strategies in nonlecture learning environments. Because I recruited participants from across the United States and territories, the participants were not in the same location at the time of the focus groups or individual interviews. For this reason, I used a virtual synchronous meeting tool, Zoom, to complete the interview process. After

the completion of the data collection, interview participants were asked by email to validate transcript accuracy. Due to privacy considerations, accuracy checks were not used for focus group transcripts. The consent agreement provided for a third data collection event involving follow-up questions posed through asynchronous communication. However, no follow-up interviews were needed.

Virtual synchronous meetings, facilitated by e-meeting software such as Zoom and Skype, permit distance interviews when interviewers and interviewees are separated geographically. Although face-to-face interviews are preferable, due to the presence of valuable social cues and nonverbal communications, distance interviewing empowers researchers to meet with participants for whom geographical location prevents face-to-face interviewers (Opdennaker, 2006; Rubin & Rubin, 2012). Because distance conversations can be less personable than face-to-face meetings, a preliminary phone call or email may help break the ice (Rubin & Rubin, 2012). For this study, I made preliminary connections over email.

Asynchronous communication through email offers logistical benefits while presenting certain limitations. Email communication is much less expensive than face-to-face interviews, both in terms of time and money (James, 2017). The time lag between communications may allow the researcher and the participants to gather more rich and detailed ideas (James, 2017; Tuttas, 2015). Participants can answer email interview questions at their own pace and on their own schedules, without distractions or pressure (James, 2017; Tuttas, 2015). The interviewer does not need to take notes or transcribe the interview (James, 2017). However, email communication limits the opportunity to

develop spontaneous responses, ask direct probing questions, establish social rapport, or gauge emotional reactions (Tuttas, 2015). For these reasons, email communication was only used for the purposes of issuing invitations, obtaining participant consent, and conducting transcript accuracy checks and interview follow-ups.

As the researcher, I collected the data using responsive interviewing techniques. When the data were collected through virtual meetings, I recorded the Zoom meeting and also recorded each session using Screencast-O-Matic, a screen recording software. Recordings were kept on a password protected laptop computer and online accounts.

At the end of the individual interview process, each participant received an invitation to proofread the transcripts of their individual interviews. I requested participant feedback, specifically looking for corrections of errors I may have made in the transcription process. This type of debriefing process strengthens the credibility of a study (Shenton, 2004; Tracy, 2010). Debriefing processes also provide opportunities for an active and informed participant roles in the research process, ensure that participants are fully informed of the research outcomes, and demonstrate respect for participants' expertise (Jacob & Furgeson, 2012).

To determine whether payment for participation would be appropriate for this study, I contacted the former CEO of NNSTOY, Katherine Bassett. As the leader of NNSTOY from 2012-2018, Ms. Bassett was the primary organizer of NNSTOY focus groups. In our conversation, Ms. Bassett shared that the standard thank-you gift for NNSTOY focus group and interview study participants was a gift card for $100 per hour of participation (K. Bassett, personal communication, April 2, 2018). Because this is the

standard gift for NNSTOY focus groups and interview studies, providing this payment was not perceived to cause undue influence or coercion.

Data Analysis Plan

Data were collected through three 60-minute synchronous focus groups of three to four participants, totaling 10 focus group participants and six 60-minute in-depth individual interviews. For both data sources, the Interview Guide (Appendix A) provided interview questions. The interview questions were aligned with the research questions and conceptual framework (Table 2).

In-depth qualitative interview studies are a subset of basic qualitative research. In this form of qualitative research, the most fitting data analysis plan is coding interview transcripts (Patton, 2015; Rubin & Rubin, 2012; Yin, 2016). There are a number of approaches to qualitative interview coding, including Rubin and Rubin's (2012) steps of identifying, sorting, weighing, and integrating coded data to generalize findings. More recently, Yin (2016) suggested that researchers compile, disassemble, reassemble, and interpret codes prior to forming conclusions. To follow Yin's (2016) model, I began by transcribing the recordings of the focus groups and individual interviews. I then conducted a basic hand-coding survey of the data for the first compilation step. I disassembled and reassembled the codes using mind mapping software before developing conclusions for this study.

Software supports that I used for identifying, coding, and analyzing concepts, themes, and examples include Microsoft Word and Creately (Cinergix, 2019). LaPelle (2004) outlined a procedure for utilizing tables in Microsoft Word for coding interview

transcripts. The table columns delineate emerging codes, and Microsoft Word's sorting function supports basic organization of the codes. I used this method for the initial hand-coding compilation and disassembling stages of my data analysis. I reassembled the data with Creately, utilizing the software's graphical presentation features to support my visualization and interpretation of the data.

Although the codes used in this analysis process emerged from the data, I continuously referred back to the research questions and conceptual framework. Table 1 presents an alignment of the research questions, conceptual framework, and interview questions. I anticipated the introduction of additional concepts and themes throughout the data collection process and took a flexible approach to analysis so that emergent themes could guide my conclusions.

Issues of Trustworthiness

Trustworthiness, in qualitative research, encompasses the four dimensions of credibility, transferability, dependability, and confirmability (Shenton, 2004; Toma, 2014). Strategies I pursued to establish credibility included accuracy checks of interview transcripts, developing a thick description of teacher clarity (Shenton, 2004; Tracy, 2010), and a thorough literature review (Shenton, 2004). I further strengthened study credibility by including sufficient numbers of participants to achieve data saturation (Guest, Bunce, & Johnson, 2006) and by eliciting and incorporating feedback from my dissertation committee (Shenton, 2004). Finally, developing familiarity with the culture of NNSTOY prior to data collection further improved credibility by establishing deeper relationships within the organization (Shenton, 2004).

Transferability, or the potential to generalize study findings, is inherently limited in qualitative research by the importance of particular data collection contexts (Shenton, 2004). Qualitative research is by nature contextualized (Patton, 2015; Rubin & Rubin, 2012; Yin, 2016). However, transferability in qualitative research can be supported by detailed explanations of the study context (Shenton, 2004; Tracy, 2010). A detailed depiction of the study context allows other researchers to make meaningful generations (Shenton, 2004; Tracy, 2010). To this end, my study included a detailed description of the study context, including the culture of NNSTOY as an organization as well as the professional settings for the experiences shared by study participants.

Dependability, the qualitative analogue to reliability, demonstrates that a study's findings "are consistent with the data provided" (Merriam & Tisdell, 2016, p. 252). Triangulation, peer review, researcher reflexivity, and audit trails contribute dependability in qualitative research studies (Merriam & Tisdell, 2016). I applied all four approaches.

Triangulation can be achieved through using multiple methods, data sources, investigators, or theories (Merriam & Tisdell, 2016). Follow-up interviews with the same participants provided multiple data sources (Merriam & Tisdell, 2016). By conducting individual interviews and, if needed, email follow-ups with focus group members, I incorporated multiple sources of data as a triangulation method. Feedback from my dissertation committee provided peer review (Merriam & Tisdell, 2016). I incorporated reflexivity by using journaling to identify my biases and discuss their interaction during data collection and analysis (Merriam & Tisdell, 2016). I conducted an audit trail by

maintaining a detailed research log throughout the data collection and analysis phases of the study (Merriam & Tisdell, 2016). These components of my study strengthened its dependability.

Strong credibility also supports a study's dependability (Shenton, 2004). In addition to the credibility measures described above, I followed Shenton's (2004) advice to employ "overlapping methods, such as the focus group and individual interview" (p. 71). I communicated, in this dissertation, an in-depth account of my study methods, including the design and implementation of my research plan, the logistics of data collection and analysis, and reflections on the research process (Shenton, 2004).

Confirmability measures support the prioritization of participants' perspectives, minimizing the influence of researcher views (Shenton, 2004). To establish confirmability for this study, I identified and recorded my biases through the use of reflective journaling during the data collection phase (Rubin & Rubin, 2012). I constructed an audit trail, a step-by-step log of the research process (Merriam & Tisdell, 2016). Finally, collecting data from three sources (focus groups, individual interviews, and, if needed, follow-up emails) introduced triangulation, a data collection approach known to reduce the influence of researcher bias (Merriam & Tisdell, 2016).

Ethical Procedures

Ethical procedures defend and respect the rights of study participants and are essential components of any research study (Rubin & Rubin, 2012). I followed Walden University's IRB protocols to uphold ethical standards for my study. I waited to receive IRB approval before contacting study participants or collecting data. Only after the IRB

approved this study did I work with NNSTOY to issue the participation invitation to NNSTOY members.

After participants voluntarily agreed to participate, I provided a standard study consent form by email. Participants who agreed to the conditions explained in the form replied to the email with the words "I consent" serving as an electronic signature. Once I received this approval to collect data, I did so in a manner that protected the anonymity of participants. I kept the names of participants confidential, with potentially identifying information removed from transcripts used in data analysis. I used private application accounts to conduct and record interviews. I collected participants' background information using a password-locked Google account. I saved all interview recordings and transcripts on a password-locked private laptop and an external hard drive kept in a locked fireproof box; these will be kept for 5 years after the study conclusion. Additional copies of surveys, recordings, and transcripts were immediately destroyed. All copies of recordings and transcripts will be destroyed 5 years after the study's conclusion.

Conducting a study within one's own work environment presents an ethical issue. Although I have never worked for NNSTOY, I have completed two freelance contracts organized by NNSTOY staff. Because a prior working relationship existed between the researcher and four members of the NNSTOY staff, all NNSTOY staff were excluded from participation in this study.

Summary

Chapter 3 provided a detailed discussion of the methods for this study, beginning with a description of the in-depth qualitative interview study approach selected to discover the teacher clarity experiences and perspectives of highly effective teachers. This included the research design and rationale, my role as the researcher, and procedures for participant selection, instrumentation, recruitment, participation, data collection, and data analysis. Strategies for ensuring trustworthiness and ethical considerations concluded Chapter 3. In chapter 4, I will present study findings that emerged from the data collection and analysis.

Chapter 4: Results

Introduction

The purpose of this qualitative study was to discover teacher clarity strategies that effectively promote student learning, particularly in nonlecture learning environments. Research Question 1 asked: How do highly effective teachers experience clarity to promote student learning in nonlecture learning environments? Research Question 2 asked: What innovative strategies do highly effective teachers practice to ensure clarity in nonlecture learning environments?

Organization

In this chapter, I will report the results of my dissertation study. I will begin by describing the setting for the study, participant demographics, data collection and analysis processes, and evidence of trustworthiness. I will then present the study results, organizing my findings according to the two research questions. I will conclude Chapter 4 with a summary.

Setting

The setting for this study included the culture of NNSTOY and the professional settings of the study participants. All State Teachers of the Year and State Teacher of the Year finalists are automatically enrolled as members in NNSTOY, without membership fees (NNSTOY, 2018b). The organizational mission of NNSTOY is "for all students to learn from highly effective teachers" (NNSTOY, 2018d, para 5). As an organization, NNSTOY seeks to improve student learning by identifying, disseminating, and advocating for effective professional teaching practices and governmental policies

(NNSTOY, 2018d). NNSTOY initiatives have included research, professional development, and political lobbying (2018d). Individual NNSTOY members are encouraged to commit to "strengthening our own practice and that of colleagues" (NNSTOY, 2018d, para 2). The culture of NNSTOY is firmly focused on highly effective teaching practices.

For this qualitative in-depth interview study, all participants completed a focus group. Six participants also completed an individual interview. Participants in focus groups received pseudonyms beginning with the letter F: Fiona, Fitz, Flora, and Floyd. Participants who completed both a focus group and an individual interview received pseudonyms beginning with the letter B: Beatrice, Belle, Berit, Bess, Blossom, and Brooke.

All participants had professional settings in secondary classrooms within brick-and-mortar schools. Every participant cited teaching as their current and primary profession, except for Flora, who was recently retired. The specific nature of each participant's classroom setting, as participants self-reported in the background information survey, is shown below in Table 2. Every participant had significant experience with a variety of nonlecture classroom environments. None of the participants used lecture as their primary teaching approach.

Table 2

Professional Settings of Study Participants

	Beatrice	Belle	Berit	Bess	Blossom	Brooke	Fiona	Fitz	Flora	Floyd
Primary lecture										
Mini-lecture	•	•	•	•		•		•	•	
Cooperative group work	•	•	•	•	•	•	•	•	•	•
Project-based learning	•	•	•		•	•	•	•	•	•
Discussion		•	•	•	•	•	•	•	•	•
Online or blended	•	•	•	•	•	•	•			
Flipped		•							•	
Outdoor education		•							•	
Service learning										

Demographics

Participants were recruited throughout NNSTOY, an organization with members in all United States and territories, as well as the Department of Defense (NNSTOY, 2018b). Two of the ten participants came from Michigan, and two came from Nebraska. The six additional participants came from Iowa, Maine, Montana, New Jersey, Virginia, and Washington, D.C. Two participants were male and eight were female. The number of years of teaching experience, grades and subjects taught, experience and comfort with technology as participants reported in the background information survey, are shown in Table 3.

Table 3

Participant Demographics

	Years of teaching experience	Grades taught	Subject(s) taught	Years teaching in a digitally rich learning environment	Level of comfort teaching with technology
Beatrice	16	9-12	Social Studies/History	15	Very comfortable
Belle	5	9-12	Science	5	Quite comfortable
Berit	11	9-12	Science	6	Quite comfortable
Bess	18	7-8	Math	0	Somewhat comfortable
Blossom	13	9-12	Social Studies/History	11	Very comfortable
Brooke	13	7-8	Math, Science	9	Very comfortable
Fiona	14	9-12	Art/Music	14	Very comfortable
Fitz	38	9-12	English Language Arts	15	Somewhat comfortable
Flora	27	Not applicable	Retired from Science	20	Quite comfortable
Floyd	12	9-12	English Language Arts	0	Quite comfortable

Participants' number of years of teaching experience ranged from 5 to 38, with an average of 16.7 years in the classroom. All the participants were secondary teachers, with three middle school teachers (one of which was retired) and nine high school teachers. The study included one music teacher, one math teacher, two social studies teachers, two English Language Arts teachers, three science teachers, and one teacher of both math and science. Although the participants had varying technological resources

available in their classrooms, two were somewhat comfortable using technology in the teaching, four were quite comfortable, and four were very comfortable.

Data Collection

Data were collected from 10 participants through three 60-minute online focus groups and six 60-minute individual interviews using the Interview Guide (Appendix A). The first and second focus groups involved three participants each. The third focus group involved four participants, for a total of 10 focus group participants. The six participants with the most experience in teacher clarity engaged in online individual interviews. All focus groups and individual interviews were conducted through Zoom and lasted approximately 60 minutes. The focus groups interviews were conducted over the course of 1 week. Two weeks passed between focus groups and individual interviews. The individual interviews were conducted over the course of 2 weeks.

All focus groups and individual interviews were recorded using Zoom and Screencast-O-Matic software. Although technical failures occurred at times with both recording tools, there were usable recordings for every data collection event. One recording of each data collection event was uploaded to Rev.com for professional transcription. I edited each transcript, correcting errors and switching participants' names to pseudonyms. I contacted individual interview participants by email with a request to review their own edited transcripts for accuracy. No transcript corrections or follow-up questions were necessary. There were no variations from the plan for data collection. No unusual circumstances were encountered during data collection.

Data Analysis

My data analysis process combined two qualitative analysis methods. My overarching data analysis approach followed Yin's (2016) method for compiling, disassembling, reassembling, and interpreting codes. To compile, disassemble, and reassemble the codes that emerged from my focus group and individual interview transcript, I applied LaPelle's (2004) table coding method in Microsoft Word, using the following steps:

1. I formatted the data into four-column tables. Each utterance for each transcript became a row in a table. Each row included four columns: A cell for identifying the speaker, a blank cell for coding purposes, a cell containing the words spoken, and a number representing the chronology of the utterances.
2. As codes emerged, I created a codebook table. I numbered each code, using logic to organize the codes into thematic categories.
3. I coded the transcripts thematically, using the coding column. When text matched multiple themes, I generated duplicate rows and coded the text multiple times.
4. I sorted the data according to thematic codes to explore patterns and meanings.
5. I merged data tables from separate focus groups and individual interviews into a single table, revising the utterance numbers to create a single chronology from the first focus group to the last individual interview.

6. To validate the coding, I resorted the data according to utterance and code orders multiple times, exploring alignment of codes in the codebook. This process revealed additional passages that matched multiple themes. As needed, I corrected miscoded passages and resorted the data.

After this process concluded, I disassembled and reassembled the codes using Creately, a mind mapping software that visualized additional patterns and meanings in the data.

The codes that emerged from the data aligned with the conceptual framework for this study. Five major themes emerged in response to Research Question 1, How do highly effective teachers experience *clarity* to promote student learning in nonlecture learning environments? These five themes followed the five dimensions of teacher clarity, as defined by Bolkan (2017a): straightforward, efficient, coherent, structured, and interactive (Figure 1). Four major themes emerged from Research Question 2, What innovative strategies do highly effective teachers practice to ensure *clarity* in nonlecture learning environments? The four themes reflected the organization of the literature review for this study: cognitive learning; affective learning; race, culture, and ethnicity; and technology (Figure 1).

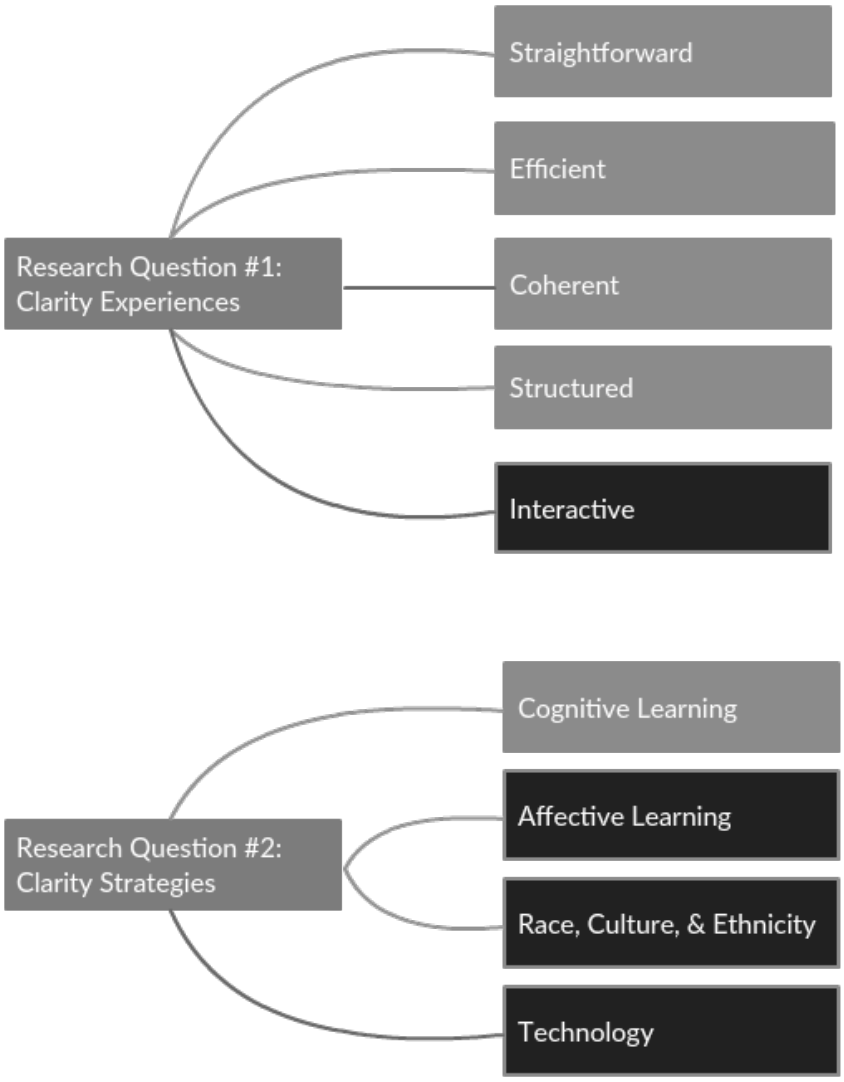

Figure 1. Main research question and emergent themes.

Although the themes that emerged aligned with the conceptual framework, the flexible approach to analysis that I took allowed me to recognize that some dimensions of teacher clarity were more strongly emphasized by the participants than others and this provided opportunities for new dimensions of teacher clarity to emerge. Subcodes, and the organization of coded data in the reassembly process, reflected these new dimensions. Additionally, within some themes, participants shared discrepant viewpoints. In these instances, differing views were grouped under the same codes and sub-codes, but the codes were named using neutral language that encompassed all viewpoints.

Evidence of Trustworthiness

I addressed credibility by conducting accuracy checks of interview transcripts with participants, developing a thick description of the phenomenon of study, and conducting a thorough literature review. To further strengthen credibility, I collected data until I achieved data saturation. Throughout the study, I modified my work based on feedback from my dissertation committee. Finally, I developed relationships within NNSTOY that supported a thick, rich description of the study setting. These strategies strengthened study credibility.

Transferability was supported by a detailed depiction of the study setting. This included a description of the culture of NNSTOY as an organization. Professional settings of the study participants were also described.

I applied five strategies to support study dependability: triangulation, peer review, researcher reflexivity, audit trails, and overlapping data collection methods. For six of the ten focus group participants, I conducted individual interviews and, if needed, e-mail

follow-up interviews. This provided multiple sources of data as a triangulation method. Peer review was provided by ongoing and detailed feedback from my dissertation committee. Throughout the data collection and analysis period, I kept a detailed research journal that provided reflexivity and a research log that served as an audit trail. Finally, I employed focus groups and individual interviews as overlapping data collection methods. These five strategies addressed dependability.

Confirmability was addressed through my reflective journaling process, an audit trail, and triangulation. Throughout the data collection and analysis phases of the study, I used a research journal to observe and record my biases. My audit trail documented every step of the data collection and analysis phases. By collecting data in focus groups, individual interviews, and, if needed, follow-up e-mails, I provided triangulation, minimizing the influence of my biases.

Results

In this section, I will report study results organized by research question. Participants' responses were originally organized in transcripts according to the order of questions in the interview guide. Through data analysis, I disassembled and reassembled participants' responses according to the conceptual framework for this study. In doing so, I was able to interpret the patterns and meanings that emerged, as reported below.

Research Question 1

Research Question 1 explored, how highly effective teachers experience *clarity* to promote student learning in nonlecture learning environments. There were five themes that emerged in analysis of participants' experiences: straightforward, efficient, coherent,

structured, and interactive instruction (Figure 1). The subthemes for each of these themes are described below.

Straightforward. For the highly effective teachers interviewed, three types of experiences promoted student learning in nonlecture learning environments: planning, consistent communication routines, and interaction (Figure 2). Each experience involved detailed reflections that are represented by sub-themes.

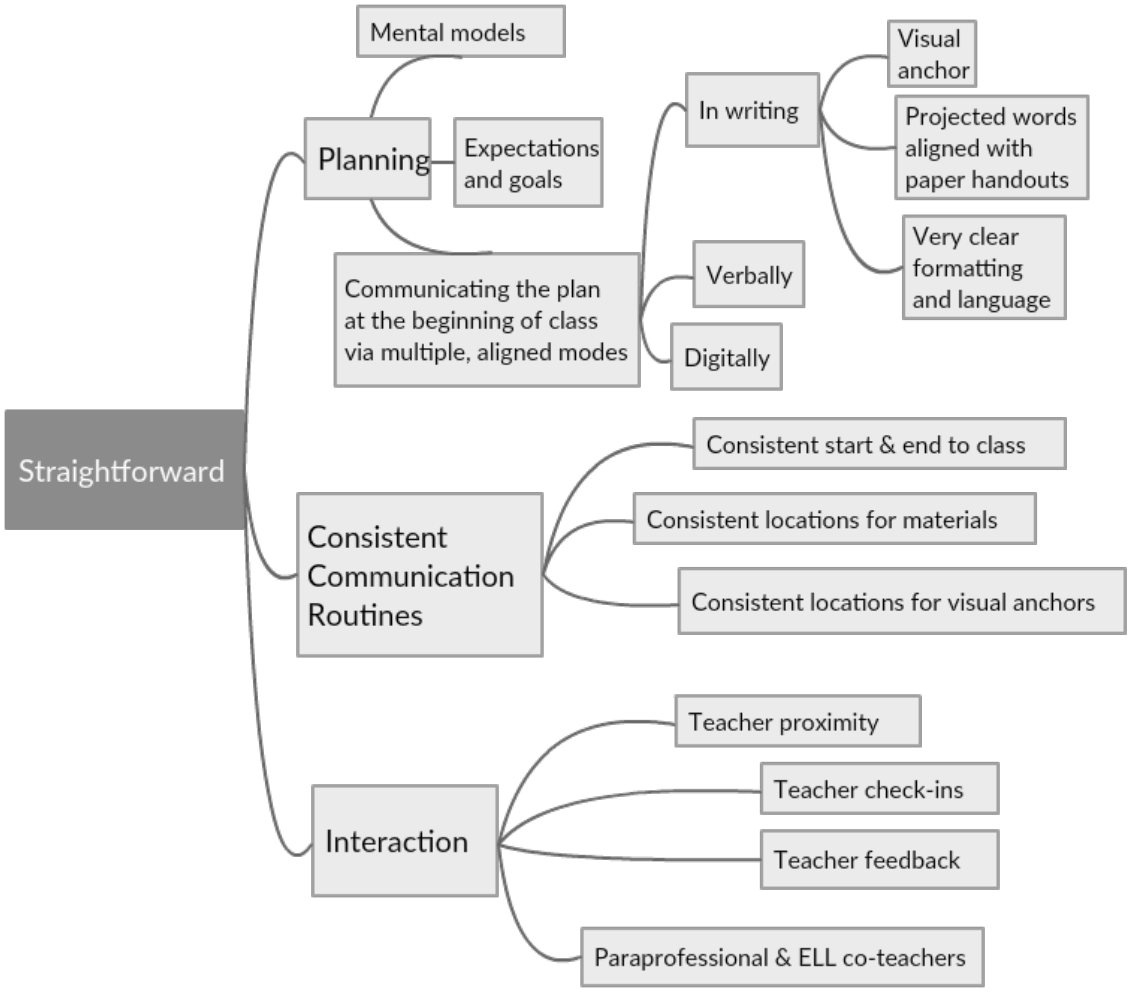

Figure 2. Research Question 1, Theme 1 (straightforward) with subthemes.

Planning: Mental models. Planning lessons was a nonlecture teacher clarity strategy identified by multiple participants. Early lesson planning, as described by Berit, involved creating mental models.

> I honestly sort of rehearse my instructions, not formally, but in my head when I'm driving or whatever, and I think that I also kind of picture what I think it's supposed to look like, and how everything's going to move and flow…. And I guess also predicting, rehearsing what I'm going to say, and then predicting what they're going to do, and what they're going to struggle with ahead of time. I think about certain students, and this one's going to have trouble with this concept, and this one might have trouble with this concept, and kind of predicting that ahead of time, and seeing what that's going to look like.

Blossom also described the use of mental models in her early planning stages.

> I don't do a lot of on paper planning. But in my mind, we're studying a particular unit. So the units are really broad. We're just finishing up the looking at poverty and how that impacts life chances. So anything that we watch or read, or look at will be connected to that overall theme.

Even for Blossom, who did not engage in extensive written planning, creating mental models was an important early step for establishing clear teaching.

Planning: Expectations and goals. In their nonlecture classrooms, participants often worked as facilitators rather than presenters. For this reason, there were times when the teachers interviewed needed to support their students in planning their work. In these instances, clear goals and expectations were crucial. Belle reflected:

> That's something I had to learn as I got more experience, because I think when I look back on my first year beginning service learning, sometimes it felt like I was still learning too how to even do this process. So it just kind of felt like a free-for-all. But as I got more experience with it, I think clear expectations of what you want the students to develop at the end and just being clear on the sense of, this is going to be directed by you guys, you guys are going to be the ones involved in collecting your research and coming up with the poster or the video, whatever you're presenting and at least making that clear to them so they don't feel like they are being led astray.

As students develop projects, teachers can scaffold student planning. Belle added:

> Usually when we go into these [service projects], we'll first develop a rapport between the community and the university members that they're going to be working with. So they'll be in teams usually around four people and they exchange information and then they kind of talk about, what are your objectives? What do you feel like is going to be the problem you want to solve and how are you going to do that?

Bess added:

> Show them what's expected. Model the behavior and model the outcome of what you're looking for. Again, they tend to copy so it's kind of one of those just show them a snippet, a little commercial on what you wanted and then take it from there and make it your own type of thing with them.

When leading a nonlecture learning activity that is new for students, teachers may need to be especially explicit about goals and expectations. Berit introduced her students to student-led discussions.

> So, that's [student-led discussion is] a really effective method, but I think that they [students] need instruction on how to do that well. So I kind of give them some pointers, and I'm really intentional of saying this is going to be a student discussion, and you guys are going to lead it, and these are some ways that we're going to do that so they kind of have some rules.

In Blossom's classroom, students determine their own final grades. To provide clear teaching for this process, Blossom details her expectations to her class and reinforces her expectation that students reflect on their own learning through assignments and frequent conferences, asking,

> What does an A student, what does is a C student, what is an F student? …and then we talk about have you ever gotten a C on something? Was it because you didn't try or because you weren't smart? What do about how much a student learned by their grade? What do you know about a student by looking at their report card? We use Flipgrid for all of that this year…. So I watch them responding to the question, what is an A student, right? What can you tell about a student by looking at their report card? And I see their faces shift while they're talking. "You know actually, it doesn't tell me anything about them. All I know is that they did all of their work. I don't know if they learned anything," …. So then we go from there and talk about how we value in the class learning, and not

> points. And what an A looks like for you might be different for somebody else. But for me, kind of define it. Is your brain engaged while you're in class? Are you thinking and talking about what we talk about and hear outside of class? Do you know more now than you did at the beginning?

In nonlecture classrooms, a teacher's goals and expectations are often novel for students. Sharing goals and expectations early allows scaffolds student engagement in the planning process, allowing them to construct their own knowledge of class processes.

Planning: Communicating plans. Study participants considered communicating plans to students a crucial component of clear teaching, stating that plans needed to be communicated at the beginning of class using multiple, aligned modes. Beatrice shared, "I always try and write a plan on the board or write the to-do list like this is where we're eventually ending up." A written lesson agenda communicates plans to students in a straightforward, easily accessible manner, providing what Flora called,

> A *visual anchor* for them. If there were certain things that needed to get done or there was a flow, that way I could just point to them and say, "Where are you on that? How about step two? How about step three?" That really helped my students to be able to refer to that, instead of, "What am I supposed to do?" Sort of a memory thing.

Belle used an essential question to visually anchor her lessons:

> The essential question's always posted. It's on the board and it's the objective. It's something that you share, as our school we share with our students every single day whenever the class starts so they have an idea of what's going to be

> addressed. I have it on their, if we have structured notes or something that we've used, it's going to be posted on there. We've done assignments. Sometimes I'll post it on there. But usually then, once we get back to that reflection piece at the end of a lesson, I always refer back to that. Like, "Okay, now that you've learned all of this supporting material, let's go back to that essential question and let's see if we can answer that."

Like Belle, Brooke also aligned her visual anchor with other written plans and instructions. The visual anchor kept Brooke and her students on track. She reported,

> For each class I have – it's essentially just a small set of Google slides, and I try and keep them really simple. I use those to keep me on task, to remind me of some of the important points for each activity and to help guide the kids along with where we're at. Typically what they're seeing in that PowerPoint will match something in a handout they have so they can make sure they're sort of tagging along with where we go.

Participants described ideal written instructions as “simple” (Brooke) and “clear” (Berit). Berit continued:

> If I get them a paper assignment that has instructions written it has to be really clear. The formatting has to be really clear. The language has to be really clear.

Beatrice reflected on advice from a Special Education teacher colleague, who asked her,

> “Why do you always say please? Your instructions say, ‘Please fill this out.’" She's like, "Do they have any choice?" I was like, "I mean, kind of, but not really." She's like, "Don't put it down, just [write] exactly what you want them to

> do." It got me thinking, well, I can still be kind and polite, but to remove some of that extraneous language and just be really to the point. I always tell them [student teachers], "Be Hemingway-esque. The fish swims. That's what it does. I don't want the fish to be in, or gently up the bubbling book. Fish swim. There we go." I think that's really key. That's the thing that I just, for them to be concise and to the point about what they want or what they need. Then to think about what the real learning is, what is the learning that they want out of the lesson, the mini lesson, the activity? What is the thing that you need the student to learn and what are the skills they need to learn or work on?

Straightforward written plans and instructions are simple, clear, and concise. They provide visual anchors for students and teachers.

Floyd, Belle, Fitz, and Fiona discussed strategies for verbal communication of plans and instructions. Interactive rehearsals, in which students share back the teacher's instructions, were a common strategy. Fiona shared:

> In working with my students, if I'm not lecturing…I would rehearse with them, when we're ready to set them free into the classroom, to do what they needed to do without me giving them lock step directions. I would either have a flow chart on the board, or I would put up a to do list and a menu and say, "So, probably going to need to take this long for that, how long do you think we should be doing this, blah, blah, blah?" Then call on one kid, "What are you going to first? What are you going to do first?" So walk through with them what the expectations were for that period of time.

Participants described verbal communication as a complement to written instructions. Similarly, Bess, Fitz, Berit, Flora, Blossom, described digital tools, including email, Google calendars, learning management systems, and stand-alone applications like Remind that they used to remind students of instructions. While some plans and instructions were occasionally communicated exclusively via verbal or digital means, for the most part, verbal and digital communications were used to reinforce written communication of plans and instructions.

Consistent communication routines. Participants experienced straightforward teaching when they had a consistent start and end to class, when they used consistent locations for classroom materials, and when they used consistent locations for visual anchors. Belle, Floyd, Brooke, Beatrice, Blossom, Berit, and Bess described daily classroom routines used to keep nonlecture instruction straightforward. Participants described class routines as series of activities, generally beginning with a warm-up activity, continuing with varied activities, and ending with a formative assessment. Beatrice explained:

> Definitely, I try to maintain a structure to the beginning of class. That's why I always start the same way that even if things are getting a little wild and crazy later on, intentionally or unintentionally depending on it, they have that structure and set-up that they know the first part of class is always going to be the same.

In addition, Brooke stated the importance of keeping class materials in the same location, with consistent spaces designated for students to pick up and store class papers. Belle maintained her materials in a consistent digital space through a flipped classroom model.

All participants who discussed visual anchors reported using consistent locations for posting written instructions.

Interaction. Interaction was emphasized throughout this study as a fundamental approach to clear teaching in nonlecture learning environments. Interaction was also described as a strategy for maintaining straightforward instruction specifically. Participants described experiences with frequent check-ins with individual students as well as groups. These check-ins, achieved through physical proximity, digital and verbal feedback on formative assessments, and the work of paraprofessionals and teacher colleagues serving English Language Learners, accommodated the variation in student understanding of teacher communications. Beatrice explained:

> I log a lot of steps around the room. I am constantly in motion and constantly checking in with them. I like using technology when they do it through the Google classroom then I can peer in, and check in, and do that in a way that's if they're ... I can give them some feedback that way too, because sometimes they don't want my feedback like, "Oh," over their shoulder like, "You're not doing that right," or it gives me a chance to give feedback that way too. I log a lot of steps. It would be interesting to track my path around the room on a daily basis.

Participants experienced interaction as a component of straightforward teaching.

Efficient. While strategies discussed for straightforward teaching involved planning, strategies for efficient teaching often focused on implementation of existing plans. To teach efficiently in their nonlecture classrooms, participants monitored student

progress, implemented routines, delivered direct instruction, and utilized technology tools (Figure 3).

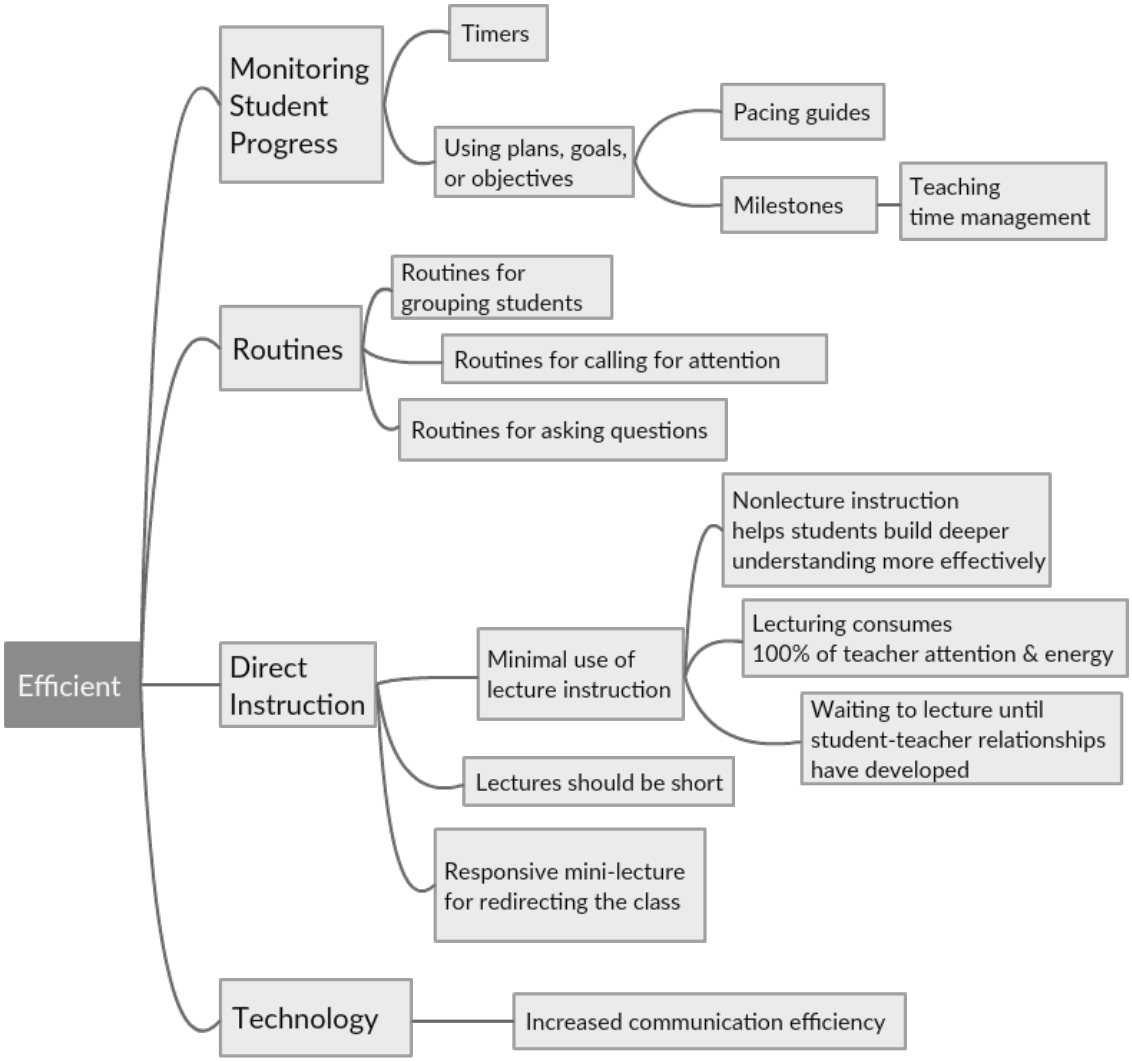

Figure 3. Research Question 1, Theme 2 (efficient) with subthemes.

Efficient: Monitoring student progress. With plans for straightforward teaching in place, participants monitored student progress through lessons, agendas, and checklists to keep their teaching efficient. Tools for monitoring student progress included timers, plans, goals, and objectives. Teachers used timers to track student progress, and to make students aware of their progress. Beatrice explained,

> Especially when I want them to do brainstorms and what not, I'll use a timer to communicate how long we're going to spend on something, so they can see how much time they have left. So, I'll put it up on the screen so they can gauge their own time. I always try and have the next step, so if someone finishes early, I usually try and have that somewhere either "Come see me for the next step," or I'll write out what their next step is, so there's not a lot of downtime as well.

Berit agreed, “I'm setting timers or talking with them or seeing how they're progressing, maybe they're each progressing individually, but I'm trying to keep them on track.” Bess commented that timers help end the habit of “getting off on a tangent.” Participants also described experiences with using timers to manage their own behaviors. Bess shared a few thoughts she might have while running a lesson, saying, “I thought this was going to take 10 minutes and it's taken 15. I need to cut somewhere so they can still follow through with – I promised the kids today 15 minutes of homework time.” Timers – and peeks at the clock – helped teachers prioritize activities and increase the efficiency of their teaching.

Plans, goals, and objectives were considered tools for monitoring student progress. Participants used curricular pacing guides to estimate the amount of time each component of their lessons should take. To teach students time management, participants created checklists based on their plans and pacing guides. Bess shared:

> If it's a multi-step situation where I'm going to turn them loose I will have the steps written down either for them, hand it in front of them, or I'll have a check off list on the board and say, "Okay, you're at number two, you should have this

> done.” We do that a lot at the end of the quarter when we take our end of quarter exams. I'll say, "Today you have to have numbers 1-25 done, and then you have to do X, Y, Z, have this done, that done,” it's a lot of checklists and their part. I'm constantly walking around going "All right, where are you at?" I'm checking in with them individually. Usually I'll see some kids start to have those conversations of other things like what are we doing on the weekend. Then I'm like, "Seriously? Okay, focus. Where are we at?" Because we all know there's those students that can't stay on topic so, bless them, that we try and get things done with them. But it's a lot of checklists for them.

Especially for students still learning time management skills, milestones with time markers, often communicated as checklists, were valuable scaffolding tools.

While participants valued the monitoring of student progress, they also noted the need for flexibility. Beatrice called timers a “double-edged sword” and noted that students could become “obsessed” and anxious about the number of minutes allotted for task completion. Brooke noted that while she had a predetermined idea of the pacing of a class,

> If it's clear that the kids are getting confused about something or if an activity is leading to good discussion and learning, I'm okay with letting it run longer than I had planned and sort of figuring out later how to make up that difference.

Brooke connected the importance of flexibility to the construction of student knowledge.

> If it's clear that the kids are getting confused about something or if an activity is leading to good discussion and learning I'm okay with letting it run longer than I

had planned and sort of figuring out later how to make up that difference. Participants guided students through the completion of tasks in an efficient manner by monitoring student progress with flexibility.

Efficient: Routines. The highly effective teachers in this study used routines for grouping students, calling for attention, and asking questions to ensure that their teaching was efficient. For grouping students, Fitz described regularly using playing cards to efficiently assign small groups. Bess used Instant Classroom, an online application, to randomly group students "all the time." Flora, Bess, Beatrice, and Fitz all described routinized strategies that they used to consistently, and therefore efficiently, call their classes to attention. Attention-getting strategies included countdowns, hitting the lights, proximity, and ringing a gong. To keep her classroom running efficiently, Bess established a routine for asking peers for help before turning to the teacher:

> I try to set off the year with when we're working in partners or small groups, I'll say, "Ask your group, then ask me." Because otherwise you get 26 kids, "Miss Smith, Miss Smith, Miss Smith," and it's like, "Okay, stop with the Miss Smith, I know my name, hang on guys." So, it's kind of, the old, ask three then me, type rhyme that goes. I have them check with their partner, and often if they call me over, I'll say, "What did your partner say?" "Well, I didn't ask them." "Sorry." I do, I'm rude, I turn my back, walk away, and that's kind of their clue they need to be asking other people besides just me.

Participants used routines to limit the time spent in transitions and repeating instructions, making their instruction more efficient.

Efficient: Direct Instruction. The role of mini-lectures, or direct instruction, in fundamentally nonlecture classrooms, was a topic that sparked lively conversation with participants. All ten participants agreed that a minimal use of direction instruction was important, although there was some variety in their sentiments on the topic. While Berit includes a few minutes of direct instruction in most of her lessons, Blossom, Belle, Floyd, Brooke, and Bess "almost never lecture." One reason for limiting direct instruction, according to Blossom, was, "I'm not that interesting." Bess agreed, "I would get bored myself if I was stuck in a class listening to the teacher yak all the time." Brooke added,

> I always feel like when I'm up in front of the class delivering content, a third of the kids already got it and don't need to hear it again, a third of the kids are still not getting it, so best case I'm hitting a third of them well, so I don't do it so terribly often.

Flora noted that lectures need to be short, with a maximum length of 8 to 10 minutes, due to students' attention span limitations, and that she prefers not to start lecturing until she gets to know students.

Belle articulated a common viewpoint when she juxtaposed lecture and nonlecture instruction, saying,

> I think for me, one of the bigger differences I see is just level of engagement. I think when kids are allowed to learn from each other and to get hands on with lab experiences, they learn more. They can ask more questions. They don't feel as threatened to ask questions in front of all their peers in the class. I think that being in a science class hands on learning is kind of the better way to cement the

> information into their brains. Since a lot of them just aren't auditory learners anyways. By doing and seeing, they tend to grasp on to concepts a little bit better.

While participants recognized that many of their teaching colleagues thought that lecture was a more efficient nonlecture instruction, Brooke challenged that assumption.

> There's so much pushback within some pockets of education but we can't give up lecturing because it's so efficient, right? I mean I guess I would sort of push back on so what do we mean by efficient? Right? If the goal of lecture is to impart knowledge, so from your head to the kids, right, you can read or most kids can read faster than we can talk. They may as well have it written for them if you want to be efficient or make a videotape of yourself and they can play it on double speed or something. I would sort of push back on the idea that lecture is inherently efficient.…I think about it in math. We tell kids, "This is how you do this," and they watch, and I think many of us have had the experience of understanding something when it's being explained to us but not being able to either recreate that explanation or use that knowledge effectively on our own. Lecture is really about understanding something when it's explained to us. Is it useful? Yeah, there's clearly a good place for it. Is it effective in terms of having the learners internalize knowledge in a way that they can deploy on their own? I'm a little skeptical sometimes.

Berit added that while lecture may take less time than nonlecture instruction, it is not necessarily more efficient.

> But the right question is not probably what's the fastest way, but that's an appealing question because we're always trying to hurry up, and I think that's a hard balance, but I think the best question's what's the best way. Sometimes it's fast, and sometimes it's not, and what's the best way for them to learn the content for as long as possible, not just for 2 weeks, but hopefully for a lifetime or for a while, or at least when they see it again in college they'll be like oh yeah, I remember that. This is easy to learn again because I already have that knowledge.

In addition to questioning the efficiency of lecture, Brooke noted that lecturing consumes all of a teacher's "attention and energy," preventing teachers from engaging in the multiple modes of communication that make teaching straightforward.

Even though participants thought that frequent and lengthy lectures disengaged students, they also noted that responsive mini-lectures could be used to redirect groups of students and increase classroom efficiency. Brooke noted, in response to a similar comment from Berit, that at times, a class gets off track and,

> Everybody needs to hear the same thing. Sometimes that comes from when I wasn't clear enough with them. I knew what I wanted them to do, but clearly it didn't come out quite so clearly. If two or three groups are struggling with the same thing, it's just a quick short whole class intervention amidst the chaos. Sometimes that's when I actually bust out the classroom microphone, "Hey, everybody, stop for a minute. You need to know this one thing." Sometimes that's when I'll go back and realize this is the thing that I should have put the steps on the board like Flora had said, and sketch them out real quick on the projector and

> throw them out there. "Okay, in case you're wondering, just as a recap." Sometimes it's a quick reaction to seeing that the chaos is going in a non-productive direction.

Although the teachers had varied viewpoints whether direct instruction should be reduced or eliminated from today's classrooms, they all agreed that nonlecture instruction helps students build understanding most effectively.

Efficient: Technology. Participants noted that technology tools could be used to increase efficiency of instruction. Belle used technology tools to flip her dual-enrolled AP Environmental Science class so that she could keep pace with the timeline set by her cooperating university. Digital communication through email and Google classroom allowed teachers and students to communicate quickly and easily, even when they were not in class together. Learning management systems and online grading platforms allowed teachers to organize student discussions and quickly respond to students' work. Participants' experiences with technology tools will be discussed in greater detail under Research Question 2.

Coherent. For the teachers in this study, coherent instruction had two components: teaching and curriculum (Figure 4). Coherent teaching, which involved responsive implementation of lesson plans, relied on coherent curriculum. In nonlecture settings, highly effective teachers used plans, goals, and objectives to keep their instruction focused on the intended lessons.

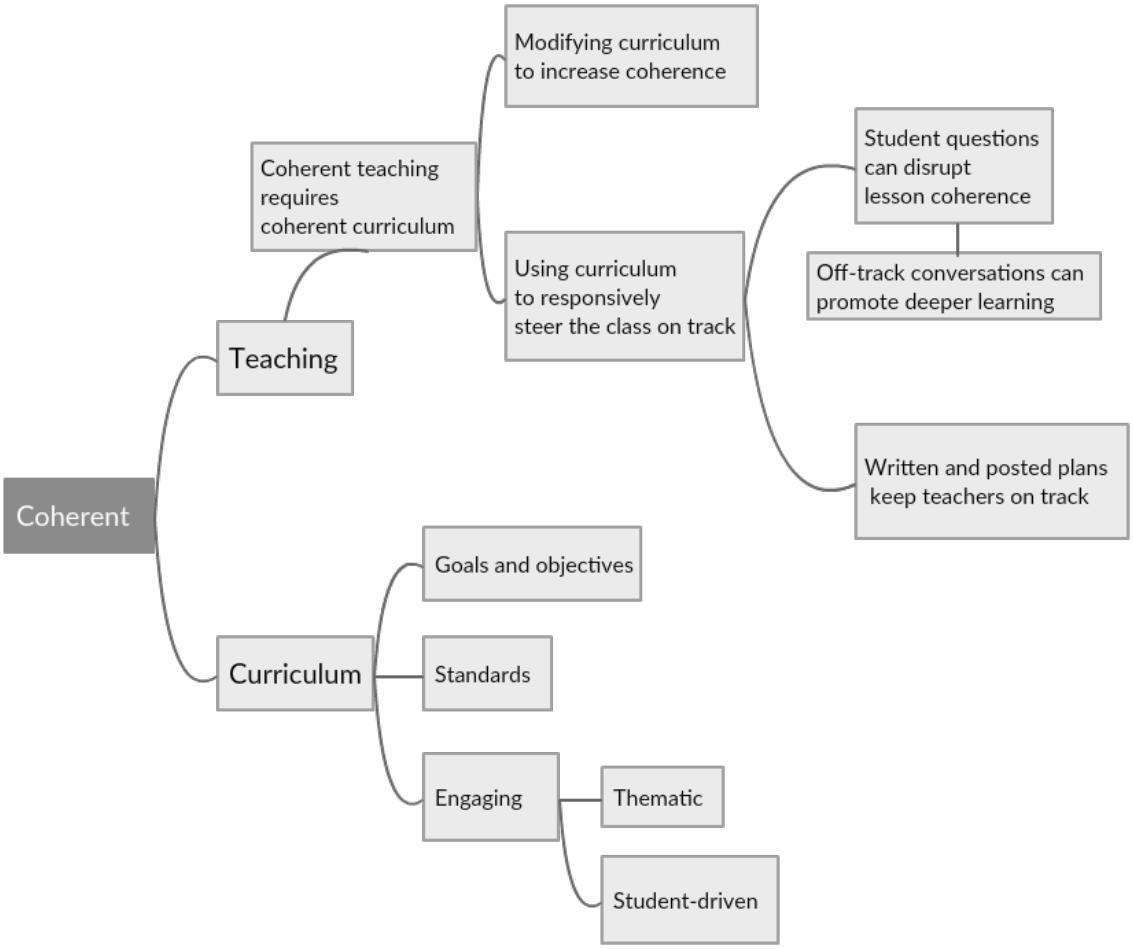

Figure 4. Research Question 1, Theme 3 (coherent) with subthemes.

Coherent: Teaching. Coherent teaching involved, for the participants of this study, adapting coherent curriculum to the immediate needs of their current students. Brooke related that even "good curriculum where the flow is natural and builds well with the kids' understanding" might require modification for true coherence.

> I have occasionally come across gaps when I'm doing well I come across the gaps beforehand and can fill them before it gets to the kids. When I'm not sometimes I don't realize it until we hit there and we're in the middle of class and I realize there's a gap in something or a presumption that the kids know something they

> don't. Then I'll either sort of change what we're going to do next or back up and direct-teach that, lecture that right then and there or loop back to it the next time we're together.

The teachers reiterated the importance of communicating lesson plans, goals, and objectives, not only for straightforward and efficient instruction, but also for coherent instruction. Visual anchors helped teachers stay within the lesson topic for more coherent instruction. However, flexibility and responsiveness were emphasized again, with the value of considering off-topic student questions noted by Blossom and Beatrice. Beatrice elaborated,

> There are some kids who just always want to drag me off track, but if it lends the greater conversation, sometimes it's that rich teachable moment that you hadn't thought about when, what I didn't thought about when I was planning the lesson that all is like, "Wow, yeah. It makes it more real."… I always try and think like how does it relate back to that, the essential understanding that we're working on for this unit? Does it enhance it or does it take us off and it becomes just confusing and incoherent?

Blossom noted that taking the time to honor off-topic student questions can

> …help them rediscover the joy in their brain, learning something new. And I think that those kids will stay with you the next week when you have to go back to the regular stuff because they're like, "She's all right. She'll entertain this other thing for a little bit." And so it's worth it.

Although taking time to explore some off-topic student questions might disrupt lesson coherence in the short-term, the benefits of stronger student engagement and more trusting student-teacher relationships could justify the loss.

Coherent: Curriculum. Behind coherent teaching, participants noted, there is always coherent curriculum. Participants identified a number of characteristics of coherent curriculum. Belle thought that standards-based curriculum was inherently coherent. Blossom's experiences with thematic curriculum based on student interests led her to develop a method for guiding topical brainstorms to become more coherent while staying focused on students' curiosity. Berit passionately emphasized the importance of teachers taking the time to "design their lessons so that they're building their own knowledge themselves in a really engaging way." Coherent teaching requires coherent curriculum.

Structured. In their nonlecture classrooms, participants achieved structure through backwards design, scaffolding, workflows, and teacher organization (Figure 5). In addition to these four sub-themes, a fifth pattern emerged from the data. Participants shared a variety of experiences, positive and negative, regarding the relationship between structure and student engagement.

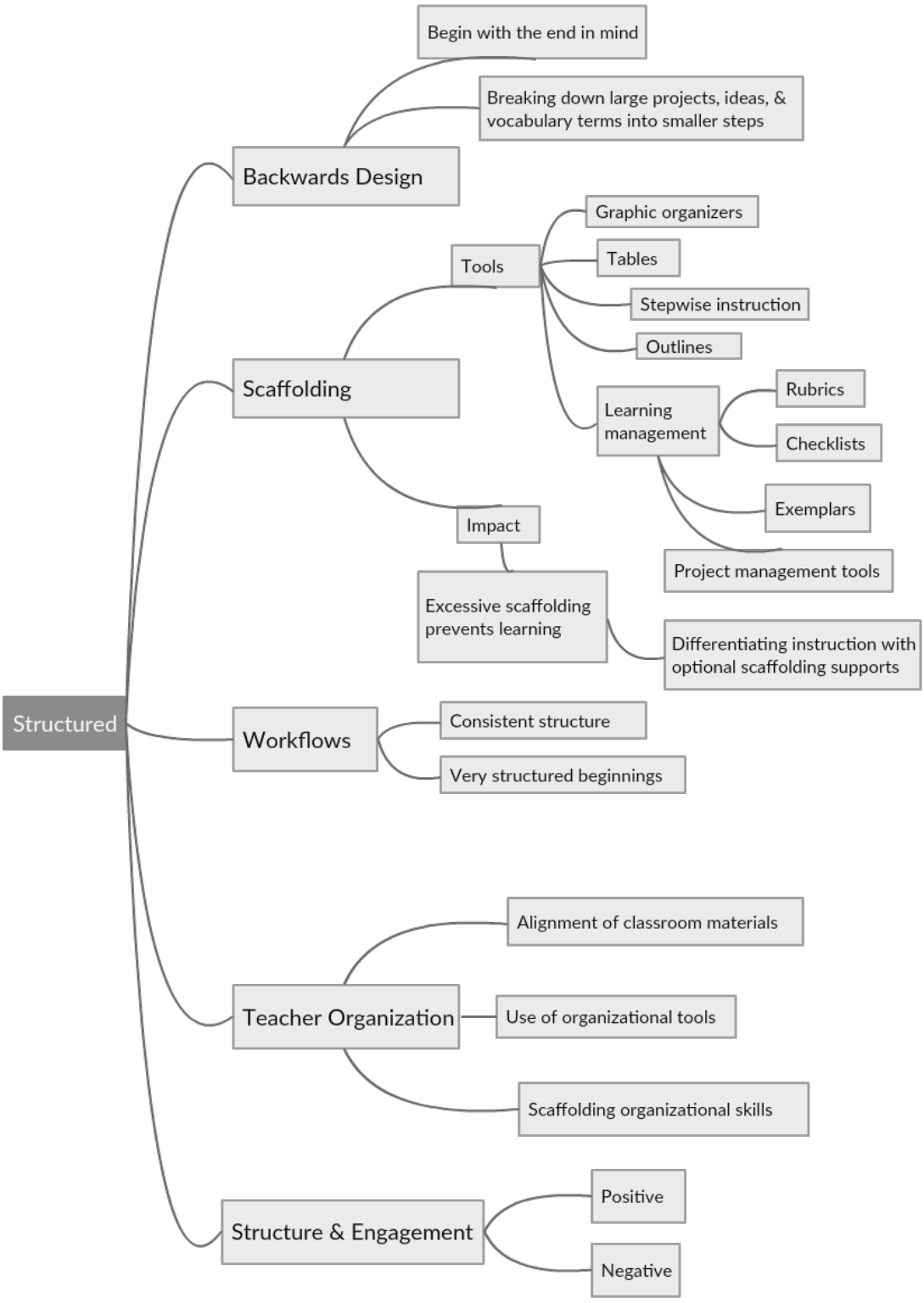

Figure 5. Research Question 1, Theme 4 (structured) with subthemes.

Structured: Backwards design. To create the structure needed for clear teaching in nonlecture environments, several participants employed backwards design thinking to developing their lesson plans. Fitz explained,

> I'm a big backward design person. They know by day 10 we will have a narrative essay completed, and we know these are the steps, and these are the big deadlines, so that they know, and they can build into their schedule the short-term goals to meet the long-range plans. So, I can get this ball in motion, whether it's for literature ... like a reading, you have to have this much read by this point. How are you going to divide your time up to get to that point? They can kind of motivate themselves that way, I guess might be the word. So, the short terms goals, they know ... they set their own short-term goals to get those long-range plans.

The use of backwards design allowed Fitz and his students to create meaningful structures organized towards long-term goals.

Structured: Scaffolding. While working towards long-term goals into manageable short-term goals, many participants found scaffolding tools to be valuable. In addition to breaking down large projects, ideas, and vocabulary terms into smaller components, participants used graphic organizers, tables, stepwise (step-by-step) instruction, outlines, and learning management tools. Learning management tools included rubrics, checklists, exemplars, and project management tools.

In schools where teachers worked with students over multiple years, the process of moving stepwise towards large goals could be very gradual. Berit described how she strategically breaks down inquiry lab skills into smaller steps.

> A lot of an inquiry lab is skills. They have to learn how to design an experiment and how to conduct it, and it doesn't matter the content. Those are skills, and so starting in 10th grade I kind of front load some of those skills, and I guess we scaffold up. So we start with simple ones, and then they keep getting harder and harder. By the time they're seniors some of the inquiry labs that I do is when I have subs because I know that they're going to be on autopilot, and they'll be fine, and they know what they're doing. So I guess that's probably ... and I have kids, 10th grade through 12th grade because it's a small school. I have the same kids so that helps. So I guess scaffolding them and realizing some of what we're doing are skills, and they have to learn those skills, and I can't just throw it all at them. I have to scaffold those skills, and it might take a series of different activities for them to do well with those skills, and kind of looking at it strategically that way.

Although all of the participants identified circumstances under which scaffolding was positive for student learning, several teachers also experienced times when excessive scaffolding prevented learning. Blossom explained:

> So I find that the rubric limits their learning. So if they really are asking for some structure, then I'll create something together with them. So the presentations they did earlier in the year, they were presenting a proposal for a way to do something in school differently, like start times, or homework, or testing or whatever, and that's when the principal was coming in. So they wanted more of a structure of what should our presentation have. So together we said, "Well your slides should

> probably include these things. If it's in this order, that's typically the way people will present that. But if this doesn't work for you, that's fine. Do it your own way."

In Brooke's math classroom, excessive scaffolding could also be an obstacle for learning.

> I think not giving them too many scaffolds right away is important. Giving them the scaffolds that later on you're going to be able to pull the scaffolds away and they're going to be okay on their own. In math if you simply say to kids, "These are the steps to solve an equation that looks like this," they might memorize some steps but that's not a scaffold you can pull away, because when you give them an unfamiliar problem that requires different steps they're not going to have the skills for that. Making sure that any sort of direct explaining that you do the kids isn't simply having them learn to mimic something and that it is building conceptual understanding, not just procedural memory.

Berit observed that excessive structure could limit students' higher-level thinking. She shared, "Some of them need that kind of scaffolding and some don't." Participants agreed that differentiation was needed, and that scaffolds should only be provided when needed. Otherwise, the scaffolds would limit student learning.

Structured: Workflows. Brooke described her primary nonlecture classroom structure as a workflow. She defined a workflow as, "the sequence of here's the stuff you need to learn, here's the resources for it," noting that a workflow "managed those routines and procedures" that she kept in her classroom. Bess and Beatrice also achieved classroom structure through workflows, with especially structured routines at the beginning of class. Here, too, technology tools supported teacher clarity. Beatrice noted,

> I think that beginning piece to class is a big piece. I think it works pretty well actually for a lot of different types of learners and lots of different types of students for sure. I try and keep it structured by using technology even if a student's not going to access the material via technology. I try and list it or link it up there so then they could have an understanding of, "Oh, that's there. I know where to go. I know where to get it if I need it even if I'm not going to use it."

When nonlecture activities are varied and numerous, organized workflows can bring clarity through classroom structure.

Structure: Teacher organization. One participant articulated that her own state of organization brought structure to their teaching. Brooke noted that aligning her classroom materials, including handouts, projected slides, and digital components, brought structure and clarity to her teaching. She used binders and file cabinets to scaffold organizational skills in her students. By modeling and teaching organizational skills, Brooke experienced teacher clarity through structured instruction.

Structure: Structure and engagement. Two participants reported that classroom structures impacted student engagement. Blossom observed that when students were not experienced in developing research questions and exploring answers, they would need teacher-provided structures. However, she added, “I tend to find that if they want to know the answer to the question, I don't need to give them those structures as much.” Berit said that,

> I keep pretty tight deadlines because I think that students aren't engaged unless ... I think it should be rigorous, and students are more engaged when it's rigorous. So

> I guess part of that is part of the structure is just keeping deadlines, so within a project they'll have tighter deadlines.

Providing structure may help students become engaged when they are not sure how to proceed with an assignment, or if they respond positively to the increased rigor of a tight deadline.

Interactive. Participants emphatically identified interactive instruction as a crucial component for effective teaching. Codes that emerged from focus groups and interviews included formative feedback, individualized instruction, facilitating interactions, and modifying instruction and instructional approaches (Figure 6). Teachers were passionate about discovering effective and innovative approaches to facilitate meaningful classroom interactions.

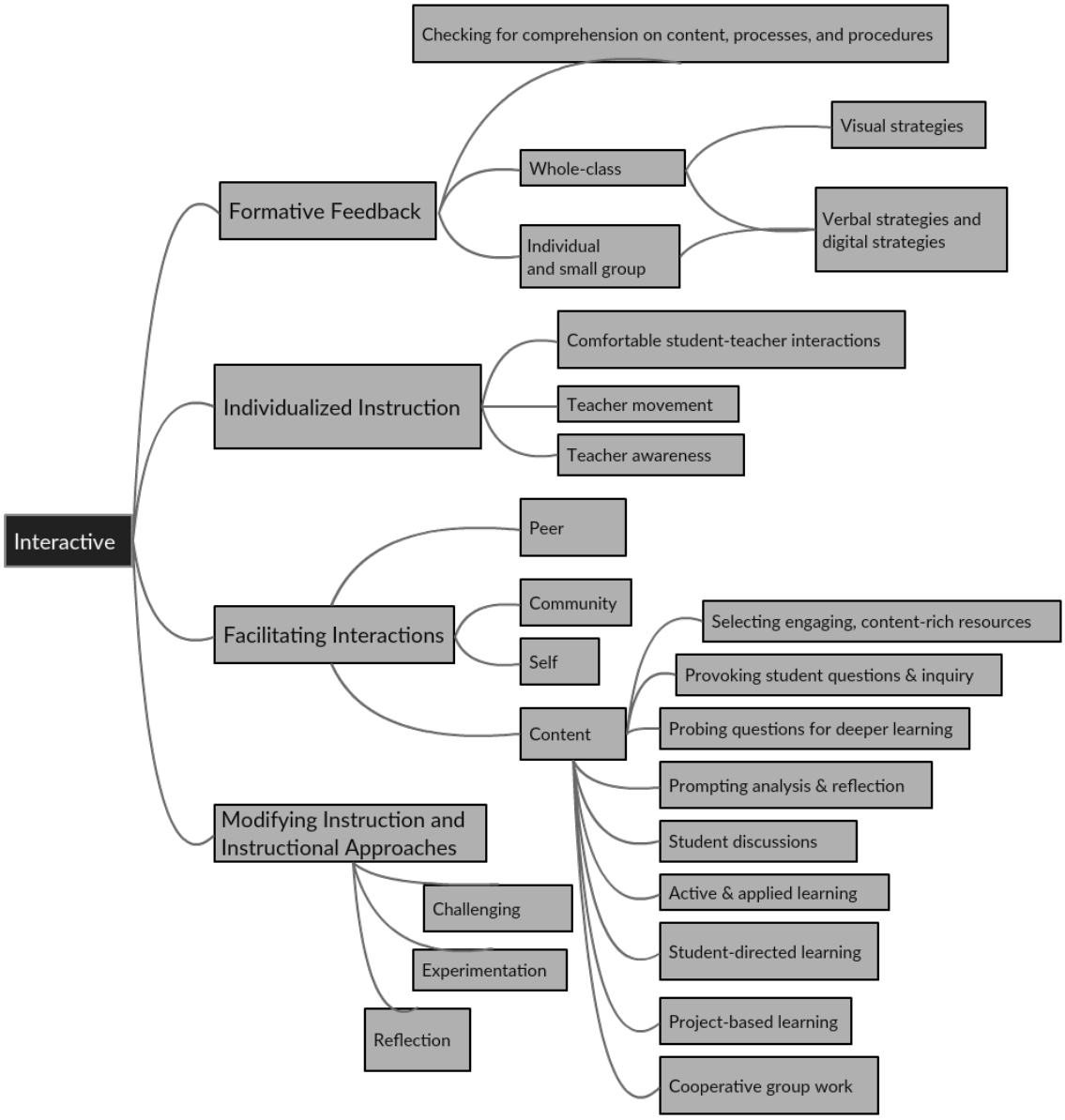

Figure 6. Research Question 1, Theme 5 (interactive) with subthemes.

Interactive: Formative feedback. Interactive instruction includes formative assessment of student understanding of content as well as classroom procedures and processes. Bess, Brooke, and Berit described how they gathered formative feedback on student understanding of content for an entire class. Bess, Beatrice, and Flora all

discussed interacting with whole classes of students to collect formative feedback on classroom procedures and processes. Visual strategies were most often used for assessing the understanding of all of the students in the class at once. For example, to check for understanding, Bess has experience asking the whole class to "give me a thumb up if you agree, thumb down you disagree, thumb down it's a positive answer, thumb down negative." Berit described asking students to write questions or answers on individual paddleboards that they could hold up for her to see at a distance.

Verbal and digital strategies were most common for formative assessment of the understanding of individual students and small groups of students. All ten participants described ways of working with individuals and small groups. Verbal and digital strategies were the most common approaches in these settings, as described in greater below.

Interactive: Individualized instruction. The highly effective teachers in this study emphasized the importance of student safety and comfort as a prerequisite for effective student-teacher interactions. Brooke explained that in a nonlecture learning environment,

> I think the interactions are more frequent and therefore just become more natural and easy. For the kids, in a lecture format, I think kids often were like, "Yeah, I'm comfortable raising my hand and asking a question," but it's a higher-stakes, more intimidating environment and that's just a higher bar for a lot of kids for participation and engagement.

Beatrice and Belle discussed the importance of teacher movement in building rapport and creating opportunities for student-teacher interactions. Beatrice said that she kept her teaching interactive with movement.

> Definitely movement. I'm not a good sit still person at all. I think a lot of the kids aren't either. Definitely moving around, I don't really have a front of the room. I have my desk. I'm in the back corner, the wall right there, but that's not really where I stay very much during the day. I'll conference with kids over here, or if we need to have a moment about something. I try and move around and circulate around the room for my instruction or for directions, or just to really engage all the different kids in what's going on.

Belle explained, "You go around and always monitor, walking around, building rapport with them, identifying any misconceptions, clarifying any questions, and just kind of circulating and being active and part of it." Berit added that when teachers are in the midst of student activity, they have a heightened awareness of interactions.

> I think one word that comes to mind is the word witnessed, and so I really appreciated learning that word and how that applied to teaching, but I think that teachers have to be aware of all the interactions happening in the classroom, and everything, all of the students are saying and doing and thinking, we kind of have to just be sort of the eyes and ears at all times. Kind of in the middle listening and learning with them.

By encouraging comfortable student-teacher interactions through movement and increased awareness, teachers can keep their teaching interactive.

Interactive: Facilitating interactions. Participants described many strategies for facilitating student interactions with peers, community members, themselves, and content. When teaching content, they focused on facilitating interactions, not delivering information. These teachers recognized that students could develop understanding in relationship with peers and community members, through self-reflection, and by engaging with interesting resources in meaningful ways.

To facilitate peer interactions in ways that deepen content knowledge, participants guided their students in structured responses to peer presentations. Bess shared,

> When it was students presenting something they did, I do the Oreo technique where I'll give them a three by five card, and you have to write one thing that's great, one thing that you would maybe improve upon, or you saw their information wasn't correct. Something negative, but in a nice way, and then something positive again, so that way they are seeing something to improve upon, but yet they had two things that the students said nice to them about whatever it was they were presenting.

Beatrice added,

> Something that I do, especially when students are presenting, I ... and it's not with technology, it's just good old fashioned pencil and paper, I have them ... similar to your Oreo technique is I have them write questions that they've thought about while the person's been present presenting, so I try and have them be engaged really with their peer. So, we set up that routine at the beginning of the year that

> any time anybody's presenting student-wise, that they should be writing down questions, or things, or a-ha's that they had about the presentation.

Flora observed that in peer presentation situations, students learned more readily than when teachers were leading class.

> From my perspective, also, the difference could be that all of the sudden, students, I don't want to say that they don't pay attention to when I'm doing things, but it's the kind of different energy level. It's a different aura that is created in a classroom. Number one, I love it because I don't have to do a thing and they're doing the thing, but then I see that students almost in a different light because they're learning about each other while they're listening to each other. Then they're all of a sudden showing the level of respect that they wouldn't show otherwise maybe when they're just communicating on a regular basis because this so and so is standing now in front of the class presenting and doing something and that takes courage. You want to support your classmate in doing so. So, in that sense, I love when I have students doing things. Again, it's just a different. All of a sudden it's the different atmosphere in a classroom. A lot of learning going on and a lot of I guess communication on a different level that you don't see when you're standing in front of the class and doing your thing.

Floyd responded,

> I can kind of piggy back off that. I agree with what Fiona said 100%. I think it's really need to watch students who are scared of presenting or scared of being in front of others. Once they do it, they're a lot more respectful to their peers who are

> doing it as well. So, for instance, we participate in Poetry Out Loud, which is an NEA program where they are reciting a poem that they've memorized. Students don't want to do it at first, but once they kind of invest themselves, they know how hard it is so they are giving each other the respect that you would hope they would give all the time. It's really kind of cool to see even the ones who are the biggest clowns or the biggest cut-ups that you wouldn't expect are really clapping up the people who are going and supporting each other in a way that is really kind of inspiring to be in a classroom and to see.

To keep their teaching interactive, participants worked to facilitate student presentations that provided opportunities for deeper content understanding through positive peer interactions.

In addition to responding to formal presentations, students in participants' classrooms interacted in many other ways. Students view Flipgrid videos of each other in Blossom's classes, and engage in online discussions in Belle's classes. In Bess's classes, students "constantly" partner up to solve math problems.

Belle, Floyd, and Blossom noted that students are sometimes more comfortable seeking help from peers than from teachers. At times, students who are English Language Learners might provide translations for each other. Facilitating peer interactions increases student opportunities to ask for, receive, and provide assistance.

Several participants intentionally facilitated interactions between students and community members. In Belle's classes, students frequently interacted with community members, including students at the local university and school administrators, as they

engage in service-learning projects. Belle noted, "I think the service learning is a great fit with the interactive model because they're working with community partners. They're working with university students and they're all trying to work together to find a solution to a problem." Blossom used Skype and Google Expeditions to connect students with distant experts and places. Bess brought in guest speakers. Fitz published student projects on the school's website. Fitz reflected,

> I have them share it with themselves in the classroom, but I also have access to that so that parents can see it, and I can put it on the school's webpage, and all of a sudden it becomes a broader audience than just me looking at it, or just reading that, and that's a big thing, I think.

Interaction with community members was a dimension for achieving clarity through interactive instruction.

Participants utilized a wide variety of strategies for facilitating student interaction with content. Flora described her use of novel props to intrigue students and introduce content matter. Bess, Flora, Berit, Fiona, Beatrice, and Blossom all discussed facilitating student interaction with content by selecting content-rich resources with which students could interact independently. Beatrice gave this example:

> With this Rome one today, I had them do, I divide the room in half, and I had half the room do a reading and half the room watch a brief TED Talk on their laptops about what it's like to be a teenager in Rome. It was, I think, it's like 7 minutes long and about the life of a teenager. Then I had each of the groups report out on a shared document. They had to put their reflections in, and then they switched.

> Then I had an individual activity for them to do where they had some reading from the text we use that then will lead into our next class.

Teachers also experienced facilitating student interaction with content by provoking student questions and inquiry about content – and asking their own questions to prompt student reflection and analysis. For example, Beatrice said that,

> I try and really encourage a lot of discussion to make it interactive as well and ask for a lot of questions about the content or what worked, and not phrasing it like, also just asking like, "What did you think was really interesting about this?" Not necessarily, "Do you have questions? What did you think was interesting?" Just trying to draw out different responses and make it comfortable for kids to be like, "What I thought was interesting is this happened." Instead of saying, "I didn't understand the whole question," what did you find interesting?

Fiona, Belle, Berit, and Brooke discussed the value of facilitating student interaction with content using active and applied learning strategies. Fiona's students learned by performing music. Belle and Berit's students learned through scientific inquiry labs. In Brooke's math classes, she reported that,

> I'm trying to be conscious of not over guiding them with activities, because that just ends up with more of my voice. I would try and sort of set up an activity and give them just enough direction that they can start with it and then back out and let them start working their way through it and then I'm interacting with them in small groups to get them unstuck as they work.

In addition, Fiona and Blossom facilitated student interaction with content through student-led and student-directed lessons and activities. Finally, teachers described additional nonlecture approaches that facilitated multiple types of interactions. For example, project-based learning could involve community members for whom students complete service projects. Student discussions and cooperative group work involved peer and content interactions, which Berit facilitated using assigned roles.

> So we'll get in groups that are all the same role, and then the next day they'll switch into groups where it's a combination of the four roles. So, all of their voices are heard, and they all have to talk, and then they have to produce a poster or something to summarize it. So those are really effective when they're all in that role, and that kind of leadership role and they're all collaborating, and then in those times that's when I'm moving around. I'm listening to them and talking to them, and I can have that one on one kind of feedback with them.

In these settings, teacher-student interactions served to facilitate student-content and student-student interactions. Teachers served primarily as facilitators.

Interactive: Modifying instruction and instructional approaches. A powerful theme that emerged throughout this study was teachers changing their instruction, and instructional approaches, based on student feedback. This happened at many levels for participants. One level was short-term, with lessons that didn't go the way they had been planned. Beatrice reported one such experience.

> I run multiple sections of the same class of just a general world history class, and we're working on writing analytical essays, and using research, and I thought I

> had very clear directions, and a procedure, and it worked great for one group, perfect. They understood, they had it written down, it was just smooth sailing. Then the next class trickled in, classes change ... that was not working for them, is probably an understatement. They were just confused. It was like all of a sudden we were in French class, instead of in social studies. They were just like, "We don't understand what we're doing. We don't...", besides the fact that this was a well-established routine, we've been working on this content for at least three or four other class sessions. So, it was kind of just like changing the directions on the fly, falling back on a different routine that they were familiar with. "Okay, this one's not working? So, let's do this like we do ... when we do a quiz on current events. So, this is how we're gonna step through that." And when we ... and because they knew the routine we fell back on, and I could just quickly pull it up, and just change the instructions on it, they could see it visually, I repeated it, and it worked. I mean, it was a little messy for a little bit while we were transitioning, and I have 74 minute classes, so I have a little bit more time every other day to ... if things start to go off the rails, I have a little more time to pull it back on, and get us moving in the right direction.

Fiona, Berit, Brooke, Blossom, Brooke, and Floyd all related similar experiences. Floyd described his own thought process throughout a mid-course correction.

> Along the same lines for me, as teachers we're always taking the temperature of the room and seeing where there is understanding and where there is not. I think the mistakes for me in communication often come where I'm assuming, especially

> at the beginning of the year with a new group of students, where I'm assuming they can do more than they are ready to do and I see those blank stares or I see those heads go down in frustration and I know we gotta back this up a little bit. We gotta go a little more basic and then restart. So, often that's appreciated by students when that is recognized so that they have the opportunities. They don't want to say I don't know how to do it, or they don't want to seem stupid. So, just kind of knowing the energy of the room and saying, "Oh, my mistake here. Let's try it this way," and take it back a couple steps so that they become a little more familiar before they get to the harder stuff.

In Fitz's experience, acknowledging the lack of clarity and modifying instruction shows respect for students.

> Sometimes I actually will actually give myself a time out, I can look at the kids' faces, and realize, I have no idea ... "You have no idea what I'm talking about." I am speaking a foreign language, and I will actually walk out of the room, and the kids know that that's an okay thing for me to do, and I'll regroup, and think, "It's not working, what do I need to do," and I'll come back in and start the class all over again, and the kids know it's like on that Willy Wonka moment when he says, "Stop, rewind." We stop and we rewind, and we just start ... and then we start over again, and I ... and we just keep going. That way they know that I have given them that much respect that I'm gonna start over. That I know that I need to redo something 'cause they're not getting it. Sometimes they will say, "You need to step out of the room and restart this class, 'cause we're not getting it," and that's

> fine, 'cause I think in my head, "How can you not get this?" I'm a 36-year career teacher, it's like whooph! and they will say, "And that's fine," that's that good communication on their side too.

Interactive instruction can also involve changes to one's overall approach to teaching. Belle related an experience in which a student criticized her teaching style. This criticism prompted Belle to change her pedagogy.

> My first few years, that was very much the case because I think as a new teacher, it's more comfortable just to say what you know and to have more of a control of the classroom, so I would say I was definitely a lot more lecture heavy. Especially more in my anatomy classes because I felt like that was more of a class that it's challenging to have a lot of interactive things to do when you don't have the materials to do so like if your school doesn't have money to have a lot of dissection kits or things like that. That one I think one of my students did make that comment my first few years. It was like, "This class is boring. All you do is take notes." It hurt my feelings, then you think, like, "Oh, well I guess she's right. I should probably try to figure something out."

Although this type of interactive teaching was often emotionally challenging for participants, they thought that it was essential for effective teaching and positive learning experiences. Berit explained,

> I think they're [students are] the best ones to get that from, and I think that a lot of students have never thought about that, and I think some have, and they get frustrated because I think the smart kids know what crappy teaching is, and they

> get frustrated with that, and that's fair. They hate school, and they're really talented kids, but they hate school because they get frustrated, and so I think when we ask them those questions, and then honor that. How can I do this better, and then do it, and show them, or how can we arrange the seating so this is better for your learning, or how can we structure this so it's better for your learning and then do it because it's their classroom, and it's their school, and it's their learning.

Brooke, Beatrice, Belle, Blossom, and Bess all described their own explorations and experimentations with new tools that might fit their students' learning needs. Berit also discussed the value of reflection as teacher activity that supports responsive innovations. Responding to student feedback by changing instruction at micro and macro levels was an integral part of all participants' approach to keeping their instruction interactive.

Research Question 2

Research Question 2 investigated, what innovative strategies highly effective teachers practice to ensure *clarity* in nonlecture learning environments? The four themes that emerged in response to this question were cognitive learning; affective learning; race, culture, and ethnicity; and technology (Figure 1). Sub-themes for each of these topics are explored below.

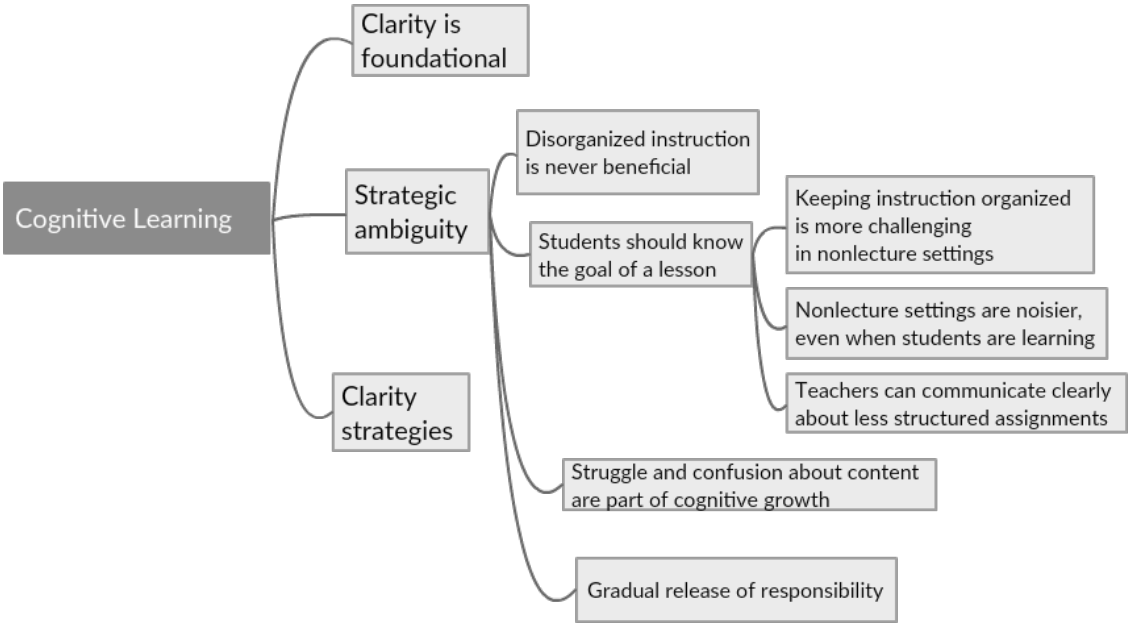

Figure 7. Research Question 2, Theme 1 (cognitive learning) with subthemes.

Cognitive learning. Participants agreed that teacher clarity was a basic requirement for a successful classroom. Blossom stated, "If they don't know what to do, they just find something else to do," meaning that without clear instructions, students would not complete the assigned task. Belle added that without teacher clarity, students "might not understand concepts," and added that in the science classroom, "a lot of our lab experiments can depend on how explicit and how clear our expectations were. If you don't have clear expectations, then you're not going to get good lab results."

Although participants expressed an appreciation for the value of clear teaching, a major sub-theme that emerged in focus groups and individual interviews was strategic ambiguity. The teachers stressed that disorganized instruction was never beneficial, and in unclear instructions in nonlecture settings could result in what Belle called a "free-for-all" in which students "feel like they are being led astray." Blossom and Berit pointed

out that nonlecture settings can be inherently noisier and more chaotic than lecture-based classroom environments. However, teachers can communicate clearly about nonlecture assignments.

When assignment instructions and expectations are clear, teachers have more leverage to challenge students with struggle and confusion about content. Brooke stated,

> For me, some of it is that I want them to be confused about the right thing. I want confusion, and I want their brains to be struggling, but if something in particular that I want them to be struggling with. And if they're struggling with ancillary things, it just takes away from the time that they can be struggling with the key thing that I was after.

Belle reflected,

> I think there's a difference between asking what you expect of them versus being explicit about content. If I wanted them to really struggle about some sort of content, I'll just say that. Like, "I want you guys to really think about this. This isn't an easy answer and so I want you guys to struggle with this. I want you guys to ask each other and I want you guys to teach yourself how to look up the information." I think just saying that, then they're like, "Oh, okay." And they'll rise to the challenge. But to make a great activity, then I would just say that [teachers] need to make sure that it's not cookie cutter labs. These labs should be inquiry based. They should allow the kids to struggle. They should allow the kids to think beyond what was presented in class and tap in to their higher-level thinking and prompt them to ask questions and engagement with their peers.

Blossom agreed, “I want them to struggle with what their interpretation is so that they are confident in it, so that they understand that it causes that learning in them.” Brooke added that,

> I tend to err on the backing off too much side, to start with. Because I can always explain a little bit more. But if I give them too clear of a step by step this is exactly what you do, I can't un-explain that to them. It's not unusual, and some of that the first time I teach something new I'm seeing how the kids react and feeling like, “Oh, that wasn't enough explanation they need a little bit more. Next time through, I'll explain it a little more,” or next time through there's this one particular piece that I'm going to need to clarify or else they're going to be confused about the wrong thing.

Taking an interactive approach to strategic ambiguity by modulating explicitness in instructions helped teachers provide enough clarity to sidestep frustration, but enough ambiguity to ensure cognitive growth.

Although most teachers agreed that most of the time, confusion about task was not helpful, there were some exceptions. Brooke shared that,

> With that said, I think there's also a place for kids to learn to navigate ambiguity in task, in directions, and I think that's a useful skill when I think about what we as adults do in our world there are times when it's not perfectly clear. And we have to bring some strategies to bear to figure that out. There are times when I feel like it's okay for the directions for something to not be particularly clear,

> because that's a time where kids can learn how to figure out what to do in that situation.

Blossom's students often struggled with determining their own grades, and she noted that this procedural struggle was beneficial because it prompted self-assessment and self-reflection.

Beatrice, Blossom, and Berit described in detail their experiences with gradual release of responsibility. For all three teachers, graduation removal of clarity structures and scaffolds allowed students to grow cognitively and emotionally. Beatrice removed clarity structures and scaffolds gradually, over the course of a year – or, in some cases, with the support of colleagues, over the course of multiple years. She reflected on how she individualizes this removal:

> In my classroom, starting out very structured and then taking away some of the supports. At some points of the year, it's like midyear, I might have some kids who are, it's individualizing that instruction, to some it's like, "Okay, you can just write the whole thing. You're good to go. And you: We are still working on this like you were going to give me paragraph by paragraph." It's finding that wiggle room as well, but always with the goal to have them be more independent by the end of the year with all these things.

Participants described a number of specific teacher clarity strategies aimed at cognitive growth in nonlecture settings. Teachers organized instruction, used multiple communication methods, provided notes and outlines in advance, previewed and reviewed lessons, defined major concepts and vocabulary terms, provided relevant

examples, and developed relevant criteria. In addition to these strategies, which were identified in the research literature, participants allowed for multiple methods of assessment. Beatrice reflected that allowing students to "choose their output" individualizes instruction in a way that supports diverse learners.

Affective learning. Teachers noted multiple dimensions of affective learning that connected with clear teaching. Sub-themes for affective learning included teacher clarity and student empowerment; teacher clarity, student engagement, and student motivation; teacher clarity, academic persistence, and student frustration; relationships; questions, and learning environments (Figure 8). In both focus groups and individual interviews, participants gave equal consideration to cognitive and affective dimensions of learning.

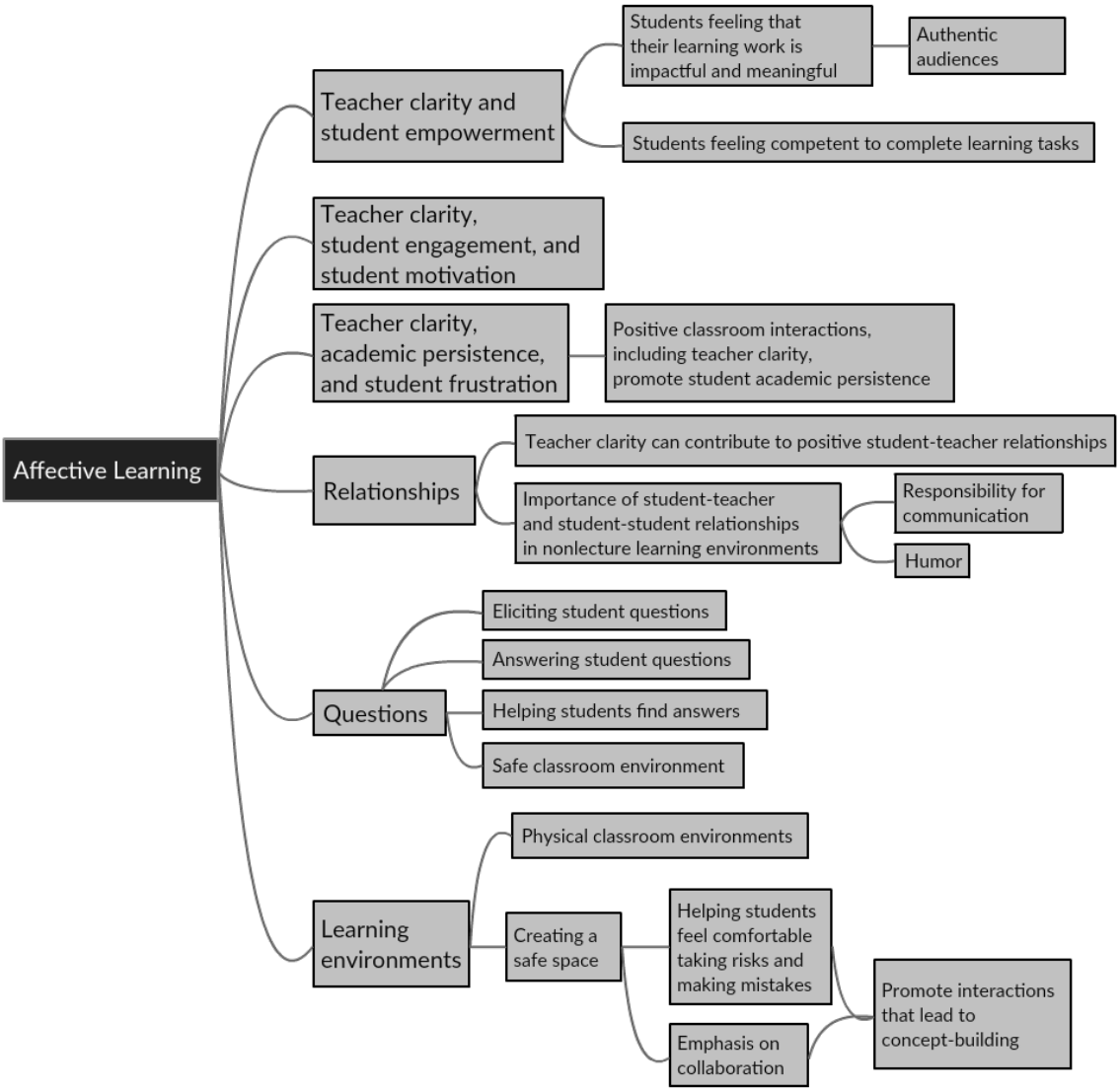

Figure 8. Research Question 2, Theme 2 (affective learning) with subthemes.

Student empowerment was addressed by both Belle and Blossom in their conversations about project-based learning and service learning. For both teachers, the presence of an authentic audience for student work empowered learners. Belle explained by describing a service project in which her students addressed a local environmental problem by building a rain garden.

> They've built a rain garden. With the rain garden, they had to present that to city officials, and they made videos to educate the public on it. They kind of direct their own learning on that. I feel like if I was to lecture on it, I would just, I don't know, you'd stop at a certain point, but by allowing them to do their own project it allows them to go above and beyond the content that would have been just presented to the class and it gives them something to be empowered about and proud about because they're making a difference within their own community and then they can come back and say, "I did that."

Students' feelings of competence were also supported by clear teacher communication. Floyd noted, "So, it's frustrating when you're not communicating clearly just in life. So, students internalize that frustration because they're there thinking, 'I want to do my best and if I don't know what to do, I can't do that.'" Brooke added that teachers could intentionally increase students' feelings of competence to complete learning tasks by "Picking out all of the rightness in their thinking" while interacting, even when students are confused or incorrect in their work.

Belle pointed out that teacher clarity supports student engagement and motivation. She reflected on off-task student behaviors, saying,

> Yeah, the being clear, it's also important for engagement because if a student doesn't know what he or she is supposed to be doing, then a lot of times that's when you see that student put their head down or disengage. You might say, "Why aren't you working on this project?" They'll be like, "I don't know what I'm doing." It's not that they're wanting to act out or not be part of it, sometimes they

> just don't know, and it might not be in their culture to ask questions or question authority so you have to make sure that things are very clear and you're also checking for understanding as well. I think those two go hand-in-hand.

Belle said that when teachers are clear and checking for understanding, students are more likely to be engaged. Berit pointed out that students who are not displaying motivated behaviors may need teacher clarity the most. She stated,

> The lowest kids won't be able to learn the content or the skills unless they have communication. I think that's a different benefit from other kids. They may not be the ones who are going to seek out that communication and come to the teacher, they're the kids who probably have some learned helplessness, and they're just at that point where they don't care as much about learning. But if we don't have that effective communication that won't learn the skills or the content.

Participants connected teacher clarity with academic persistence and student frustration. Bess and Belle both recalled times when their students became confused and frustrated. Bess summarized, “They get so frustrated so fast, and then you lose them, and it's a nightmare.” According to this study’s participants, teacher clarity can prevent student frustration and encourage academic persistence so that students don’t shut down.

Floyd, Belle, Blossom, Bess, Fitz, Brooke, Fiona, and Beatrice reflected on the importance of relationships in regard to teacher clarity in nonlecture classrooms. First, positive student-teacher and student-student relationships help students feel comfortable taking risks. Brooke reported,

> The relationship piece is as important as anything in getting those kids to be willing to come along with me and to be willing to take the risks that they need and to try things and to get comfortable with sometimes being wrong in what they're doing as a way to learn. If there's not a good relationship there I think a lot of the kids particularly the kids who need the help the most, are just not going to come along for that.

Belle pointed out that in nonlecture settings, students need to feel comfortable to ask questions and engage with challenging assignments.

> Probably the most important thing as a new teacher and as a teacher going forward, just making sure you build that rapport with your students because that's going to help you and help them in the long run because then they'll feel comfortable asking you questions, they'll feel more engaged in your lessons, and they're going to be more likely to rise to the challenge that you give them.

Belle went on to note that building positive relationships with students helps teachers know about students, identifying important individual learning needs and navigating challenging behaviors. Berit confirmed Belle's viewpoint with her own experiences.

> And so they feel really open to come to me with questions, but I think the best way that I can be interactive ... When they're working on projects and nonlecture things I'm always moving around and talking with them, and it's not a ... It's definitely not an us and them kind of feel. I'll just sit down with them at their tables and just kind of listen to them, and listen to what they're thinking, and I'll move to the next one…. I've had students say, "I've never had a teacher who

> asked me what I thought." What? That's not good. So just kind of being at that level and trying to get into their heads, I think that's the kind of interactions that I strive for, and those are the most effective ones because then they can be real with me, and then they can say, "This is what I'm not understanding. This is what I'm [having] trouble with. I'm really learning this well because of this," or "I'm having trouble here," or whatever. I guess that's just trying to be real and honest with them, and really listen to them and get into their heads.

Beatrice added that in addition to being real and honest, using humor can help build positive and trusting relationships with students.

In these relationships, the highly effective teachers in this study took responsibility for clear communication. When communication efforts failed, the teachers reflected critically on their own actions. Berit reflected,

> I think it's really important to be critical of what did I do right, what did I do wrong and ask them what was effective? What wasn't? What could I have done better? Almost every single project I have to ... (laughs)

Flora, Floyd, and Fiona separately described the need to identify and suspend prior assumptions in order to critically reflect on their own teaching. Fiona shared her view:

> It's funny because when I first started teaching I always thought that why is that not clear? Isn't that assumed sometimes you're thinking, "Wow. That's just common sense," but then over the years I realized that no, you have to actually be clear and you have to explicitly explain to them and sometimes break it down and

> say one way and then say it another way and then put it on a board and then put it on Canvas and then also virtually communicate with them.

Blossom connected responsibility for clear communication with cultural competence.

> So I used to, I guess, put it on the students to just understand what I was saying, right? That if it makes sense to me, then you can figure it out, right? I came through cultural competence and just more experience with students of color. I let go of that and realized that I didn't have to teach students how to be like me, in order to be successful. I did SIOP training [for teachers working with English learners] 5 or 6 years ago. One of the things that really stood out to me when I was there, was that was my responsibility to make sure I was understandable. And I was like, "Wait, what?" I'm sure people have said that to me before, right? I don't know. But I never actually heard it that if my students don't understand what I'm saying, I need to say it differently. And really I suppose what I have found is that when I respond to students, when I find out or realize that they they're unclear. So I adjust what I'm saying to make sure that they understand that they feel like they belong, right? That I care about their success, and that I'm not just like, "Figure it out, man." So yes.

Both Fiona and Blossom separately and specifically realized that even if instructions have been repeated five times, students may need a sixth iteration. Blossom said,

> But if you are generous and gentle with your response, that will keep them asking questions and they don't feel judged. And then that helps you be more clear because if you know that they're confused about something, you can clarify.

In summary, generous release of assumptions with a willingness to take responsibility for clear communication and iteratively clarify instruction builds positive relationships with students.

Questions are essential in nonlecture learning environments, where interaction is a significant component of teacher clarity. To teach clearly, participants reported many strategies for checking for understanding, including visual, verbal, written, technology-assisted, and individual conferencing (these strategies are described in greater detail under Research Question 1, above). Clear teachers, including Beatrice, Blossom, Berit, Floyd, Brooke and Belle, elicit and answer student questions. They also help students find answers to their own questions. Doing so opens the flow of communication in the classroom.

Participants worked hard to establish learning environments in which students felt safe enough for this open flow of communication. The physical classroom environment was an important component. Participants described mixed and flexible seating options, windows, plants, posters, flags, soft lighting, artifacts, air fresheners, and even coffee pots that ensured Fitz's and Fiona's classroom "smelled good." Beatrice values "a calm relaxing environment" and Brooke said, "I try as hard as I can to make my classroom be a physically inviting space." Flora described a "very inviting, almost irresistible for kids" classroom environment that constantly sparked curiosity with live plants and animals. Belle created an outdoor classroom with community and rain gardens as well as an orchard.

Brooke, Berit, and Blossom each identified the need to help students feel comfortable taking risks and making mistakes. For these teachers, a classroom could not be a safe space if students feared mistakes. Brooke described her strategies for creating this safe space.

> But then also trying to get them comfortable with when their thinking was wrong for a little bit. Part of the way I model that I make mistakes all the time, right? I add wrong, I copy numbers wrong if I'm up at the board. I finally waved the white flag so now I have the kids track, right? They have a counting list and every time I get to 25 mistakes, I buy them cookies, and that happens several times throughout the year because I screw up so much. But really what I'm trying to do is to sort of glorify and model that mistakes are a normal part of how smart people learn. We keep a mistakes hall of fame on the wall so that the really common mistakes that people make, like if a kid makes a public mistake but it's a common one we'd say that's awesome, let's put that one on the hall of fame so everybody knows to watch out for it.

Berit emphasized the importance of building a collaborative classroom culture in which students are "helping each other." Encouraging mistakes and valuing collaboration over competition promoted the interactions that led to concept-building in participants' classrooms.

Race, culture, and ethnicity. Although the concepts of race, culture, and ethnicity did not emerge as central themes in this study, participants did share some relevant experiences (Figure 9). When asked if there were certain types of students that

benefited from teacher clarity more than others, all participants emphatically responded in the negative, stating that teacher clarity is beneficial to all learners. The teachers cited ways in which clear teaching could help many different types of learners. Beatrice shared,

> I think sometimes we think that it ... it's the students maybe who have learning challenges, or the students who have organizational struggles, or executive functioning struggles, but I think it's every student, and the teacher as well, myself, because some of my high flyers - organized - super, they need that clear list of instructions to be able to excel and access the material, just as maybe one of my ADHD folks, just like whoo! everywhere, needs that clear structure as well. They use it in different ways, but it's important.

Fiona agreed,

> Clearly, the students who need more support do benefit a lot. Probably more. However, I find that even those academically strong students who usually don't have any problems academically or understanding what's expected of them also benefit from those clear expectations. I remember someone mentioned to me once that well, things happen and people start scaffolding and doing things for special education students, eventually everyone starts benefiting. Then they gave me an example of how you have the handicap access on the pedestrian walks when you have all the sudden people riding bicycles starting to use that even though originally that was used for the handicapped. So, I guess whatever is being done, everybody can benefit from it and especially in education when you break it down

> or be clear or scaffold or do whatever it takes, clear expectations and clear communication makes a difference for everyone.

Brooke summarized teacher clarity as a "universal good teaching practice."

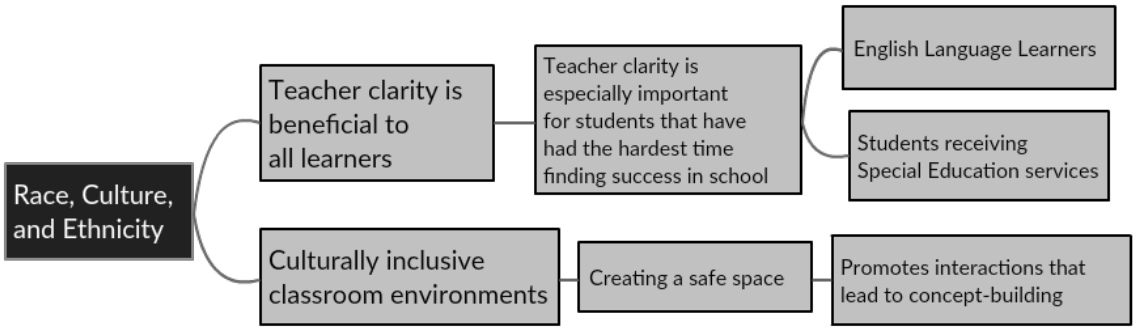

Figure 9. Research Question 2, Theme 3 (race, culture, and ethnicity) with subthemes.

The teachers did mention that teacher clarity might be especially important for two groups of students: English Language Learners and students receiving Special Education services. Belle identified strategies for clear communication that were essential when working with English Language Learners, including using multiple modes of communication, especially for directions and on assessments. Bess described how peer translators improved the interactivity of her classroom. Belle and Beatrice shared that paraprofessionals and teacher colleagues in their classrooms made individualized instruction possible for English Language Learners and students receiving Special Education services. Blossom reflected,

> I think that the students that have had the hardest time finding success in school benefit the most from clear expectations because when it's really crystal clear, then they know how to meet it and then they get to experience that success and that kind of builds on itself.

Fiona agreed, “Clearly, the students who need more support do benefit a lot. Probably more.”

Many of the participants described their efforts to create culturally inclusive classroom environments, with the goal of establishing the safe space that they believe promotes the interactions that lead to concept-building. Berit noted that when she “spent a lot of time one-on-one” with students who had different racial backgrounds than herself (“more than I do other students”), she found that barriers to interaction receded. Blossom’s experiences with talking one-on-one with students helped her to learn about their interests and develop more culturally relevant lessons.

At times, nonlecture learning environments presented unique cultural challenges. International students and AP students struggled with unconventional teaching approaches in Beatrice’s and Blossom’s classrooms, respectively. In these instances, increasing the degree of explicitness of instruction through teacher clarity strategies helped students overcome confusion and find success in class. However, these modifications could decrease student creativity.

Technology. Throughout the study, participants identified technology tools they used for supporting learning and communication (Figure 10). Overwhelmingly, the teachers relentlessly explored technological innovations, including Google Expeditions, online textbooks, and a wealth of stand-alone applications, to increase student learning and engagement while economizing class time. Bess’s and Belle’s use of a flipped classroom model are examples of a teacher using technology to free up classroom time for nonlecture activities, and every other teacher in the study also used some type of

learning management system to facilitate learning and free up face-to-face time for extensively interactive teaching approaches.

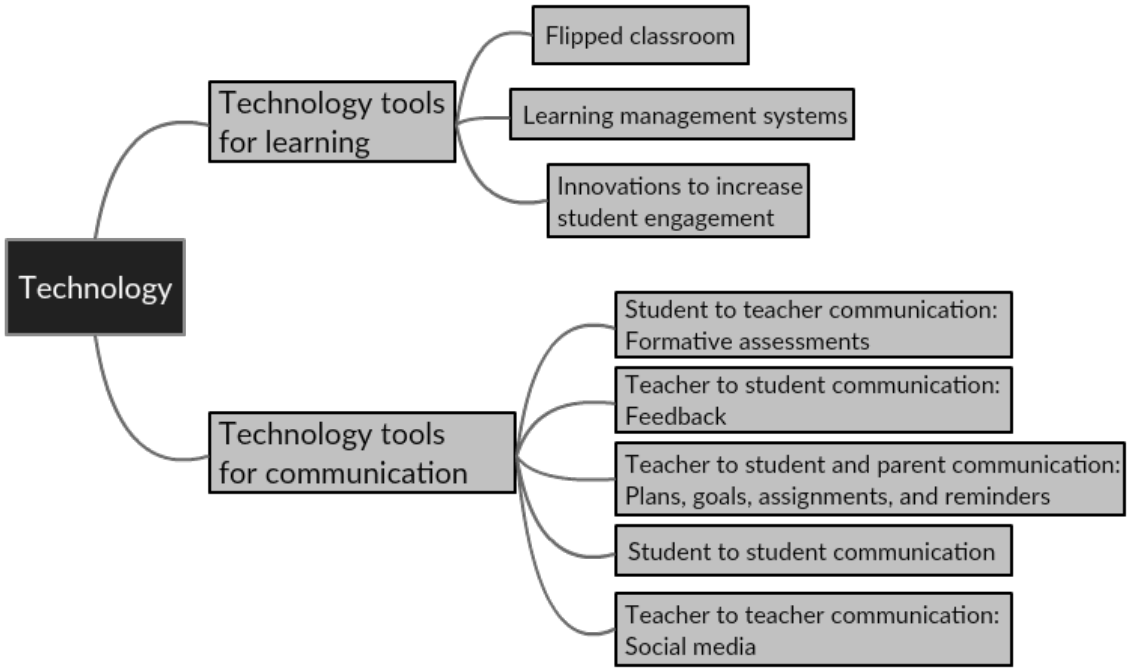

Figure 10. Research Question 2, Theme 4 (technology) with subthemes.

All of the participants used technology tools to facilitate communication. Google Docs were commonly used to collect, assess, and respond to student work with feedback. Berit, Fitz, Bess, and Beatrice noticed that Google Docs were accessible away from school, allowing students and teachers to work, as Fitz enthused, "at home…on vacation...over Christmas break." Participants also used technology tools, including email, Google calendars, and Remind, to share plans, goals, assignments, and reminders with students and parents.

Participants discussed the value of technology tools in facilitating student-to-student interactions, including watching Flipgrid videos of each other, conducting online

discussions, and completing collaborative projects remotely using Google Docs. When participants wanted to connect with other teachers using technology, they used social media. Berit and Blossom both shared Facebook pages that they have used to learn about other teachers' experiences and philosophies.

Discrepant Cases

Although no discrepant cases occurred in this study, discrepancies in participants' experiences were evident. In particular, the degree to which participants utilized efficient and structured instruction varied. These discrepancies are reflected in the emergent codes and in the discussion of study results.

Summary

Chapter 4 explored answers to two research questions. Evidence of straightforward, efficient, coherent, structured, and interactive instruction addressed Research Question 1. Participants emphasized interactive instruction while modulating structures to meet students' diverse learning needs. Strategies for supporting cognitive learning; affective learning; safe learning spaces inclusive of students from all races, cultures, and ethnicities; and applying technology tools for learning and communication answered Research Question 2. In Chapter 5, I will describe my interpretation of these findings.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this qualitative study was to discover teacher clarity strategies that effectively promote student learning, particularly in nonlecture learning environments. Teacher clarity is historically defined as the strategies and approaches that instructors use to ensure that students master course content and processes through straightforward, efficient, coherent, interactive, and structured instruction (Boklan, 2017a; Linvill & Crammer, 2017). Clear teaching still requires organization, planning, and effective communication. But today's clear teachers also bring presence, connection, responsiveness, and innovation to their professional practice. In nonlecture learning environments, clear teaching is an exercise in interaction that can benefit all learners by promoting understanding of course content and processes through responsive and individualized instruction.

The teacher clarity strategies for lecture settings that were synthesized in the review of literature in Chapter 2 were all confirmed in this study. No existing teacher clarity knowledge was disconfirmed. Key findings from my study that extended existing teacher clarity knowledge provided a variety of innovative strategies for maximizing intrinsic cognitive load, including the use of visual anchors, monitoring student progress using technology, responsive mini-lectures, diverse scaffolding tools, and individualized application of strategic ambiguity. Constructivist innovative strategies included responsive modification of instruction and instructional approaches, engineering safe and inclusive classroom environments to support the interactions needed for clear nonlecture

teaching, and the application of technology tools for communication between and among students and teachers.

Interpretation of the Findings

In this section, I will present the interpretation of the findings aligned with the conceptual framework. First, I will describe those findings that aligned with cognitive load theory. Second, I will share the interpretations of the findings that were relevant to adaptive teaching, focusing on constructivism. I will focus my interpretations on the findings that suggested effective instructional approaches that might be transferrable to a variety of diverse nonlecture learning environments and also contribute to the development of professional learning opportunities for teachers.

Interpretations of Findings Relevant to Cognitive Load Theory

According to cognitive load theory, learning places a burden, known as cognitive load, on the mind (Bolkan, 2016; Sweller, 1988; Sweller et al., 1998). Instructors can maximize the portion of this burden that is focused on learning content by using teacher clarity strategies (Bolkan, 2016; Sweller, 1988; Sweller et al., 1998). The aspects of teacher clarity that are most relevant to cognitive load theory are straightforward, efficient, coherent, and structured instruction (aligned sub-themes are shown in light gray in Figures 1 through 5). In the peer-reviewed literature presented in Chapter 2, studies regarding teacher clarity and cognitive learning are most relevant to cognitive load theory (aligned subthemes are shown in light gray in Figures 1 and 7).

Teacher clarity strategies for straightforward instruction. In regard to straightforward instruction, findings in this study emphasized the importance of teacher

planning and consistent communication routines. In this way, my findings confirmed the knowledge in the research literature (Bolkan et al., 2016). Additional findings extended knowledge of straightforward instruction as interpreted below.

In nonlecture learning environments, several innovative strategies supported student learning. Clear and consistent communication routines were found to focus students' cognitive processing on learning, especially for complex nonlecture learning tasks. Teachers used the same locations for classroom materials, began class the same way every day, and placed visual anchors in consistent locations. Participants reported that in their nonlecture classroom settings, presentation surfaces (such as white boards, blackboards, and projector screens) were not monopolized by lecture notes. They used these presentation surfaces to provide visual anchors, including agendas and checklists, arguing that this approach freed students' working memory for learning and storing knowledge. Participants provided visual anchors to help students manage cognitive load in order to maximize their learning. They also took an interactive approach to straightforward instruction, checking for student understanding frequently through proximity and one-on-one conversations. In these ways, my findings extended the research knowledge of straightforward instructional strategies.

Teacher clarity strategies for efficient instruction. Participants reported that strategies for efficient instruction focused on supporting student achievement of nonlecture tasks. My findings extend the knowledge in the peer-reviewed literature analyzed in Chapter 2, which focuses exclusively on lecture-based instructional strategies. Participants reported that their instruction was most efficient when they used

whole-class and individual monitoring strategies to intentionally track student and teacher progress through the planned lesson, often using technology tools. They reported routines for grouping students, calling for attention, and asking questions to minimize time lost to transitions and confusion. Finally, while the teachers preferred not to lecture, they found that when multiple students needed clarification or redirection, responsive mini-lectures promoted efficiency in nonlecture learning activities.

Teacher clarity strategies for coherent instruction. Study participants revealed that strategies for coherent instruction involved the development and delivery of coherent curriculum. My participants reported using curricula that included a variety of classroom activities (Table 2). They noted that nonlecture curricula were coherent when they were focused around goals, objectives, standards, themes, or student-driven concepts. These findings confirmed Bolkan et al.'s (2016) findings that organized instruction supports teacher clarity. It was reported that in nonlecture settings, interpretation of coherent curricula, including modifying curricula and allowing selected off-track conversations to deepen learning, was essential to coherent instruction. By approaching coherent instruction responsively to meet the specific needs of each unique group of learners, the participants provided findings that extended the knowledge in the peer-reviewed research literature discussed in Chapter 2.

Teacher clarity strategies for structured instruction. Structured instruction subthemes that emerged from the data included backwards design, scaffolding, workflows, teacher organization, and the relationship between structure and engagement. Findings related to backwards design, workflows, teacher organization, and the

relationship between structure and engagement confirmed existing knowledge about the importance of teacher organization for clear instruction (Bolkan et al., 2016). Findings related to scaffolding tools extended this knowledge.

The scaffolding tools used in nonlecture settings vary more than the lecture-based tools described in the literature. In addition to providing notes or outlines of notes in advance (Bolkan et al., 2016), participants used graphic organizers, tables, stepwise instructions, assignment outlines, rubrics, checklists, exemplars, and project management tools. This wide variety of scaffolding tools supported a wider variety of nonlecture learning activities in which students played active roles in the construction of knowledge through inquiry, project-based learning, and collaborative endeavors, such as discussions, service learning, and group work. By scaffolding complex nonlecture tasks with procedural and content-based tools, teachers minimized extrinsic cognitive load and maximized intrinsic cognitive load.

Teacher clarity strategies for supporting cognitive learning. Findings from data confirmed the knowledge that teacher clarity may be a pre-requisite for learning in innovative classroom environments (Pascarella et al., 2013). Participant experiences also confirmed the research indicating that students who have the most difficulty learning may benefit the most from clear teaching (Hollo & Wehby, 2017; Roksa et al., 2016). Every teacher clarity strategy synthesized in the literature review was confirmed by findings from this study.

Strategic ambiguity emerged as a major subtheme, with findings that extended the knowledge in the research literature. Participants shared that once teacher clarity was

established, strategic ambiguity could be used to leverage deeper and longer-lasting knowledge. Several teachers connected struggle and confusion to cognitive growth and worked to bring clarity to non-essential issues so that the majority of student cognitive load could be devoted to building key understandings. Brooke noted, "If they're struggling with ancillary things, it just takes away from the time that they can be struggling with the key thing that I was after." When teachers worked with the same students over multiple years, they learned to modulate the degree of clarity in their instruction according to the unique needs of individual students, removing scaffolding tools and superfluous instructions in a gradual release of responsibility. Taking an interactive approach to strategic ambiguity by modulating explicitness allowed the teachers to use strategic ambiguity to ensure cognitive growth.

Interpretations of Findings Relevant to Adaptive Teaching: Constructivism

According to the constructivist model, learners construct knowledge from existing knowledge, social interaction, and authentic tasks (Krahenbuhl, 2016). Culturally relevant instruction is an approach that applies the constructivist model in diverse classroom settings, supporting learning by making connections with students' prior experiences (Bransford, Brown, & Cocking, 2000). A constructivist lens explains possible affective mechanisms for the positive correlation between teacher clarity and student learning, including the impacts of instructor interests in their own teaching and their students' development, academic motivation, and academic engagement (Roksa et al., 2016). The aspect of teacher clarity that is most relevant to constructivism is interactive instruction (aligned sub-themes are shown in dark gray in Figures 1 and 6). In

the literature reviewed in Chapter 2, studies focused on affective learning; race, culture, and ethnicity; and technology are most relevant to constructivism (aligned subthemes are shown in dark gray in Figures 1, 8, 9, and 10).

Teacher clarity strategies for interactive instruction. All participants emphasized the importance of interactive instruction in clear teaching. Findings for this subtheme strongly confirmed the constructivist interpretation of teacher clarity (Roksa et al., 2016). Formative feedback and individualized instruction were widely used strategies for teacher clarity, as teachers frequently assessed student understanding and adjusted their scaffolding approaches according to the needs of their students, mindful that over-scaffolding could limit learning. In addition, findings regarding the nonlecture instructor's role as facilitator, as well as teacher responsiveness to student feedback, extended the research knowledge.

Facilitating interactions. In nonlecture learning environments, teachers served as facilitators of multidirectional learning interactions. This differed from instructional roles in lecture settings, where the only interactions described in the literature occurred between teachers and students as they asked each other questions about content. According to the findings from my study, in nonlecture learning environments, teachers do collect formative assessment data to determine levels of student understanding. However, in nonlecture learning environments, teachers are also able to deliver individualized instruction, developing trusting student-teacher relationships that allow for more open conversations. Moving around the classroom with acute awareness of student

activities and needs, non-lecturing teachers reported that they were able to gather multidimensional data on student learning because they are not tethered to a lectern.

In the nonlecture learning environments explored here, the interactivity component of teacher clarity was not limited to student-teacher interactions. Teachers who did not lecture also facilitated learner interactions with peers, community members, and content using a variety of strategies by selecting engaging, content-rich resources for students to explore individually. By asking probing questions, soliciting student questions, and prompting analysis and discussion, nonlecture teachers sparked higher-level thinking in student-content interactions. Nonlecture teachers facilitated highly engaged student-content interactions by engineering active, applied, and student-directed learning activities. They used project-based and cooperative learning to facilitate student-to-student interactions that were focused on content and to support construction of knowledge through peer learning and interactions.

Responsive modifications to instruction and instructional approaches. The highly effective teachers I interviewed frequently reported experiences in which they modified their immediate instruction as well as their overall instructional approaches in response to student feedback. Teachers admitted that responsively modifying their day-to-day and overall teaching could be very challenging for them, both cognitively and emotionally. However, they also deemed it essential to reflect on student interactions and experiment with innovative instructional strategies for their instruction to be clear and effective.

Teacher clarity strategies for supporting affective learning. The findings from this study connected teacher clarity with student empowerment, engagement, and motivation, thus confirming the existing research on teacher clarity and affective learning. The concept of authentic tasks, inherent to constructivism (Krahenbuhl, 2016) emerged as participants reported the importance of finding authentic audiences for student work. They shared that positive classroom interactions, including anticipating, identifying, and responding to student confusion, promoted student academic persistence and limited student frustration, confirming prior research (Loes & Pascarella, 2015). Teachers took responsibility for clarity of communication, emphasizing that instructions and concepts may need to be repeated multiple times in multiple modes, and that this need should be met without negative judgment of students but with the desire to continuously improve teacher communication.

Questions. Questions are foundational in adaptive and constructivist learning environments. Asking, eliciting and answering questions are established components of teacher clarity (Bolkan, 2017a). Participants confirmed this knowledge by describing multiple ways they asked, elicited, and answered questions. They also shared how they guided their students to discover their own answers. Furthermore, participants thought that certain classroom environments encouraged and supported students in articulating curiosity and exploring concepts with a spirit of inquiry.

Engineering clear learning environments. Every participant described in detail the physical classroom environment that they created. Confirming research knowledge connecting student affect to teacher clarity, participants emphasized the importance of

creating safe and inviting classroom spaces. Helping students feel comfortable taking risks and making mistakes promoted the level of interaction that allowed teachers to responsively support concept building. Participants emphasized interaction as a crucial component of teacher clarity in nonlecture classrooms. They considered setting the stage for interaction through intentional engineering of safe and inviting classroom environments to be part of clear teaching. The emphasis on inviting, safe spaces extended the knowledge in the teacher clarity research literature reviewed in Chapter 2.

Teacher clarity strategies for equitable and inclusive instruction. Confirming suggestions that teacher clarity might support learning for students, regardless of culture, race, or ethnicity (Arends et al., 2017; Goldman et al., 2017; Powell and Harville, 1990; Titsworth et al., 2015; Zhang & Zhang, 2005), all ten participants identified teacher clarity as a "universal good teaching practice" that benefits all learners. Participants noted, however, that additional efforts are needed to create culturally inclusive learning environments customized to each unique group of learners. Teachers also articulated that while teacher clarity supports learning for all, creating a safe space promoted the interactions that are essential to teacher clarity and student concept-building. In nonlecture learning environments, where interaction is a more significant part of teacher clarity, the role of culturally relevant instruction becomes fundamental. This finding extends current knowledge regarding teacher clarity.

Teacher clarity strategies that employ technology tools. Although no previous discussion of technology tools existed in the teacher clarity research literature, participants talked about their consistent use of technology tools for learning and

communication. Participants described experiences using flipped classroom approaches, learning management systems, and a variety of tech-based innovations to promote learning through clear teaching. Participants used technology to facilitate efficient student interactions with content through teacher video lectures, online textbooks, and specific web resources. Technology tools were useful for delivering structural supports, including rubrics and checklists. Peer interactions were also supported through technologies such as blogs, Google Classroom, Voice Thread, and Flipgrid that allowed for virtual and distance sharing of ideas and reflections. Teachers reported that technology tools facilitated increased efficient, structured, and interactive teaching, thus promoting the three components of teacher clarity.

All participants utilized technology tools for communication. Teachers accessed student work through technology tools for efficient and interactive communication, simultaneously gathering data on levels of student comprehension and providing feedback to students. Teachers used technology tools, including email, learning management systems, Google Classroom, and stand-alone applications (such as Remind) to communicate goals, lessons, assignments, and reminders to students and parents. Teachers facilitated student-to-student communication, including discussion and peer feedback, using technology tools including learning management systems and Google Classroom. Participants described used social media to communicate with other teachers for peer support and to explore new innovations to use in their classrooms.

Limitations of the Study

Limitations to trustworthiness in this study were minimal, as I was able to implement all the planned strategies for credibility, transferability, dependability, and confirmability. However, some limitations inherent to the in-depth qualitative interview approach may have affected my study. Data were limited to the experiences and perceptions that participants self-reported, instead of their actual behaviors (Yin, 2016). During interviews, I acted as the data collection tool, and my positive bias towards the participants may have influenced the data collection process (Patton, 2015; Rubin & Rubin, 2012). To identify and mitigate this bias, I relied on feedback from my dissertation committee and conducted regular reflections in a research journal (Shenton, 2004; Rubin & Rubin, 2012). My proparticipant bias emphasized the expertise of the teachers I interviewed. Ongoing feedback from my dissertation committee made it possible for me to utilize interview techniques, including peer-reviewed interview questions and data analysis procedures, that minimized the impact of my bias during data collection and analysis. In addition, the application of my findings should be limited to nonlecture classroom settings.

Recommendations

The following recommendations for further research emerged from analysis of teacher clarity research literature and the findings from the current study that extended the research knowledge:

1. Studies exploring strategic ambiguity could reveal strategies for determining and implementing the appropriate degree of explicitness in

nonlecture instruction. Existing studies have demonstrated that intentional use of strategic ambiguity may support greater student out-of class communication, self-regulated learning, peer learning (Sidelinger et al., 2015), and cognitive growth (Klyukovski & Medlock-Klyukovski, 2015). While teacher clarity usually has a positive effect on student learning, findings from this study also suggest that too much teacher clarity could be a barrier to student construction of knowledge. However, little research exists about determining when strategic ambiguity might benefit student learning.

2. The shift of the nonlecture instructor role from presenter to facilitator, as presented here, suggests that additional studies on the nuances of this role may provide additional insight into the role of interaction in teacher clarity. In nonlecture learning environments, clear teaching involves facilitating interactions between students and content, peers, and community members. Future studies might explore the shift from clear presenter to clear facilitator, supporting teachers as they help students navigate interactions within the relatively chaotic landscape of nonlecture learning environments.
3. Participants emphasized that the creation of safe and inclusive environments was a precursor to the interaction needed for learning. According to their experiences, engineering safe, welcoming classroom environments sets the stage for the interactions needed for clear teaching

in nonlecture settings. Explorations of how teachers can create these environments, and what these environments look and feel like, may open avenues to understanding how clear teaching benefits all learners, regardless of race, culture, or ethnicity.

4. The findings regarding teacher use of technology tools for clear teaching and instruction suggest that additional studies examining teacher clarity and technology are warranted. As technology becomes more available in public schools, online learning becomes more common (Chakraborty & Nafukho, 2015; Dickinson, 2017), and resistance to technology use decreases (Gan & Balakrishman, 2017), the use of technology tools for clear instruction will become increasingly relevant.
5. Prior to this study, most teacher clarity research used quantitative approaches. The in-depth qualitative interview approach used here was fruitful, suggesting that further qualitative studies may also contribute deeper understanding of the meaning of teacher clarity.

Implications

In diverse K-12 public schools, teachers need universally effective teaching strategies that they can use to meet the needs of all learners, regardless of socioeconomic status, gender, or race. Because public school leadership structures and levels of funding vary widely, individual teachers should have access to strategies they can employ independently, regardless of administrative support, organizational systems, or funding streams. Empowered by such strategies, teachers may have opportunities to meet high

expectations for student achievement, thereby alleviating accountability pressure and mitigating teacher attrition, even where administrative support, organizational systems, and school funding are inconsistent. My findings confirmed existing research by showing that teacher clarity strategies, which can be applied by individual teachers, benefit all learners.

The area in which my study has the most likely potential for positive change is in the area of teacher professional practice. I explored teacher clarity in nonlecture secondary settings, a topic that was previously unstudied (Titsworth et al., 2015). The findings could impact teacher professional practice through teacher preparation, professional development, and evaluation frameworks. Improved teacher clarity in public schools has the potential to leverage positive social change not only by elevating teacher professional practice, but also by elevating learning for all students. Recommendations for practice are to share the nonlecture teacher clarity strategies of highly effective teachers with education stakeholders at all levels, focusing on communicating the most impactful strategies to individual teachers. Specific recommendations include:

1. Include teacher clarity strategies in teacher preparation courses and programs.
2. Provide professional development for practicing teachers focused on teacher clarity strategies.
3. Include teacher clarity behaviors in teacher evaluation frameworks.

Teacher clarity is a well-established support for cognitive and affective learning that benefits all learners (Titsworth et al., 2015). Because teacher clarity effectively

promotes learning for diverse learner populations (Arends et al., 2017; Phuong et al., 2017; Powell & Harville, 1990; Titsworth et al., 2015; Zhang & Zhang, 2005), teachers with access to teacher clarity tools can address some of the issues of racial equality and cultural differences that are long-standing challenges for American public schools (Durden, Dooley, & Truscott, 2016; Sampson & Horsford, 2017). Access to high-leverage strategies has the potential to empower teachers by elevating their professional practice and to benefit all learners by providing improved educational opportunities.

Conclusion

Highly effective secondary teachers are not tethered to lecterns. Their classrooms feature a diverse array of physical environments and active learning experiences carefully engineered to promote meaningful interactions. Nonlecture teacher clarity involves dynamic management of student cognitive load through straightforward, efficient, coherent, and structured instruction as well as encouragement of affective learning within learning environments that are culturally relevant, safe, and inclusive. Highly effective teachers modulate their explicitness to meet the developmental needs of their learners, using whole-class and one-on-one interactions to measure moment-to-moment clarity needs. Technology tools support learning and clear communication, allowing teachers to facilitate a multitude of interactions with precision and timeliness. In nonlecture learning environments, highly effective teachers achieve clarity through organized, individualized, and responsive instruction that balances preparation with presence.

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Appendix A: Interview Guide

Research Questions

Two research questions guided this in-depth qualitative interview study.

RQ1: How do highly effective teachers experience clarity to promote student learning in nonlecture learning environments?

RQ2: What innovative strategies do highly effective teachers practice to ensure clarity in nonlecture learning environments?

Definition of the Phenomenon of Interest

The phenomenon of interest for this study is *teacher clarity*. Teacher clarity is defined as the strategies and approaches that instructors use to ensure that students master course content and processes (Bolkan, 2017a; Linvill & Crammer, 2017). Specifically, teacher clarity involves straightforward, efficient, coherent, interactive, and structured instruction (Boklan, 2017a).

Review of Teacher Clarity Literature

Research studies focused on teacher clarity in collegiate lecture settings have established a strong positive connection between clear, organized instruction and academic success. Teacher clarity has a positive impact on cognitive learning (Arends et al., 2017; Bolkan, Goodboy, & Kelsey, 2016; Loes & Pascarella, 2015; Titsworth, Mazer, Goodboy, Bolkan, & Myers, 2015; Wang, Pascarella, Nelson Laird, & Ribera, 2015). Teaching clearly is one of the most effective measures individual teachers can take to promote cognitive gains for all learners, regardless of their previous skill levels or degree of socioeconomic or racial privilege (Hattie, 2009, 2012; Titsworth et al., 2015).

Teacher clarity also has a demonstrated positive influence on affective learning. Student engagement (Mazer, 2013), motivation (Bolkan et al., 2016; Loes & Pascarella, 2015), academic persistence (Loes & Pascarella, 2015), and empowerment (Finn & Schrodt, 2012) are elevated in learning environments led by clear teachers. Bolkan (2016) and Goldman, Cranmer, Sollitto, Labelle, and Lancaster (2017) suggested potential connections between the positive cognitive and affective influences of teacher clarity.

A few conflicting ideas suggest that there may be drawbacks to teacher clarity. For example, strategic ambiguity is a teaching strategy that seeks to provoke students to create their own clarity while solving mysteries designed by instructors (Klyukovski & Medlock-Klyukovski, 2015). Also, in a study of 427 students in college-level basic communications courses, Sidelinger, Bolen, McMullen, and Nyeste (2015) found that clear teaching negatively impacted student out-of class communication, self-regulated learning, and peer learning. Students were less likely to interact with their instructors and peers outside of class, perhaps because they did not need to do so (Sidelinger et al., 2015). The use of strategic ambiguity and decreased out-of-class communication counter the positive impact of teacher clarity on cognitive and affective learning in collegiate lecture settings that is well established in the research literature.

Keywords and phrases that will form the basis of my questions include teacher clarity, instructor clarity, teacher behaviors, effective, organization, communication, student understanding, student affect, teacher warmth, teacher immediacy, cognitive load, logistics, processes, course content, and academic learning.

Conceptual Framework

The conceptual framework for this study incorporates cognitive load theory and constructivism. Cognitive load theory recognizes that individuals' working memories have finite capacities, with a limited availability to process information itself (intrinsic load) and the nuances of information delivery (extrinsic load) (Bolkan, 2016). Keywords associated with cognitive load theory include cognitive load, receive apprehension, information processing, relevance, redundancy, elaboration, burden, overload, adaptive instruction, working memory, instructional design, intrinsic load, extraneous load, segmenting, signaling, psychological stress, complexity, motivation, subjective workload, frustration, anxiety, and ability (Bolkan, 2016).

Constructivism posits that learners use their experiences to construct knowledge for themselves (Roksa, Trolian, Blaich, & Wise, 2016). Keywords associated with constructivism include engagement, motivation, affect, affective, knowledge, constructed, prior experience, cultural backgrounds, academic knowledge, academic preparation, academic foundation, comprehension, peers, organized, clear, and coherent (Roksa et al., 2016).

Table A1

Alignment of Research Questions with Conceptual Framework, Focus Group Questions, and Individual Interview Questions

Research Question	Relevant Concepts	Focus Group Question(s)	Individual Interview Question(s)
RQ1: How do highly effective teachers experience clarity to promote student learning	Cognitive load theory Adaptive teaching:	3, 4, 6	1, 2, 3, 5

in nonlecture learning environments?	Constructivism		
RQ2: What innovative strategies do highly effective teachers practice to ensure clarity in nonlecture learning environments?	Adaptive teaching: Constructivism	2, 5, 7, 8	4, 6, 7, 8

Methodological Sources of the Qualitative Interview Study Approach

This study uses a qualitative interview approach. Basic qualitative studies including qualitative interview studies, involve describing and exploring the meaning of participants' experiences of the phenomenon of interest (Merriam, 2009; Worthington, 2013). Incorporating an interview guide with this approach allows some flexibility and responsiveness during the interview, while maintaining a consistent checklist of topics to cover in every interview (Patton, 2015). The interview guide also organizes the main questions so that each interview opens with broad inquiry and continues with more detailed, specific questions (Rubin & Rubin, 2012). Rubin and Rubin (2012) suggest several types of main questions for qualitative interviews, including tour questions ("Walk me through how you would…"), experiences questions ("What has been your experience with…"), and hypothetical questions ("In this scenario, what would you do?"). In this interview guide, my questions begin by focusing on participants' experiences with teacher clarity, continue with a tour question regarding daily classroom routines, and end with a hypothetical example. Using a variety of questions should promote richness and depth of responses.

Focus Group Introduction

Welcome, and thank you for participating in my study. I'm looking forward to learning about your teaching experiences. As we get started, I'd like to review the parameters for your participation. I'll need to read a script to make sure that all of the same information is provided to each focus group.

When you replied to my email invitation with the words, "Yes, I consent," you gave your informed consent to participate in this study. By agreeing to participate in this study, you are agreeing to participate in a one-time online focus group; and, if selected, an individual interview with a follow-up email conversation. This study is voluntary. There are no significant risks or direct benefits to being in the study. However, your participation will contribute to the body of knowledge regarding effective teaching strategies, empowering teachers to elevate student learning. As a small thank-you gift for participation in this 60-minute focus group, you will receive a $100 Amazon Gift Card.

I would like to ask that you say your name each time that you speak. I won't be using your name in the transcript, but I will need to keep track of each person. I suggest that you have a pencil and paper ready in case you want to remember a thought or record someone else's comment so that you can build off of it. We will have time for an open discussion at the end of our focus group, when you can share any ideas that come up for you today. Do you have any questions before we begin?

Focus Group Questions

Warm-Up

- Main question #1: Please introduce yourself to the group by sharing your first

name, the subject you teach, and the age(s) or grade(s) of students taught. [The interviewer may prompt participants by name.]

Beginning

- Main question #2: Tell me about your classroom environment. [The interviewer may prompt participants by name.]

Middle

- Main question #3: When your class is in a nonlecture mode, how do you and your students communicate about classroom routines and procedures? [Participants will answer freely.]
- Main question #4: In this nonlecture setting, tell me about how you and your students communicate about course content. [Participants will answer freely.]
- Main question #5: Describe how you use technology as a tool for facilitating student connections with course content, routines, and/or procedures. [Participants will answer freely.]
- Main question #6: How is this different when you're lecturing, or students are presenting? [Participants will answer freely.]
- Main question #7: In a nonlecture setting, the classroom environment might sometimes get a little chaotic. In the classroom chaos, how do you change instruction so that communication is clear? [Participants will answer freely.]
- Main question #8: As you look back at this nonlecture setting, why is clear communication important for student learning? [Participants will answer freely.]
- Follow-up question #8a: Could you give me an example of a time when your

instructions weren't clear at first, but you were able to turn the situation around and could see how that impacted student learning? [Participants will answer freely.]

- Follow-up question #8b: Looking back on nonlecture settings, share your experiences about who benefits from clear communication. Are there certain types of students who do best when the communication is clear? [Participants will answer freely.]

End

- Main question #9: I have all my questions answered. Now I'm wondering if anything you've heard has brought up anything else that you'd like to add?. [Participants will answer freely.]

Focus Group Closing

Thank you very much for taking the time to share your teaching strategies. Within the next 4 weeks, I will be contacting a few of you by email with an invitation to participate in individual interviews. Once the study is completed, I will share the full report with all of you by email. I am grateful to you for sharing your experiences. I look forward to sharing your teacher clarity strategies so that more teachers and their students can benefit from your innovative expertise.

Interview Introduction

Welcome, and thank you for participating in my study. I'm looking forward to learning about your teaching experiences. As we get started, I'd like to review the parameters for your participation. When you replied to my email invitation with the

words, “Yes, I consent,” you gave your informed consent to participate in this study. By agreeing to participate in this study, you are agreeing to participate in a one-time online focus group; an individual interview; and, if needed, a follow-up email conversation. This study is voluntary. There are no significant risks or direct benefits to being in the study. However, your participation will contribute to the body of knowledge regarding effective teaching strategies, empowering teachers to elevate student learning. As a small thank-you gift for participation in this interview, you will receive a $100 Amazon Gift Card. Do you have any questions before we begin?

Individual Interview Questions

Warm-Up/Beginning

- Walk me through a typical school day/class period in your classroom.
    - Possible follow up question #2a: What do you do during a typical school day/class period?
    - Possible follow up question #2b: What do your students do during a typical school day/class period?
    - Possible follow up question #2c: Describe how your routines or those of your students vary by days of the week.
    - Possible additional follow up questions may explore the physical, emotional/affective, cognitive, and digital aspects of the classroom environment or routines.
- Describe specific examples of any nonlecture teaching strategies that you have used.

Middle

Questions 1-5 pertain to the definition of teacher clarity.

- Question #1: In nonlecture teaching experiences, what are some strategies you use to keep your teaching straightforward?
- Question #2: In nonlecture teaching experiences, how do you keep your teaching efficient?
- Question #3: In nonlecture teaching experiences, what methods do you use to keep your teaching coherent?
- Question #4: In nonlecture teaching experiences, describe how you keep your teaching interactive?
- Question #5: In nonlecture teaching experiences, what approaches do you use to keep your teaching structured?
    - Possible follow up question for main questions #4-8: Can you give me a specific example of a strategy you use to communicate with students about course content?
    - Possible follow up question for main questions #4-8: Can you give me a specific example of a strategy you use to communicate with students about class procedures or routines?
    - Possible follow up question for main questions #4-8: What did/does that experience/strategy/approach mean to you?
    - Possible additional follow-up questions for main questions #4-8 may explore teaching philosophy, preferred educational theories, or specific

communication techniques.

- Question #6: In your experiences with students of different racial, ethnic, or cultural backgrounds than yours, what have you noticed when you are more clear with your instructions or descriptions of tasks? How have the results been the same or different with students who have the same background as yourself?
- Question #7: One focus group participant talked about wanting students to "be confused about the right things" and said, "I want their brains to be struggling." How do you modulate your explicitness to help students grow and learn?

End

- Main question #8: As we conclude, I'd like to ask for you to imagine that you are advising a new teacher on how to be clear with their students. What do you think are the three most important steps the new teacher could take to ensure that students construct knowledge of course content and understand the activities they must complete to be successful in the course?
    - Follow-up questions may include clarification or continuation probes.

Closing

Thank you very much for taking the time to share your teaching strategies. Within the next 4 weeks, I will be contacting you by email to ask you to review a transcript of this interview for accuracy. This follow-up email may also include up to 5 clarification questions. Once the study is completed, I will share the full report with you by email. I am grateful to you for sharing for your experiences. I look forward to sharing

your teacher clarity strategies so that more teachers and their students can benefit from your innovative expertise.

Appendix B: Background Information Survey Questions

Information About Me

Please provide a little information about yourself by responding to the questions below. The information will only be used in summary to describe the focus groups in the study. Thank you for your participation!

E-mail Address (for brief online survey only):_____

School District: _____

School Name: _____

1. Please indicate the role that best describes your current position.	☐ General education teacher ☐ Special education teacher ☐ ESL teacher ☐ Other (please describe):
2. If you are a teacher, how many years have you taught? If not applicable, please indicate '0'.	☐☐ Total years teaching ☐☐ Years teaching at this school.
3. In which grade cluster do you currently teach?	☐ PreK-K ☐ 1-3 ☐ 4-6 ☐ 7-8 ☐ 9-12 ☐ Not applicable
4. What are the main subject areas that you teach at this school (select all that apply)?	☐ English Language Arts ☐ Math ☐ Science ☐ Social Studies/History ☐ Art/Music ☐ Health/Phys Ed

	☐ Other (please describe):
5. How would you describe your learning environment (select all that apply)?	☐ Primarily lecture ☐ Mini-lecture ☐ Cooperative group work ☐ Project-based learning ☐ Discussion ☐ Online or blended ☐ Flipped ☐ Outdoor education ☐ Service learning ☐ Other (please describe):
6. How long have you been teaching in a digitally rich learning environment--i.e. incorporating technology significantly into your instruction (vs. just using it for email or occasionally using it in a lesson)? If you just started, indicate 0 years.	☐☐ Years
7. How would you rate your level of comfort with the technology you use with your students?	☐ Not at all comfortable ☐ Somewhat comfortable ☐ Quite comfortable ☐ Very comfortable
8. How would you rate your level of comfort with using technology to communicate with your students and/or their parents?	☐ Not at all comfortable ☐ Somewhat comfortable ☐ Quite comfortable ☐ Very comfortable