THE CONTEXT OF LEARNING: A MULTI-GROUNDED THEORY OF THE MODERATING VARIABLES OF TEACHING AND LEARNING

A Dissertation

by

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ABSTRACT

An alternative conceptual model of teaching and learning has emerged in School-Based Agricultural Education known as the context-state-result model, designed by Mark Reardon in 2000. Specifically, the concept of context was under-defined and inconsistently described. This dissertation was a multi-grounded theory study of the contextual factors which influence teaching and learning. Data collection consisted of semi-structured, active, and intensive interviews. We grounded the findings of the study in both empirical data collected from interviews, memos, and reflexive journals, and extant literature from a systematic literature review. Within the new theory, we defined context as a frame that surrounds the educational event of teaching and learning and provides students with resources for content's appropriate interpretation. The new model is not linear, instead it spirals and repeats (but is not a cycle), has a symbol for error, and positions context as a moderator between the relationship of teaching and learning. Finally, the theoretical model has new labels for the sub-concepts within context: who (interpersonal/relational acknowledgment), what (cognitive expectations), how (psychomotor/physical directions), and why (affective relevancy). Our study synthesized research on contextual variables such as teacher clarity, teacher-to-student relationships, and student engagement and has implications for teacher education and preparation, and facilitation training.

DEDICATION

Dedicated to Mr. Shawn Meyer—my high school agriculture teacher—who tricked me into participating in Agricultural Education and FFA, and forever changed my life.

He saw the person I could become during a time when I was lost.

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Thank you to those who helped me during my doctoral journey. My committee included four fantastic educators, researchers, and servant leaders. OP McCubbins is an innovative tech-genius and is moving the needle in School-Based Agricultural Education; you were my counsel and support. Gary Briers has deep knowledge and wisdom about all things that are agricultural education history and social science research; you were my compass and research methods coach. Patrick Slattery is one of a kind and a passionate champion of students; you helped me find my voice and positionality when I was unsure where to begin my research. My chair, advisor, and friend Lori Moore is one of the most intelligent, passionate, and talented humans I know; I am so thankful you were the person to guide me—I depend on you more than you know.

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Contributors

This work was supervised by a dissertation committee consisting of Dr. Lori L. Moore [advisor], Associate Professor and Associate Department Head for Undergraduate Programs; Dr. Gary E. Briers, Professor; and Dr. OP McCubbins, Assistant Professor, all of the Department of Agricultural Leadership, Education, and Communications in the College of Agriculture and Life Sciences; and Dr. G. Patrick Slattery, Jr., Professor and Associate Department Head for Graduate Studies of the Department of Teaching, Learning, and Culture in the College of Education and Human Development at Texas A&M University.

The student independently completed all other work conducted for the dissertation.

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CHAPTER I

INTRODUCTION

An alternative conceptual framework of teaching and learning has emerged in School-Based Agricultural Education. The conceptual framework is known as the *context-state-result* model, designed by Mark Reardon in 2000. While School-Based Agricultural Education and FFA national-level leadership, and numerous state education agencies, have adopted the framework, aspects of the model remain underdeveloped. Specifically, the concept of *context*—environmental factors that contribute to teaching and learning—is under-defined and inconsistently described when used within School-Based Agricultural Education and teacher professional development/teacher education programs. The purpose of this multi-grounded theory analysis was to develop a theory of the contextual factors that influence teaching and learning within the context-state-result conceptual model. Multi-grounded theory is an extension of grounded theory. Unlike classical grounded theory—where only empirical findings and data from interviews and focus groups ground the theory—in a multi-grounded theory study the researchers use extant theory and literature to ground the theory as well. This study consisted of four phases: purposeful sampling and inductive coding, theoretical sampling, theoretical condensation and integration, and theoretical grounding, including the literature review.

Background

The context-state-result model has had a notable impact on School-Based Agricultural Education. Many people within the field use the model, but they often struggle with the various components of it or may not understand its history. Mark

Reardon of California developed the context-state-result model in 2000 as a conceptual framework of teaching, instructional planning, and student engagement (Sheehan & Moore, 2019a). According to Reardon, context-state-result builds upon pivotal educational research (i.e., Bloom, 1956; Hunter, 1982). Additionally, the model reflects prominent teaching methods in School-Based Agricultural Education (i.e., Newcomb, McCracken, Warmbrod, & Whittington, 2004; Phipps, Osborne, Dyer, & Ball, 2008; Sheehan & Moore, 2019a). Multiple entities in School-Based Agricultural Education use context-state-result. For example, the National FFA Organization had long ago integrated context-state-result into training programs for national and state level youth officers in its state officer leadership continuum, and leadership conference facilitators in its 212/360 conferences (Sheehan & Moore, 2019a). Furthermore, several institutions of higher education and state departments of education use context-state-result in teacher professional development programs and teaching methods coursework (Sheehan & Moore, 2019a). Overall, context-state-result has potentially impacted hundreds of thousands of students and teachers since 2000.

Statement of the Problem and Significance

The defining problem was that while context-state-result is—to at least some degree—widely used within School-Based Agricultural Education, it was taught differently by each entity and individual who used it, as it was passed down by those who trained others in the concept. This was because the model did not appear in academic literature and was not available publicly online or in print. Most notably, the first component of the model, context, was not well defined. While the model had clear conceptualized definitions for the roles of teaching methods and domains of

learning/content (i.e., state/state change), and the outcomes of learning (i.e., result), the first component of the model, context, was problematic. Furthermore, each of the organizations that have used the model have taught context differently, while others have omitted aspects of context all together, only discussing context as an overarching concept. For the purposes of this study, I operationally defined the phenomenon of context as the setting or environmental factors, as compared to content-based or instructionally based factors (e.g., teaching methods). I identified a need for additional research to examine the contextual factors that influence teaching and learning, which were under-defined in Reardon's original conceptual model.

Furthermore, a gap exists between educational theory and practice. John Dewey (1904) first discussed the disconnect between theory and practice, where he described how teachers may know the right things to do but may not do them for a variety of reasons. In one study, researchers found the reason most often given by teachers (42% of the time) for "not using recommended planning, practice, and evaluation procedures" was they felt the theoretical recommendations were "not necessary" (Kneer, 1986, p. 91). Another study found teachers were remarkably resistant to change, even when they knew better strategies exist (Joram & Gabriele, 1998). Most research on the application of theory in practical educational settings recommend that researchers must recognize teaching is a highly individualized experience, whereas the challenges of each teacher and of each school are unique (Cheng, Cheng, & Tang, 2010; Dewey, 1904; Joram & Gabriele, 1998; Korthagen, 2007; Nuthall, 2004). Korthagen (2007) recommended "the educational community can benefit from in-depth analyses of what is happening in teacher preparation or professional development programs … with special attention being paid to the contextual influences of

schools" and school sites (p. 308). Therefore, any research that hopes to bridge the gap between theory and practice must involve practitioners and focus most on strategies with the greatest return on investment.

Purpose and Objectives

I used multi-grounded theory for this dissertation, which included and extended all components of a constructivist, subjective, grounded theory (Charmaz, 2014). To support "meaningful, engaged learning in all environments" (AAAE national research priority four; Roberts, Harder, & Brashears, 2016), the purpose of this study was to explore and conceptualize the contextual factors that influence teaching and learning. In the study, I explored both School-Based Agricultural Education formal instruction, as well as relevant non-formal settings (e.g., FFA conferences), in the United States, specifically those led by educators trained in the context-state-result model, developed by Mark Reardon of California in 2000 (Sheehan & Moore, 2019a).

The objectives of this study were to:

1. Develop a theory of context within the context-state-result model to better define the variables that influence teaching and learning.
2. Revise the current context-state-result model to better explain the role of context within the model.

Definition of Terms

Context: The setting and environmental factors that contribute to teaching and learning [operational definition].

Context-State-Result: A conceptual framework of teaching, instructional planning, and student engagement developed by Mark Reardon in 2000 and adopted by the National

FFA Organization within School-Based Agricultural Education (Sheehan & Moore, 2019a).

Delta Conference: A specialized professional development event focusing on student engagement through teacher development (McGregor, Bellah, & Coonrod, 2008).

Multi-Grounded Theory: A qualitative research methodology aimed at generating theory that is grounded both in data and in established theory (Cronholm, 2005).

National FFA Organization: A national youth leadership and career development organization dedicated to making a positive difference in the lives of students by developing their potential for premier leadership, personal growth, and career success through School-Based Agricultural Education (National FFA Organization, 2018).

National or State FFA Officer: A youth leader elected at the FFA state association or national organization level for a one-year term to accomplish the business of the organization and deliver educational programming. Officers frequently engage in workshop delivery, public speaking, keynote addresses, media interviews, and other communications activities throughout their year of service.

READ Model of CSR: A version of the context-state-result model created by the National FFA Organization consisting of the labels relevancy, expectations, acknowledgement, and directions for the construct of context.

School-Based Agricultural Education: Formal education in agriculture, food, and natural resource sciences in a middle or high school including academic classroom instruction, technical experiential learning, and social/relational leadership development.

State Supervisor of Agricultural Education (State Staff): Individuals professionally engaged in the administration or supervision of career education in agriculture on the

district, area, state, and national level (National Association for Supervisors of Agricultural Education, 2019).

Theoretical Overview and Statement of Positionality

It is fundamentally important for the grounded theory—including multi-grounded theory—researcher to reflect upon and state their own philosophical positions and underlying assumptions. How a researcher positions themself in grounded theory will affect how they engage with participants, their methods of collecting and analyzing data, and the generation of their final theory (Birks & Mills, 2015; Charmaz, 2014). Birks and Mills (2015) recommended the positionality statement of the researcher include their axiology, ontology, epistemology, and the research paradigm which will guide their grounded theory study. The three questions "'what exists?', 'how do I know?', and 'what is valuable?' together form the philosophical trinity [emphasis in original]" (Durant-Law, 2005, p. 4) which describe the researcher's ontology, epistemology, and axiology. The researcher should define their perception of reality, philosophy of research, philosophy of the relationship between researcher and participant, and who they are within the parameters of the research phenomenon, including their past experiences.

Ontology and Epistemology

A researcher's ontology and epistemology affect what they consider acceptable knowledge, how they know what they know, and how they define their role in the research. Ontology and epistemology are two sides of the same coin. Ontology is the "study of the nature of reality" (Birks & Mills, 2015, p. 52). While ontology is concerned with "what" is true, epistemology is more dedicated to how do I, as the researcher, "know" that truth. Epistemology is therefore the "nature of the justifiable knowledge" (Birks & Mills, 2015,

p. 52), and determines how a researcher obtains sources of knowledge and data (Hesse-Biber, 2007). My philosophies of teaching, education, and research are rooted in pragmatism and constructivist theory, yet I also believe in progressivism (Schunk, 2016; see C. S. Pierce and J. Dewey). A pragmatic philosophy allows for both an inductive and deductive epistemological approach, in addition to objective and subjective ontological research (Bryman, 2012). As a progressivist, I find value in generating new theory (i.e., an inductive approach) and confirming existing theory (i.e., a deductive approach). I am willing to use objective and subjective research methods to conduct comprehensive research that qualitative or quantitative methods individually would not achieve.

As a teacher of applied science in agriculture, pragmatism defines my philosophy of learning. As a scientist and researcher, I do not accept absolute truth. There is always a hypothesis or idea to test as we reject previous theories and discover more about the world around us. As a constructivist, I believe students make sense of reality by interacting with their environment and through experimentation, specifically through social learning and collaborative experiences when working with others. I do not believe that knowledge is definitive; students uncover knowledge using scientific exploration and research, both objectively and subjectively. As a former high school teacher, I embraced inquiry-based, student-centered instruction. I prescribe to Vygotsky's (1978) sociocultural theory of constructivism, specifically the use of scaffolding and modeling. Learning should be active, social, and cultural, which contrasts with teacher-centered lecture. As a certified instructor in Curriculum for Agricultural Science Education—a rigorous inquiry and project-based curriculum and delivery model—I know how powerful student-centered instruction is and how effective of a teacher I can be when using it.

In slight opposition to my pragmatic and constructivist beliefs, I am also a progressivist. As a progressive pragmatist, I believe it is our obligation to develop the whole student academically, socially, and technically (Dewey, 1904; Johnston, 2010). The three-component model of School-Based Agricultural Education—which places emphasis on developing the whole student academically (i.e., classroom), technically (i.e., experiential learning; Supervised Agricultural Experience), and relationally (i.e., leadership development; FFA)—is the framework that most clearly illustrates my progressivist belief system (Croom, 2008). I am passionate about topics of equity and social justice. I am deeply committed to developing an educational system that is inclusive and meets the needs of all students. As educators and researchers, we have a responsibility to enhance the fields we work within. I find it unacceptable to simply collect data and take note of what we observe. We have a responsibility to use what we find in our research, moving beyond theory into practice (Donovan, Bransford, & Pellegrino, 1999).

While I am primarily a pragmatist and believe in the deductive scientific method, my progressive ideals allow for inductive approaches to construct new methods and theory as well, so long as I ground my efforts in empirical data. I typically strive to be objective and impartial when conducting research, but also recognize research can be interactive to determine meaning and understanding within unique contexts.

Axiology

Axiology is the aspect of philosophy concerned with ethics and value. In grounded theory—and other forms of qualitative scholarship—a researcher's axiology impacts what value they find within their data, and how the researcher incorporates their findings into their final theory (Birks & Mills, 2015; Mills, Bonner, & Francis, 2006). As a pragmatist, I

believe in doing what works. I find value in both qualitative and quantitative research methods, combining them whenever it makes sense to do so. Unlike an objective, positivist approach where the researcher collects data "from" participants, in this study I used a subjective and interpretive pragmatist approach where I collected data "with" participants (Birks & Mills, 2015). The participants and I, as the researcher, produced knowledge together (Birks & Mills, 2015; Hand, 2003; Holstein & Gubrium, 1995). Sometimes a researcher may fear that their in-depth knowledge of a topic may contaminate the study; instead, it is important to recognize how the researcher's expertise and knowledge, at least in a pragmatist perspective, can add value and contribute to the theory (Gadamer, 2004; Krasny & Slattery, 2019; Piantanida, Tananis, & Grubs, 2004). Because I valued my individual experiences, as I could not entirely separate them from my research, it was important for me to state my philosophical position in advance to control for overt bias as I interacted with participants and during the development of my final theory.

Research Paradigm

My philosophical views led me to adopt a multi-grounded theory design for my study. As a researcher who finds value in qualitative and quantitative methods—especially when they are mixed to produce results that one method alone could not—I valued the strength multi-grounded theory afforded over traditional grounded theory. As a constructivist, I appreciated the inductive nature of grounded theory. I particularly value constructivist grounded theory approaches (Charmaz, 2014). As a pragmatist, I found it hard to completely ignore the extant underpinnings of educational theories. The advantage of multi-grounded theory is it takes the best of constructivist grounded theory inductive strategies and adds deductive theoretical grounding. As a result of multi-grounded theory,

a researcher can ground their emergent theory in both empirical data from the grounded theory interviews/focus groups and theoretical data from existing theory. I found the combination of theoretical and empirical grounding to be useful in a field with considerable existing knowledge, such as education.

Statement of positionality. Even though my approach was constructivist and subjective in nature, it was important to state my own bias and lived experience in relation to the phenomenon of the study while using a highly inductive and interpretive research paradigm (i.e., grounded theory). I first learned about context-state-result in 2013 when I joined FFA state staff in California. The California FFA Association and Department of Education had been using the context-state-result model for more than five years to train state officers and conference facilitators. Staff in California learned the context-state-result model from teachers and state supervisors trained through the delta program, and from conference facilitators—many of whom were former national officers and facilitators—trained in context-state-result from the National FFA Organization. Furthermore, California State University-Chico was using context-state-result within their teacher preparation program; a professor at California State University-Chico would annually train California regional and state officers to facilitate workshops using context-state-result. I had to quickly learn the model and its methods to effectively perform my job responsibilities. The approach was distinct and unlike methods I learned in my own teacher preparation program. While the context-state-result model existed when I was an FFA state officer in 2005, National FFA was not yet using it in its training programs; therefore, I did not learn it during my own officer experience. As I was learning about context-state-result, and using it to train staff, I soon discovered the impact it had on teaching and facilitation. I

observed officers and facilitators learn the key aspects of teaching faster, and they were more effective than methods I had used before to train staff. I was fascinated by the origins of context-state-result and determined to learn more about it.

In my efforts to uncover the history of context-state-result, I immediately ran into roadblocks. In conversations with those at the California FFA Association and the National FFA Organization, I was not able to determine exactly where the context-state-result framework came from—though most pointed to Mark Reardon as the author. Reardon co-wrote *Quantum Teaching* (DePorter, Reardon, & Singer-Nourie) in 1999, which had similar concepts to context-state-result, but did not explicitly include the model. Reardon then developed *Strategies for Great Teaching* (Reardon & Derner, 2008) with a former National FFA staff member. I worked with Mark Reardon in 2018 to deliver a delta conference. I also conducted a study in 2018 to determine the origins of context-state-result (Sheehan & Moore, 2019a). When Reardon taught context-state-result—as well as in the instructional training materials at FFA—context was consistently under-defined. Reardon shared that he values the contextual conditions of learning and teaching, often discussing these concepts in generalities, but had never thought to label and define it as explicitly as I was interested in doing (Sheehan & Moore, 2019a). As I learned more about context-state-result, I became increasingly invested in its development.

Furthermore, I worked at a prestigious university in School-Based Agricultural Education teacher education. At Texas A&M University I taught an instructional methods course and supervised student teachers. I have extensive knowledge of learning theory and practice, possessing a bachelor's and master's degree in Education. I have been fortunate to work in many aspects of School-Based Agricultural Education, including secondary

education as an agriculture teacher in Red Wing, Minnesota, teacher preparation at Texas A&M University, and state School-Based Agricultural Education staff in California. I am currently the State Supervisor of Agricultural Education and FFA State Advisor at the Minnesota Department of Education. I am a member of all three of the major professional organizations that guide School-Based Agricultural Education: National Association of Agriculture Educators (i.e., secondary career and technical education), National Association of Supervisors of Agricultural Education (i.e., state supervision), and American Association for Agricultural Education (i.e., teacher education/college and university). Since I originally began working with Reardon, we have discussed future opportunities to expand and strengthen the context-state-result model, including developing a training resource book and revising the delta conference. Recognizing and acknowledging my experiences and connection to the context-state-result conceptual model—both as a state supervisor, leader in School-Based Agricultural Education, and as a teacher educator—are key to my positionality as a grounded theory researcher and to understanding potential bias in this study.

Assumptions, Limitations, and Delimitations

There was an assumption that those who participated in this study were familiar with the context-state-result model. While those unfamiliar with the model may have been able to recognize contextual factors that influence teaching or learning as well—and it would be of value to examine their perceptions in the future—their unfamiliarity with the model would have limited their ability to contribute to defining the concept of context within the context-state-result model. There was also an assumption that agricultural education teacher education programs, the delta program for School-Based Agricultural

Education teacher professional development, and various FFA training programs would continue to use context-state-result, therefore such a study as this would adding a meaningful contribution to the professional field and academic literature.

A delimitation of the study was those familiar with context-state-result were located primarily in the western United States or served in nationwide School-Based Agricultural Education leadership roles. This is a delimitation due to proximity and relationship among those familiar with context-state-result. I purposively selected these individuals to be participants in the study to ensure the sample was representative of the population familiar with context-state-result. Future studies should explore factors that influence teaching and learning outside of those familiar with context-state-result and outside of School-Based Agricultural Education. Further, Mark Reardon, Seth Derner, staff at the National FFA Organization, delta conference staff, teacher educators at California State University-Chico, or I personally have trained most of those who use context-state-result, which may influence the richness and diversity of data.

CHAPTER II

METHODS

Based on my philosophical views—including my ontology, epistemology, and axiology, I adopted a constructivist grounded theory approach for this research study (Kenny & Fourie, 2015). I specifically used a multi-grounded theory approach to grounded theory—supporting both inductive (i.e., constructivist grounded theory) and deductive (i.e., systematic-style review of the literature) methods—to generate my theory. I used a subjective and interpretive interview protocol (i.e., pragmatist approach) where I collected data "with" participants during active, semi-structured interviews. I analyzed data using constant comparative analysis and protocols consistent with multi-grounded theory and qualitative methods. Finally, I grounded the theory both in the findings of the study—per the requirements of grounded theory—and within the literature examined during the literature review (i.e., multi-grounded theory; see Chapter III Review of Literature and Theoretical Grounding), and followed a qualitative approach to establish the trustworthiness of the theory and results.

Research Design

The purpose of grounded theory is to "explain the phenomenon being studied" (Birks & Mills, 2015, p. 16) rather than simply describe it. Researchers use grounded theory—including multi-grounded theory—to "derive theory directly from data, rather than interpreting data through the lens of a pre-established theoretical framework" (Freeman, 2018, p. 1161). Birks and Mills (2015) described three essential phases of grounded theory (see Figure 2.01).

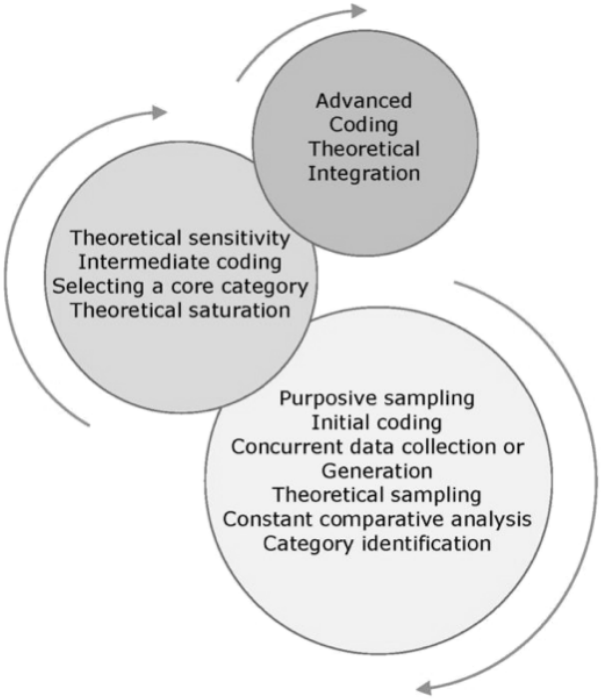


Figure 2.01. Essential grounded theory methods. Reprinted from "Grounded theory: A practical guide," by M. Birks and J. Mills, 2015, Thousand Oaks, CA: SAGE Publications, p. 13. Reprinted with permission.

While the fundamental concept of inductive exploration and the phases of coding are similar in all forms of grounded theory, two primary schools of grounded theory exist. In classical grounded theory (Glaser, 1978, 1992, 1998, 2012; Glaser & Strauss, 1967), the researcher is as objective as possible, while in both constructivist (Charmaz, 2006) and evolved grounded theory (Strauss, 1987; Strauss & Corbin, 1990, 1994, 1998), a more subjective relationship exists between the researcher and participant (Birks & Mills, 2015; Charmaz & Belgrave, 2007). Charmaz (2006) summarized the various theoretical steps that constitute a constructivist grounded theory approach (see Figure 2.02). I conducted this study from the perspective of a constructivist school of thought, where a subjective relationship between the interviewers and the participants, as experts, existed to create theory together.

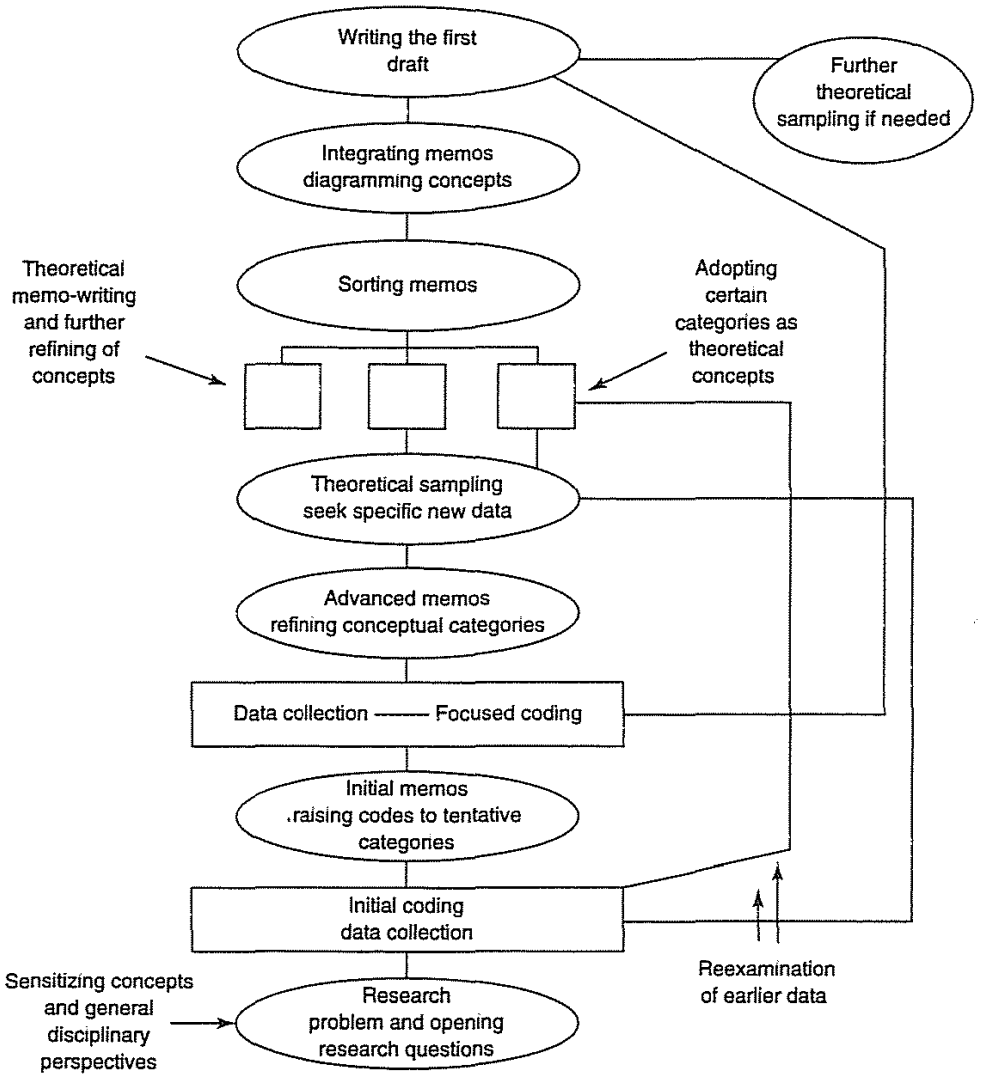


Figure 2.02. The grounded theory process. Reprinted from "Constructing grounded theory: A practical guide through qualitative analysis," by K. Charmaz, 2006, Thousand Oaks, CA: SAGE Publications, p. 11. Reprinted with permission.

In this study, I used multi-grounded theory as a research method within the constructivist school of grounded theory. Goldkuhl and Cronholm (2010) developed multi-grounded theory as an extension of grounded theory. While multi-grounded theory is a version of grounded theory and requires all the steps of grounded theory within it, it is important to note that grounded theory is not multi-grounded theory (i.e., all multi-grounded theory is grounded theory; not all grounded theory is multi-grounded theory).

Multi-grounded theory extends the work of grounded theory by forming the substantive theory generated in the study from, and positioning the theory in, both empirical data and existing theoretical literature. This research, therefore, consisted of four phases:

a) initial, purposeful sampling; active, semi-structured interviews (i.e., data collection); initial memos; and inductive multi-grounded theory coding (i.e., initial/open coding in grounded theory),

b) conceptual refinement multi-grounded theory coding; theoretical sampling; constant comparative analysis; additional semi-structured interviews (i.e., data collection); advanced memos; and pattern multi-grounded theory coding (i.e., focused/axial coding in grounded theory),

c) theory condensation multi-grounded theory coding (i.e., selective coding in grounded theory); additional constant comparative analysis; and integrating memos and diagramming concepts, and

d) theoretical matching; systematic review (qualitative and quantitative systematic analysis); empirical and theoretical grounding and validation; and evaluation of theoretical cohesion.

Setting

The setting for this study was School-Based Agricultural Education programs within the United States. There are more than one million students (Agricultural Education, 2012) in at least "8,568 local [School-Based Agricultural Education programs] throughout the United States, Puerto Rico, and the U.S. Virgin Islands" (National FFA Organization, 2018, para. 1). More than 12,690 formal educators teach agriculture in School-Based Agricultural Education programs (Smith, Lawver, & Foster, 2018).

Thousands of individuals are familiar with the context-state-result framework. I estimate hundreds of teachers are familiar with context-state-result (i.e., delta conferences, state agency trainings, teacher preparation programs). For example, each delta conference can host 10–30 teachers, and delta conferences have taken place in five to ten states periodically since 2005. Furthermore, the National FFA Organization and its state associations—particularly California—have trained several thousand national and state officers and youth leadership conference facilitators in context-state-result. Each year, National FFA conducts context-state-result training for the six state officers of each FFA state association (i.e., each state is required to have six officers at minimum per the National FFA Constitution; some states have more than six officers; 52 state associations; n = 312–400). National FFA also conducts annual training for staff who facilitate conferences (n = 30–50). Because these context-state-result trainings at National FFA began sometime between 2007 and 2010 and impact a broad base, it was realistic to assume the impact of this model, and setting for those who were familiar with it, was noteworthy and substantial (N = 3,000 at minimum).

Participants, Recruitment, and Screening

Within grounded theory and multi-grounded theory, there are two forms of sampling: initial sampling and theoretical sampling. Charmaz (2006) clarified that "initial sampling in grounded theory is where you start, whereas theoretical sampling directs you where to go" (p. 100). Therefore, I used both initial sampling and theoretical sampling.

Initial Sampling

Initial sampling in grounded theory—including multi-grounded theory—requires a purposeful sample, as the researchers seek to interview those familiar with a specific

phenomenon or concept (Birks & Mills, 2015; Glaser & Strauss, 1967). The initial sample for this study included those who worked, or have worked in the past, within School-Based Agricultural Education. Further, the sample included only those who were familiar with the context-state-result model.

Inclusion criteria for the study were: individuals who were (a) highly familiar with the context-state-result conceptual model, (b) educators in formal School-Based Agricultural Education (i.e., classrooms) and non-formal Agricultural Education (e.g., educational conferences and workshops) settings, and (c) were 18 years of age or older. At the time of this study, only individuals who had been trained in the context-state-result model—formally or informally—or those who had studied the context-state-result training materials, would be highly familiar with the model; therefore, the model itself was able to serve as a test of familiarity for inclusion. To gauge if someone was highly familiar with the context-state-result model, I either described to participants a conceptual model of the three context-state-result shapes (i.e., a square, triangle, and a circle) or stated the context-state-result name, and asked them to describe it. Participants showed their understanding of the model by labeling which of the three shapes were context, state, and result, describing the relationship between the shapes in the model, or by connecting their application to environment, teaching, and learning. At such point, I used constant comparative analysis to determine if an interview was necessary based on the individual's experience, understanding of context-state-result, and ability to add pertinent, further theoretical data.

I purposefully recruited 16 individuals for the initial sampling in the multi-grounded theory study. While a sample size of 15–20 is generally sufficient to achieve data saturation (Creswell, 2002), I planned to conduct interviews until all aspects of the theory

had fully emerged. Charmaz (2006) recommended researchers not focus on conducting a set number of interviews to achieve a specific benchmark, but instead to interview until there is enough data to provide a rich description of the theory without new concepts or themes surfacing from new data. To screen and select participants representative of the homogenous population of those most familiar and experienced with context-state-result, the initial participant sample consisted of eight educators who identified as female and eight as male, with varying degrees of instructional experience. Participants selected were primarily from the western United States and were representative of national School-Based Agricultural Education leadership, as educators near its originating state and on a national leadership have primarily been those to use it.

There were originally four participants from each category: (a) current or former formal School-Based Agricultural Education classroom instructors (i.e., high school agriculture teachers), (b) former FFA national or state youth officers, (c) current or former School-Based Agricultural Education teacher educators (i.e., university professors), and (d) current or former state supervisors of School-Based Agricultural Education or FFA (i.e., Department of Education state agriculture specialists, FFA state executive directors, National FFA staff members). Some participants had experience in more than one category (e.g., it is logical for a state supervisor or teacher educator to have spent time as a teacher as well), but each participant was selected based on their experience primarily working with context-state-result or context in one of the four specific roles.

Not all 16 participants responded to assist with the study, but I reached data saturation without interviewing all 16 of them. Fifteen of the original participants confirmed interest in the study. Participant 16 did not respond to the request for an

interview. I selected this participant within the current or former state/national supervisor group because they possessed specific expertise relative to the development and use of the context-state-result programing during their time working for the National FFA Organization. When they did not respond, I identified another participant with similar expertise; unfortunately, they did not respond either. Participant 15 confirmed interest to participate in the interview, but after three unsuccessful attempts to schedule the phone call, I abandoned the interview. The other participants within each group, and the participants in total, provided enough information where I did not seek additional interviews to replace the two participants who were unavailable or did not respond.

After the sixth interview, I felt I had reached a degree of saturation, as major concepts and ideas had started to emerge. At interview 12, little new or relevant information was arising from each additional interview. By interview 14, I felt confident I had achieved data saturation and did not continue trying to schedule additional interviews—either the original two initial sampling interviews planned, or further theoretical sampling. As an extension of the initial sampling interview protocol, I conducted theoretical sampling throughout the process to strengthen and guide my interview procedures.

Theoretical Sampling

Theoretical sampling occurs both during and following initial sampling. Theoretical sampling is the process of "seeking pertinent data to develop your emerging theory" (Charmaz, 2014, p. 96). I used theoretical sampling to focus my research efforts, revising and formulating the semi-structured interview protocol following the first interviews, and to determine whom I should interview following the initial sampling.

Theoretical sampling requires the researchers to make "a strategic decision about what or who will provide the most information-rich source of data to meet their analytical needs" (Birks & Mills, 2015, p. 11). It is an important phase of grounded theory—including multi-grounded theory—where the researchers "develop the properties of [their] categories until no new properties emerge" (Charmaz, 2014, p. 96). As I worked to develop codes, categories, and the theory, it became apparent where I needed more data to achieve saturation (Strauss & Corbin, 1998). I used theoretical sampling during initial interviews, adapting the interview schedule and adding new questions based on theoretical needs and priorities. Because I adapted the interview protocol and added new, theoretical questions during initial interviews, I did not feel that I needed further interviews once I reached saturation in the original sample. I also conducted the interviews in a specific order so individuals I thought would provide the most help theoretically were toward the end of the timeline. This afforded me the opportunity to ask more in-depth and theoretical questions to the participants who would provide the most useful data. During both initial and theoretical phases of sampling, I used semi-structured interviews to collect data.

Data Collection and Interview Procedures

I identified active and intensive, semi-structured interviews as the research procedure that best supported the research questions.

Semi-Structured Interviews

During data collection, I used open-ended, semi-structured interviews. Semi-structured interviewing strategies are best suited to studies where the researchers need to ask "probing, open-ended questions" (Adams, 2015, p. 494). Semi-structured interviews are especially useful in grounded theory where the researchers are "examining uncharted

territory with unknown, but potential momentous issues and [they] need maximum latitude to spot useful leads and pursue them" (Adams, 2015, p. 494). Interviews are also preferred as a data collection method when focus groups are not feasible (e.g., travel distance required of participants to come together) or the researchers are interested in the individual experience of participants (Merriam & Tisdell, 2012). A semi-structured interview protocol provided me both structure and the ability to focus on "significant statements" to generate data in grounded theory (Charmaz, 2014, p. 26). As the purpose of grounded theory and multi-grounded theory is to examine and name concepts within uncharted territory, semi-structured interviews with open-ended questions provided both the required structure and flexibility.

Active and Intensive Interviews

Interviews in grounded theory—including multi-grounded theory—are both an intense experience and often require the researcher to take an active role in the dialogue. An intensive interview is deeply personal. During an intensive interview, the interviewer is free to "shift the conversation and follow hunches" to find deeper meaning (Charmaz, 2014, p. 26). As I conducted interviews, I was able to situate the participant as the expert and encourage them to share their lived experience related to teaching and learning (Charmaz, 2014).

Further, as a pragmatist, I used an active interview approach as I collected data "with" participants in the semi-structured interviews using whichever strategy worked best to produce meaningful data (Gadamer, 2004; Holstein & Gubrium, 1995, 1997; Krasny & Slattery, 2019). As the interviewer, I acted as more than a "vessel for answers" (Holstein &

Gubrium, 1995, p. 7), both guiding and contributing to the interview. I worked with and supported participants to produce knowledge together.

Interview Protocol

I conducted active, semi-structured interviews in August 2019. The interviewer was the sole instrument for data collection. I first contacted potential participants by email to request their participation in the study. I limited semi-structured interviews to 60 minutes per participant and conducted interviews by phone (Merriam & Tisdell, 2012). At the beginning of each call I discussed the purpose of the interview, format and length, and requested permission from the participant to record and transcribe, if they had already not provided permission in their consent form (Rose, 1994). Transcribed interviews—once coded and analyzed—served as data in the study. I transcribed audio recordings using an online transcription service. I also had a conversation with participants about informed consent, possible risks of participation, and their rights in the study, including the right to withdraw or have information about themselves not be included in the research (Fraenkel, Wallen, & Hyun, 2012; Gall, Borg, & Gall, 2003; Rose, 1994). While the risk for participation was minimal, it was important for participants to know there is always some degree of risk, and that I took appropriate steps to ensure their confidentiality and protect their rights as research subjects. Participants then had the opportunity to ask questions about the study.

To protect sensitive information and the identity of study participants, I stored information collected on a password-protected computer and assigned each participant a pseudonym (Fraenkel et al., 2012). I collected demographic information at the end of the interview (Adams, 2015; see Table 2.01). One participant of the 14 identified as Hispanic

American or Latinx (*n* = 1; 7%) and one person identified as African American or Black (*n* = 1; 7%); all other participants self-identified as European American or White (*n* = 12; 86%). Just under half of the participants identified their gender as male (*n* = 6; 43%) and slightly more than half as female (*n* = 8; 57%). Three participants were from the Southern geographical region of the United States (United States Census Bureau, 2017), two from the Midwest, and nine from the West. As the total population of state supervisors, teacher educators, and FFA national/state officers was small and well connected, I did not include state/location/region and ethnicity/race of each participant in Table 2.01. Describing these two additional columns of data for each participant would have increased the risk to too great of a degree that the reader would be able to determine the identity of each participant.

Table 2.01
Demographics of Participants

				Years Teaching	
Pseudonym	Age	Gender	Role	Formal	Non
Alexa	18–24	Female	State Supervisor	0	4–7
David	18–24	Male	Youth Officer	1–3	4–7
Doug	55–64	Male	Teacher Educator	25+	4–7
Gabby	35–44	Female	Secondary Teacher	15–24	1–3
Glenn	25–34	Male	Secondary Teacher	4–7	8–14
Hannah	18–24	Female	Secondary Teacher	1–3	4–7
Holly	18–24	Female	Youth Officer	0	4–7
Larry	25–34	Male	State Supervisor	4–7	4–7
Maryann	55–64	Female	Teacher Educator	15–24	4–7
Morgan	55–64	Male	State Supervisor	15–24	8–14
Noelle	25–34	Female	Youth Officer	1–3	8–14
Rachel	35–44	Female	Teacher Educator	8–14	4–7
Scarlet	35–44	Female	Teacher Educator	15–24	1–3
Wesley	35–44	Male	Secondary Teacher	4–7	4–7

Note: I assigned each participant a pseudonym to protect their identity.

Interview schedule. While semi-structured interviews allow for a flexible interview procedure, I used an interview schedule to guide and inform my data collection efforts (see Appendix C). When requested by participants, I shared the questions prior to the interview to create an informed conversation and so participants could speak directly to the concept of context (Odendahl & Shaw, 2011).

Furthermore—in alignment with grounded theory protocol—prior interviews, memos, and codes served as the basis for new interviews (Charmaz, 2014). I spoke with faculty on my committee mid-way through the initial sampling timeline to debrief, discuss the development of the theory, and plan future interviews. I amended/adapted interview questions based on prior interviews as theory began to emerge. I quickly realized specific questions were redundant after the first few interviews, and it made more sense to ask them together (i.e., questions five and six, as well as eight and nine, were too similar and made more sense to ask at the same time), while other questions were often confusing for participants and required an example (i.e., question seven; e.g., taking students into a laboratory space might target the psychomotor domain, while a serious or inspirational speech might target the affective domain). Therefore, I modified the initial interview schedule midway through the study to better support future interviews, as a component of constant comparative analysis and to initiate theoretical sampling.

As I moved through initial sampling, around interview seven, I added theoretical sampling questions to the interview schedule. I began to ask participants for specific input about emerging concepts in the theory (e.g., is the model linear or something else, what is the role of the approximately equals sign/error in the model, what aspects of the model's labels are useful or confusing, and what would potential new labels look like). These

theoretical questions provided invaluable data to sharpen and refine the theory and categories that were emerging.

Data Analysis

There are three major phases of data analysis within a grounded theory approach: open, axial, and selective coding (Birks & Mills, 2015; Glaser & Strauss, 1967). Multi-grounded theory added a fourth step to the coding process—conceptual refinement—between open and axial coding (Goldkuhl & Cronholm, 2010; see Figure 2.03).

GT	*MGT*	*Comparison*
–	Research interest reflection and revision	Not existing explicitly in GT
Open coding	Inductive coding	Similar approach
–	Conceptual refinement	Not existing explicitly in GT
Axial coding	Pattern coding	Similar approach
Selective coding	Theory condensation	No requirement in MGT for one core category
–	Theoretical matching	Not existing explicitly in GT
–	Explicit empirical validation	Not existing explicitly in GT
–	Evaluation of theoretical cohesion	Not existing explicitly in GT

Figure 2.03. Comparison of GT and MGT concerning theory development. Reprinted from "Adding theoretical grounding to grounded theory: Toward multi-grounded theory," by G. Goldkuhl and S. Cronholm, 2010, *International Journal of Qualitative Methods*, *9*(2), p. 200. Copyright Goldkuhl; open access.
Note: GT = Grounded theory. MGT = Multi-grounded theory.

While using a multi-grounded theory approach, I grounded the theory in three explicit ways: inductively through the empirical data of the grounded theory, deductively through theoretical alignment, and congruently between data and the theory (cf. traditional grounded theory only grounds the theory in the empirical findings of the study; Goldkuhl & Cronholm, 2010).

Constant Comparative Analysis

A key component of multi-grounded theory—including grounded theory—is the use of constant comparative analysis. Constant comparative analysis (Glaser, 1965; Glaser & Strauss, 1967) is the process of moving between interview transcripts, personal memos, coded data, and interviews—new and old—requiring both "inductive and abductive logic" (Birks & Mills, 2015, p. 10). While the overall process of grounded theory flows through three stages, constant comparative analysis is a fluid process that can, and must, occur out of order as the researcher attempts to make meaning and formulate theory from the data—particularly later in the process during theoretical coding and grounding (see Figure 2.04).

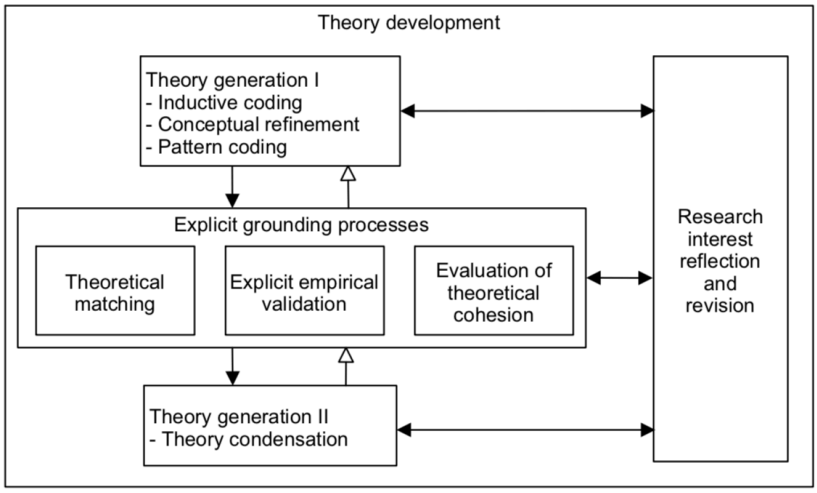


Figure 2.04. Working structure of the MGT approach. Reprinted from "Adding theoretical grounding to grounded theory: Toward multi-grounded theory," by G. Goldkuhl and S. Cronholm, 2010, *International Journal of Qualitative Methods*, *9*(2), p. 199. Copyright Goldkuhl; open access.
Note: MGT = Multi-grounded theory.

While analyzing the data, I frequently memoed observations, thoughts, and experiences as I coded data and generated theory. Memos were useful to later revisit my original thoughts, track how the theory had emerged throughout the study, and triangulate

findings through various sources of data. Figure 2.05 illustrates an example of a memo created during the coding process that was useful during constant comparative analysis.

Memo 9/14. Maybe we keep the E and A of READ together? Why is clearly about relevancy. Who connects nicely with acknowledgment and students, specifically with interpersonal needs... Those are clear, but participants tend to blend expectations and directions. I wonder if it's cleaner to keep them together in the how (clear expectations, chucked directions), and then we describe what as more about objectives/outcomes? Or are there are better labels we can use for it?

Figure 2.05. Memo on labels for the new Context-State-Result model.

Multi-Grounded Theory Coding

Coding is the categorization of data. I used coding to make meaning of the experiences of participants and artifacts collected. Charmaz (2006) proposed three phases of coding throughout the constant comparative process of constructivist grounded theory: (a) open, (b) focused/axial, and (c) theoretical/selective coding. To complete the multi-grounded theory study, I used a fourth step.

Multi-grounded theory inductive coding (cf. grounded theory initial/open coding). Inductive coding is the first, initial step of coding where the researchers categorize and organize raw data. During this phase of coding I used NVivo software to sentence-by-sentence code interview transcripts. Figure 2.06 is an example of my coding procedure. This phase of multi-grounded theory is comparable to open coding in grounded theory and other forms of qualitative research (Goldkuhl & Cronholm, 2010, 2018). I coded statements to look for what contextual processes were at play—particularly to define the concept; to determine how context develops, who is involved in context and how does it affect them or others (i.e., students), and how, when, and why does context change or

differ (Charmaz, 2006). Coding the transcripts sentence-by-sentence provided valuable insights about where to go next and what information I still needed. As I generated data and specific themes began to emerge, I memoed my thoughts to strengthen the theory.

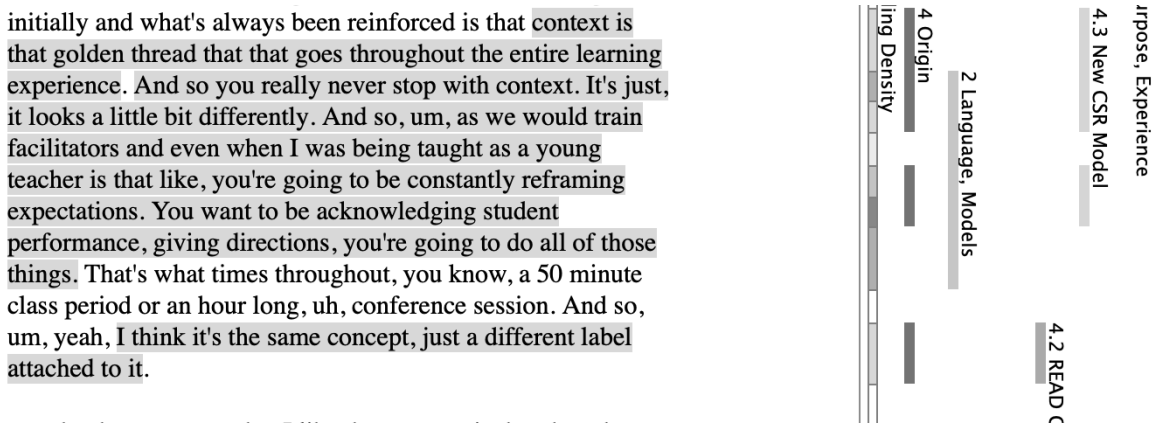


Figure 2.06. Coding in NVivo.

Multi-grounded theory conceptual refinement. Conceptual refinement is unique to multi-grounded theory. I worked with the data in a "critical and constructive way" to challenge and evaluate the findings of interviews (Goldkuhl & Cronholm, 2010, p. 194). Just as extant theory must earn its way into the theory during grounding, so too must the findings from interviews. Goldkuhl and Cronholm (2010) suggested six questions to refine conceptual categories:

- What is it?: content determination
- Where does it exist?: determination of ontological position
- What is the context of it?: determination of context and related phenomena
- What is the function of it?: determination of functions and purposes
- What is the origin of it?: determination of origin and emergence
- How do we speak about it?: determination of language use. (p. 195)

As I prepared for focused/axial coding, I used the six questions from Goldkuhl and Cronholm (2010) as a framework to organize the codes into concepts and categories. This process helped to define context, examine its function/purpose, describe labels/language for a new model, and analyze its origin/history—specifically how the model had changed over time. I eventually added new labels while retaining some of the language from the six questions as the major concepts within pattern coding.

Multi-grounded theory pattern coding (cf. grounded theory focused/axial coding). Pattern coding is the third step of multi-grounded theory. During this phase I synthesized and condensed initial data into themes. During pattern coding—often called focused or axial coding in grounded theory—I combined ideas into larger and more frequent major concepts. Pattern coding is "action-orientated" (Goldkuhl & Cronholm, 2010, p. 196) where the theory begins to take shape. To accomplish pattern coding, I organized the codes and categories in a table, guided by the six questions from multi-grounded theory conceptual refinement (Goldkuhl & Cronholm, 2010). I connected pattern codes into macro concepts in the diagram/table, arranging and rearranging the codes until I felt concepts flowed well and were well defined, while retaining smaller codes and themes within the larger concepts and in the memos and my codebook. Table 3.2 displays the concepts, categories, and individual codes produced during the multi-grounded theory pattern coding process.

Table 2.02
Codebook

Concept	Category	Code	*f*	#
Origin	Original Model	original model	19	11
		history	13	7
		delta	3	2
		shapes are useful	3	3
	READ Model	READ model	42	11
		labels or model are confusing	42	11
		start simple, then expand	2	1
		context expanded on at NFFA	32	10
What is it/ Definition	Context - Environment	environment	39	9
		everything speaks	26	11
		context is everywhere (more than just teaching)	14	8
		holistic	1	1
	Context - Frame/ Prime Directive	frame	17	9
		prime directive	4	3
		context as the golden thread	2	2
		TAG out closure	1	1
	Context - Moderator	moderator, facilitator, make easy	28	11
		context always there; teacher sets it or student does	14	7
		context and content relationship	2	2
	Context - Success	sets students up for success	7	3
		context as a roadmap	4	3
		context as onboarding	1	1
	Context - Management	classroom management, discipline, behavior	12	7
		formative assessment	8	5
		context proactive classroom management	6	4
	State	state	17	11
		domains of learning	15	7
		learning	10	7
		thinking, feeling, doing	8	4
		affective	2	1
		learning is a change	2	1
		learning packages	1	1
	Result	result	15	9
		begin end in mind	12	7
		content	1	1
		processing	1	1
		reflection	1	1
		closure	1	1

Table 2.02 Continued

Concept	Category	Code	*f*	#
Purpose	Easier with Practice	easier with practice	43	9
		label for things good teachers do	8	7
		philosophical	1	1
		mentoring	1	1
		administration	1	1
	Impact	impact on students	34	10
		example of good context	17	8
		example of poor context	12	8
		impact on teacher	21	9
		teaching becomes more fun	1	1
		methods of teaching	25	13
		looks different by method, level of control	3	3
Language / New Model	New Model	new model	13	7
	New - Spiral	spiraling, macro-micro	56	10
		linear, model is not linear	5	3
		transitions	2	1
		contextual bridge	1	1
	New - Error	error, approx. equals	9	5
	New - Labels	labels are needed	9	4
		examples-descriptions are needed, see it in action	1	1
		easier	1	1
	New - Curriculum / Teacher Preparation	teacher preparation	26	10
		lesson plan and curriculum	3	2
		magic formula	2	1
		magic formula is harder than context-state-result	1	1
		non-formal education	1	1
	Factors of Context	factors of context	40	11
		factors are inter-connected	1	1
	WHO	acknowledging students	60	14
		context varies	14	7
		prior knowledge	25	11
		relationships	15	8
		culture	7	4
		hierarchy of needs	3	1
		pride	3	1
		know your audience	2	2
		warm up	2	2
		efficacy	1	1
		all students	1	1

Table 2.02 Continued

Concept	Category	Code	*f*	#
Language/ New Model	HOW WHERE WHEN	directions	46	12
		voice, tone, rate	8	4
		student confusion, lack of confusion or focus	7	4
		behavior	5	3
		safety	5	5
		mind before body	4	3
		chunking, cognitive load, attention span	2	2
		large group v. small group context	1	1
		model behavior	1	1
		routine	1	1
		body language	1	1
		energy	1	1
	WHY	relevancy	55	14
		interest approach, hook, anticipatory set	17	7
		WIIFM	11	7
		interest v. warm/up-bell ringer	4	1
		teacher's prior experience, stories, relationship	2	2
		curiosity	2	2
		interest	2	2
		relevancy excited	1	1
		sales pitch	1	1
		ownership	1	1
	WHAT	expectations	51	12
		outcomes	10	6
		scaffolding	9	3
		rigor	5	1
		bar is set	1	1
		Kolb; experience before label	1	1
		key messages, major points	1	1

Note: *f* = Number of references by all participants throughout all interviews.
= Number of participants who referenced the code.

Multi-grounded theory theoretical coding (cf. grounded theory selective coding). Theoretical coding—as the fourth and last step—is the point of theoretical generation. During theoretical coding I reorganized, constructed, deconstructed, and analyzed pattern codes as the theory emerged. To accomplish theoretical coding, I created

a diagram of the new substantive theory and attempted to fit major concepts within it. This prompted new language and labels for the final theoretical codes. Multi-grounded theory's theoretical coding differs from grounded theory's selective coding, as multi-grounded theory does not require one sole main category or theme within the theory (Goldkuhl & Cronholm, 2010). While I did end up creating one main category for the new theory of context-state-result, specific sub-concepts were important to distinguish in the findings. Therefore, I presented one overarching theoretical model in the findings, with multiple sub-concepts within it. Following the final stage of coding, I grounded the theory in both the data of the interviews and within extant literature from the literature review.

Grounding and Trustworthiness: Validity and Reliability

Researchers should evaluate qualitative research using constructs of trustworthiness and grounding.

Grounding

There are three types of grounding within a multi-grounded theory study. I grounded the final theory in both the empirical data and extant theory uncovered from the review of the literature. Goldkuhl and Cronholm (2010) developed multi-grounded theory because "there is a need for a comprehensive and systematic check of the theory's empirical validity" (p. 197). They noted too often grounded theory researchers are "slave to their data" and do not appropriately consider existing theory and the credibility and transferability (cf. quantitative validity) of their findings (Goldkuhl & Cronholm, 2010, p. 190). While the initial coding phases of grounded theory are an inductive process, grounding within multi-grounded theory is both an inductive and deductive process. I grounded my theory in three ways:

- empirical data (preferably mainly through an inductive approach)—empirical grounding;
- preexisting theories (well selected for the theorized phenomena)—theoretical grounding; and
- an explicit congruence within the theory itself (between elements in the theory)—internal grounding. (Goldkuhl & Cronholm, 2010, p. 192)

It was at this time in the research that I conducted the review of the literature—both a narrative review and systematic-style review—to ground the theory. I analyzed existing theory and literature to both situate and strengthen the theory.

Trustworthiness

It is more appropriate to consider qualitative studies in terms of trustworthiness than quantitative validity and reliability (Lincoln & Guba, 1985). Trustworthiness has four criteria: credibility (cf. internal validity), transferability (cf. external validity), dependability (cf. reliability), and confirmability/reflexivity (cf. objectivity; Bryman, 2012; Lincoln & Guba, 1985).

To increase the credibility and transferability (cf. internal and external validity) of the study, I used member checking (i.e., member/respondent validation) and triangulation. During member checking, I had participants review findings for accuracy and transparency (Bryman, 2012; Creswell, 2002; Merriam & Tisdell, 2012). Participants may not have always been able to make meaning from or contribute to the findings of the research (Hobbs, 1993), but their efforts to confirm findings played a key role in the constant comparative analysis process as I constructed knowledge "with" them. I also triangulated my methods to increase the rigor of my credibility by combining multiple methods of

analysis, both internally and externally. I internally triangulated the qualitative methods by coding interviews—including various forms of multi-grounded theory coding—note taking and memoing, and constant comparative analysis (Denzin, 1970, 2012). I externally triangulated outside of the qualitative methods by conducting a review of the literature (Denzin, 1970, 2012; Flick, 2007). By triangulating the findings, specifically through a literature review to ground the theory, conducting member checks, and triangulation between various data sources, I ensured that the resulting multi-grounded theory is more applicable and valid.

Charmaz (2014) built upon Lincoln and Guba's (1985) concepts of trustworthiness, specifically recommending researchers evaluate grounded theory—which would also include multi-grounded theory—using four additional principles:

Credibility

- Has your research achieved intimate familiarity with the setting or topic?
- Are the data sufficient to merit your claims? Consider the range, number, and depth of observations contained in the data.
- Have you made systematic comparisons between observations and between categories?
- Do the categories cover a wide range of empirical observations?
- Are there strong logical links between the gathered data and your argument and analysis?
- Has your research provided enough evidence for your claims to allow the reader to form an independent assessment-and agree with your claims?

Originality

- Are your categories fresh? Do they offer new insights?
- Does your analysis provide a new conceptual rendering of the data?
- What is the social and theoretical significance of this work?
- How does your grounded theory challenge, extend, or refine current ideas, concepts, and practices?

Resonance

- Do the categories portray the fullness of the studied experience?
- Have you revealed both liminal and unstable taken-for-granted meanings?
- Have you drawn links between larger collectivities or institutions and individual lives, when the data so indicate?
- Does your grounded theory make sense to your participants or people who share their circumstances? Does your analysis offer them deeper insights about their lives and worlds?

Usefulness

- Does your analysis offer interpretations that people can use in their everyday worlds?
- Do your analytic categories suggest any generic processes?
- If so, have you examined these generic processes for tacit implications?
- Can the analysis spark further research in other substantive areas?
- How does your work contribute to knowledge? How does it contribute to making a better world? (pp. 182–183)

Charmaz's (2014) recommendations helped me to reflect upon and evaluate my work during the constant comparative analysis component of my study. Addressing these questions ensured I had conducted enough interviews, thoroughly examined the literature, and sufficiently reached data saturation to produce a credible theory in line with the principles of both grounded theory and multi-grounded theory. I wrestled with these questions and felt comfortable that the data and theory were powerful, fresh, useful to the field, and would have an immediate impact—specifically it was exciting and transformational for me to have the ah-ha moment when the theory finally emerged. Several participants expressed enthusiasm with the theory I was generating; they requested I share with them the final product once we have completed this study. One participant volunteered to help disseminate the new theory to practitioners using context-state-result in the agricultural education profession. I felt comfortable that these experiences validated—at least to some degree—the credibility, originality, resonance, and usefulness of this study.

Charmaz's (2014) final three principles support qualitative dependability and confirmability (cf. reliability and objectivity). Lincoln and Guba (1985) recommended researchers adopt an auditing procedure to increase dependability. Auditing has not been a popular approach to establish dependability due to the time-consuming demands of the process on the auditors (Bryman, 2012). Auditing can be particularly difficult in grounded theory research where there are substantial amounts of data and because the relationship between the researchers and participants is highly individualized. To achieve dependability, I maintained an audit trail of memos and reflexive journals throughout the constant comparative analysis and coding procedures, as a requirement of grounded

theory's extensive documentation protocol (Birks & Mills, 2015; Charmaz, 2014). Because this study was conducted under the guidance of a dissertation committee, I shared memos, transcripts, the coding book, and reflexive journals with my committee to audit and advise the "degree to which theoretical inferences can be justified," (Bryman, 2012, p. 392) along with the resonance, originality, and usefulness of the final theory.

Reflexive journals and memos—along with my previously defined philosophical and positionality statements—additionally supported confirmability and showed I acted in "good faith." To establish confirmability and objectivity, it should be "apparent that [the researcher] has not overtly allowed personal values or theoretical inclinations manifestly to sway the conduct of the research and the findings deriving from it" (Bryman, 2012, p. 393). My committee audited my journals and memos for overt bias, beyond that which is acceptable within a constructivist/subjective multi-grounded theory approach (Lincoln & Guba, 1985). By analyzing my theory and research to ensure trustworthiness, and by grounding the theory in the literature, I was able to produce a theory that is both as accurate and consistent as possible.

Chapter Summary

This dissertation was a multi-grounded theory study of the contextual factors that influence teaching and learning. I collected data between July and September 2019. I interviewed 14 participants with varying roles within formal School-Based Agricultural Education (e.g., teachers, teacher educators, and state supervisors) and non-formal Agricultural Education settings (e.g., FFA conference facilitators).

The data collection method consisted of semi-structured, active, and intensive interviews. I used constant comparative analysis and coding procedures consistent with a

multi-grounded theory protocol (Goldkuhl & Cronholm, 2010, 2018) to analyze data, including inductive coding (cf. grounded theory initial/open coding), conceptual refinement, pattern coding (cf. grounded theory focused/axial coding), and theoretical coding (cf. grounded theory selective coding).

I grounded the findings of the study in both empirical data collected from interviews, memos, and reflexive journals, and extant literature from the literature review (see Chapter III). Using credibility, transferability, dependability, and confirmability/reflexivity strategies of audit trails, peer debriefings, member checking, and triangulation, I established the trustworthiness of the findings.

CHAPTER III

REVIEW OF LITERATURE AND THEORETICAL GROUNDING

Conceptual Framework

Typically, there is not a theoretical framework in grounded theory. The purpose of traditional grounded theory is to "generate theory grounded in the data and [should not be] influenced by preconceived ideas about the area of study" (Birks & Mills, 2015, p. 24). As the researcher would be creating the theory based upon the data of their findings, there would not be an established theory to build upon for their research. This study differed from traditional grounded theory work as the objective was to develop a theory of, and within, an existing theory (e.g., Bandura's [1997] self-efficacy theory is a concept within his original social cognitive theory [1977]). Because I expanded upon an existing theory and model, there was a framework for this study: the context-state-result model. Furthermore, because a multi-grounded theory approach makes use of extant theory and research—compared to traditional grounded theory approaches where the researchers avoid a literature review or use it solely to inform their research efforts—multi-grounded theory provided a better fit for my research questions and objectives so that I could examine relevant literature to both develop and ground my theory. Therefore, my research employed Reardon's context-state-result model as a conceptual framework (see Figure 3.01).

Figure 3.01. Reardon's Context-State-Result. Reprinted from "A narrative analysis of context-state-result (CSR) and history of the delta conference," by C. Z. Sheehan and L. L. Moore, 2019a, Research poster presented at the *2019 Annual Conference of the American Association for Agricultural Education*, Des Moines, IA. Copyright Mark Reardon, 2000. Reprinted with permission.

Sheehan and Moore (2019a) interviewed several state and national leaders in School-Based Agricultural Education in a historical narrative analysis to examine the origin and components of context-state-result. Their analysis traced the context-state-result conceptual model to Reardon, who in interviews described how he produced the model and how entities within School-Based Agricultural Education began to use it. Sheehan and Moore (2019a) described each of the three components of the model:

> *Result*, the third component of [context-state-result] but beginning of the model, should be considered first. The desired result of education is learning. Represented in the model by a circle (i.e., ●, a bullseye or target), students "hit" specific and clearly measured learning outcomes. Next in the model, is *state*, represented by a triangle (i.e., ▲ or Δ delta; to change in mathematics). In this model, to achieve a result, teachers facilitate the state of students. Learning is a permanent change in student behavior (i.e., to think, feel, or act differently than before) as the result of experience (Lachman, 1997). … Finally, [context-state-result] emphasizes *context*. The model proposed that teaching and learning are moderated by contextual factors. Represented by a square (i.e., ■, a canvas or outline), the teacher "frames" the experience to support learning (p. 2). [emphasis in original]

Though various entities in School-Based Agricultural Education were utilizing aspects of context-state-result, the concept itself and its history were not well documented. The model did not appear publicly online nor was it anywhere in published literature, even though many individuals in FFA were widely using it. There was therefore a need for further research and to define the concept of context in the model.

Literature Review in Grounded Theory

The proper timing and role of the review of the literature in grounded theory is controversial. In classical grounded theory, the researcher should not conduct a literature review until after the completion of the study (Birks & Mills, 2015; Glaser, 1978, 1992; Glaser & Strauss, 1967). The researcher does not explore the literature in depth before the study, as is typical in quantitative studies and many forms of qualitative research (Glaser, 1992, 1998, 2012). Instead, the researcher conducts the literature review after analysis to "avoid seeing the world through the lens of extant ideas" (Charmaz, 2006, p. 6) and theory (Glaser & Strauss, 1967). Such a pure approach is often unrealistic and unobtainable. The researcher is not a blank canvas and is usually familiar with relevant theory and literature (Charmaz, 2006). Charmaz (2014) shared "researchers typically hold perspectives and possess knowledge in their fields before they decide on a research topic" (p. 306), particularly in a doctoral dissertation where advisors and committees expect the researcher to have expertise in their area of study. In a multi-grounded theory study—which is an extension of grounded theory—the role of literature and existing theory are important. As a component of multi-grounded theory, the researchers use both a traditional, inductive grounded theory approach where findings are grounded in the empirical results of their

data, followed by a deductive, theory-driven approach, grounded in the literature (Goldkuhl & Cronholm, 2003, 2010, 2018; Lind & Goldkuhl, 2006; Thornberg, 2012).

This study included two forms of literature review: two systematic-style reviews (i.e., qualitative and quantitative) and a narrative review of relevant and major historical and foundational literature. I conducted the review after data collection during the theoretical grounding phase of the multi-grounded theory study. A systematic review of the literature provided a rich description of the effects of moderating variables in teaching. This approach proved useful to describe the variables that influence teaching and learning. A quantitative systemic review (i.e., the first steps of a meta-analysis) "combines the findings of multiple primary research studies that summarize the evidence on a common research topic" (Doolen, 2017). A qualitative systematic review is different from a traditional narrative analysis. Whereas a narrative review summarizes the findings based on the perspective of the researcher, it is often imprecise and provides "the weakest forms of evidence" (Green, Johnson, & Adams, 2006, p. 104) of the three primary types of literature reviews. A qualitative systematic review follows an explicit, detailed approach—much like the early steps of quantitative systematic review during a meta-analysis—resulting in a stronger, more comprehensive, and less biased review (Cooper, Hedges, & Valentine, 2009).

To ground the theory produced in this study, I conducted both a narrative review—to describe relevant literature and pivotal research within educational philosophy and psychology—and two systematic-style reviews (i.e., a qualitative and quantitative systematic review)—to examine the findings of multiple studies and synthesize a sample of the available evidence on moderators of teaching and learning. As the systematic review

was a component of the literature review and not a method of the research, I did not follow the full procedures of a meta-analysis or use statistical procedures to analyze the data (i.e., a meta-analysis was outside the scope of this study; Cooper et al., 2009; Goh, Hall, & Rosenthal, 2016; Green et al., 2006).

Narrative Review

Teaching and learning, in many ways, are two sides of the same coin. While is it certainly possible for learning to occur without teaching (e.g., independent learning and self-discovery), or vice versa (e.g., pure lecture where students may not be listening or are unengaged, therefore learning is not taking place), the general public and those who work in education are generally more concerned with the ability to facilitate (i.e., teach) the learning process to effect change in knowledge, attitudes, and ability. To examine the relationship between teaching and learning, I first defined learning and educational psychology theory via this phase of the literature review.

Definition of Learning

To learn is to change. Learning is a permanent change in behavior due to experience (Lachman, 1997; Phipps et al., 2008; Schunk, 2016; Talbert, Vaughn, Croom, & Lee, 2013). A learned behavior is different than an instinctual behavior (i.e., unlearned phenomena; Schunk, 2016). Unlike many animals, humans have a great capacity for learning and changed behavior beyond basic instincts.

Domains of Learning

Learning occurs in one of three domains: cognitive, affective, and psychomotor (Anderson & Krathwohl, 2001; Bloom, 1956; Dave, 1970; Fink, 2013; Harrow, 1972; Krathwohl, Bloom, & Masia, 1964; Simpson, 1972).

Cognitive domain. The cognitive domain (Anderson & Krathwohl, 2001; Bloom, 1956) includes an individual's ability to think differently about content (DePorter et al., 1999; McCormick, 1994). To stimulate thinking, there is often a gap in knowledge that sparks curiosity. To measure the cognitive domain, Bloom (1956) proposed six steps (i.e., knowledge, comprehension, application, analysis, synthesis, and evaluation) in a taxonomy to classify learning from lower cognitive skills (e.g., define, recall, identify, label, etc.) to higher cognitive skills (e.g., evaluate, design, predict, argue, etc.). Bloom's (1956) domain was adapted in 2001 to revise the steps, converting the labels into action verbs (i.e., remember, understand, apply, analyze, evaluate, and create; Anderson & Krathwohl, 2001). An objective placed on a lower level of the domain does not mean the skill is less important or valuable; rather, students typically must complete that skill before they can move into a higher level of the domain of learning. For example, it is unlikely that someone could accurately build (i.e., create) an engine from parts if they are unable to recall what each of the parts is and how they function. Some skills need only a basic level of cognitive ability, yet in another context, a skill requires complex evaluation and application (Bloom, 1956). While the cognitive domain is potentially the aspect of learning that is most frequently examined in formal education, there are also two other aspects of learning which are also important: the affective and psychomotor domains.

Affective domain. The affective domain (Krathwohl et al., 1964) is an individual's ability to feel differently about content (DePorter et al., 1999; McCormick, 1994). Feeling differently includes emotional capacity and attitudes about knowledge—our values structure and beliefs system. Krathwohl et al. (1964) proposed five levels of learning within the affective taxonomy of educational objectives: receiving, responding, valuing,

organizing, and characterizing. Like the cognitive domain, lower steps in the affective taxonomy do not equate to less worthwhile behaviors. Instead—and more specifically than the cognitive domain—learners must move thought the steps of the affective domain in sequence. For example, an individual may be presented with emotional information intended to change their attitude and value system (e.g., vaping will kill you), but respond negatively to the information and choose not to value it (e.g., vaping makes me look cool to my friends; therefore, I do not care about the risk). For learning to cause an affective (i.e., feelings) change at the highest level, a learner must actualize the content and organize the information into their character and belief system, which might take numerous experiences at lower levels to happen (Krathwohl et al., 1964). Students experience the affective domain to the greatest intensity within the leadership development and non-formal educational spaces of School-Based Agricultural Education (i.e., FFA) and experiences where the instructor is coaching or advising students.

Psychomotor domain. Finally, the psychomotor domain (Dave, 1970; Harrow, 1972; Simpson, 1972) is an individual's ability to act upon information and perform a skill (DePorter et al., 1999; McCormick, 1994). Learning within the psychomotor domain is focusing on "doing." Researchers have proposed numerous taxonomies and classifications to describe the psychomotor domain; two of the more popular are Dave (1970) and Simpson (1972). The psychomotor domains include roughly six steps: observation/see and react, imitation/see and do, guided practice/do with help, independent manipulation/do without help, articulation/adaption, and naturalization/problem solving (Dave, 1970; Simpson, 1972). Like the affective domain, these steps are sequential; while it may be possible to skip steps (e.g., build something without directions or help), the learning

process is potentially slowed as a result. Within School-Based Agricultural Education, the psychomotor domain is most frequently used in laboratory settings, experiential learning (i.e., Supervised Agricultural Experience), and student-centered learning methods (Talbert et al., 2013).

It is important to note that there is a certain degree of overlap between the three domains. A skill may fall under more than one domain of learning. Furthermore, if learning occurs in one domain, a change occurs in the other two domains as well (DePorter et al., 1999; Sheehan & Moore, 2019a). For example, if an individual learns an affective skill at the characterization level (e.g., fast food is bad for your health), it will also result in cognitive (e.g., food plans and diet) and psychomotor changes (e.g., eating habits and food preparation). Therefore, for learning to occur an individual must think, feel, or act differently as the result of an experience, and if a change occurs, there will be an effect or effects within the two other domains as well.

Psychology of Learning and Methods of Teaching

Teaching is both a science and an art (Marzano, 2007). Some individuals are naturally gifted public speakers, who are motivational and inspirational (i.e., the art of teaching). While it may be difficult to master the art of teaching, there are tangible, evidence-based strategies for effective teaching (i.e., the science of teaching). Within the context of the science of teaching, there are three general waves of educational psychology and teaching theory. The first wave was behaviorism from the early to mid-1900s (Pavlov, 1927; Skinner, 1968; Thorndike, 1913a, 1913b, 1914), marked by conditioning and observable responses to environmental stimuli. The social cognitive theory movement of the second half of the century (Bandura, 1977)—including theories of constructivism

(Bruner, 1960; Piaget, 1976; Vygotsky, 1978)—defined learning as a process that occurs mentally and within a social environment; that learning happens in the mind, not just the body. Finally, researchers define the modern educational movement of information processing theory as exploration of the brain, including short- and long-term memory capacities and learning schemas (Atkinson & Shiffrin, 1968, 1971; Miller, 1956a, 1956b).

Behaviorism. Key concepts to emerge from the behaviorism wave of educational theory included cause and effect, stimulus response, and reinforcement of behavior through consequences. Thorndike's (1913a, 1913b, 1914) theory of connectionism emphasized the importance of transfer and cause and effect. He discovered environmental stimuli cause learned responses in animals, and that it is possible to transfer learned responses to new applications (Schunk, 2016). Pavlov (1927) built upon the concepts of behaviorism by establishing classical conditioning. In classical conditioning, an animal was taught it would receive a treat at the sound of a bell, after which it would salivate (i.e., drool), only later to continue the behavior solely to the sound of the bell, without the reward (Schunk, 2016). Skinner (1968) further developed conditioning theories (i.e., operant conditioning) with his Skinner box. In his experiments, Skinner (1968) showed how consequences influence behavior and learning, not solely the stimuli in the environment. For example, he could also create a learned behavior when he removed a reward or administered a punishment. Skinner was able to strengthen behavior when he reinforced it with a consequence (positive, negative, and punishment). Traditional teaching methods of lecture, drill and practice, and independent reading are examples of teaching within behaviorism; educators would typically classify these skills in the cognitive or psychomotor domain only as lower level abilities.

Social cognitivism and constructivism. Key concepts to emerge from social cognitivism and constructivism include modeling of behavior, self-efficacy, scaffolding, and the zone of proximal development. Bandura (1977) observed that not all learning occurs through an environmental stimulus, and not all learning can be explained through an observation. He documented that learning occurs enactively by practically doing something, as well as vicariously, by observing others perform an action (Schunk, 2016). For example, a person can watch someone burn their hand on a hot stove and know not to do it themselves without experiencing it for themselves. Bandura (1986) believed modeling was an essential part of learning, which is moderated by the prestige and competence of the model. Individuals tend to learn more from models they believe are like themselves, particularly if they consider them a peer. Social cognitive theory was born from the fact that behaviorism simply could not explain all forms of learning (i.e., complex learning).

Some scholars consider constructivism to be its own distinct school of educational theory; it might be more appropriate to describe it as an epistemological branch (i.e. philosophical explanation of the nature "of" learning, not "for" learning) of social cognitivism (Schunk, 2016). Constructivism specifically contrasts with prior learning theories that focused on the mind, with less attention to the context of learning (Schunk, 2016). Piaget (1976) and Bruner's (1960) cognitive development and cognitive growth concepts explained how learners construct their own understanding of knowledge that is highly situational. Students' beliefs about the learning are especially important. For example, if hypothetical students are familiar with receiving instruction in a specific manner (e.g., lecture and practice) and a new teaching method were to be introduced (e.g.,

problem solving), they may become frustrated and have difficulty adjusting to the unfamiliar environment and learning conditions. Cognitive development theories proposed that children move through sequential stages of development and have differing needs and abilities depending on their current stage. Most notably, Piaget (1976) recommended teachers consider the cognitive ability of students, keep them engaged, and provide social interaction, as young children do not have the same patience and attention as adults (Schunk, 2016). Bruner's (1960) stages of growth were more complex, but the most notable implication was how both content and concepts should be spiraled and retaught in a more complex fashion as students gain ability and knowledge (Bruner, 1960; Schunk, 2016). Finally, Vygotsky (1978)—a Russian psychologist whose work was not translated and discovered within modern United States educational theory until after his death—postulated that learning is a highly social experience, far more so than any theorists before him. Vygotsky's (1978) zone of proximal development added considerable support to the concept of instructional scaffolding (Bandura, 1986), where teachers control the degree of rigor within the educational environment by keeping students within a zone of growth (i.e., not too hard that they quit, yet still difficult enough to challenge the learner), constantly adjusting the situation and content (Schunk, 2016). Teacher-centered methods of discussion and demonstration, as well as student-centered teaching methods of problem-, project-, and inquiry-based learning are examples of teaching within social cognitivism and constructivism; these skills can likely occur in any domain of learning.

Information and (cognitive) brain processing. Key concepts within the most recent wave of educational theory include organization of content, attention, chunking, and short- and long-term memory. During the modern period of educational psychology,

researchers have begun to think of the brain as a computer, where humans process information, rather than respond to stimuli. Atkinson and Shiffrin (1968, 1971) conducted research on the differences between short- and long-term memory, and most notably discovered the brain must process sensory information quickly through working memory for it to form associations in long-term memory, otherwise information is typically lost. Human capacity for short-term memory is exceptionally small; the brain filters out considerable amounts of information. It is therefore important to gain student's attention and help them differentiate between important content and cursory information (Schunk, 2016). Miller (1956a, 1956b) further argued information must be organized and chunked into meaningful pieces to help students connect to prior knowledge. While advances in brain-based learning and educational psychology continue, the key to information processing educational theory is that the mind is far more complex and powerful than researchers previously realized, and it is important to organize information and direct learners in their goals and strategies for consuming content. Information processing theory applies mostly to the cognitive domain of learning, but can be integrated into all teaching methods, with potentially the most significant implications for pure lecture.

Teaching Methods and Planning for Instruction

It is useful to explore various methods and approaches to teaching. The following section organized prominent theory and literature related to planning for instruction, instructional design, and teaching methods.

Context. To teach is to facilitate the learning of students. To begin planning a lesson, the teacher should start with the end in mind. Objectives are the outcomes that students should be able to know, feel, or do at the conclusion of the lesson (Talbert et al.,

2013). Objectives typically align to state or national standards and benchmarks. Well-written objectives have four components when using the ABCD method (Heinich, Molenda, Russell, & Smaldino, 2001):

a) Audience: who is the audience? What makes them unique? What are their individual needs? An example of audience would be "students will be able to...," compared to teachers, parents, etc.

b) Behavior: what is the specific knowledge, attitude, or skill that the audience will be able to accomplish because of the lesson? This component of the objective should be a verb. Verbs should align to Bloom's (1956) Taxonomy and fall into one of three domains: Cognitive (i.e., thinking; Anderson, et. al, 2001), Affective (i.e., feeling; Krathwohl et al., 1964), and Psychomotor (i.e., doing; Dave, 1970; Simpson, 1972). Examples of behavior include recall, analyze, construct, etc.

c) Condition: conditions are how the audience is expected to show the behavior. "Describing the 50 most common birds in Minnesota from memory" is a very different condition than the same objective with "access to resources." The condition matters and alters the objective. Teachers expect novice learners to perform a skill under different conditions than an advanced learner. Examples of the condition component include from memory, with access to the internet/notes, with support from another person, etc.

d) Degree: degree is the level the audience is expected to perform the behavior at. For some skills it is unacceptable to know only half of the content (e.g., steps to performing surgery), while other times the learner may need to know only some of the content (e.g., symptoms of a disease in plant growth). This component of the objective

should include a number. Examples of the degree component include 8/10, with less than three errors, 75% correct, etc.

Another popular theory for objectives is the performance, condition, criterion framework (Mager, 1962), which is a similar concept to the ABCD method (Heinich et al., 2001), with different labels.

Before the teacher plans their methods, they should establish relevancy to engage students in the content and remind students of the rules of their classroom. The best way to manage classroom issues is proactively, not reactively (DePorter et al., 1999). While each teacher has their own rules for classroom management, it is ideal if the teacher reminds students of their rules and provides directions often. Classroom rules for behavior and the directions a teacher provides for an activity should be clear and transparent, consistently enforced, and frequently shared (Winkelmes, 2013).

To engage students in the learning is to contextualize and make the learning relevant (Johnson, 2002). Relevancy goes by many names. The concepts of an anticipatory set and hook were coined by Madeline Hunter (1982) and updated by her daughter in *Madeline Hunter's Mastery Teaching* (Hunter, 2004). An anticipatory set is an activity or discussion to hook students and create interest for the learning they are about to experience; it creates curiosity and a desire to learn more.

The first two steps in Hunter's (1982) essential elements of effective instruction included anticipatory sets and objectives, which can come in either order. The instructor can begin with an activity to activate curiosity and then share objectives, or vice versa, based on which order makes the most sense. In School-Based Agricultural Education, the

phase of the lesson that activates relevancy and interest is often referred to as an interest approach (Newcomb et al., 2004).

Regardless of what educators call it, the most crucial aspect is for instruction to create relevancy, it must be at a felt-need level (Phipps et al., 2008). A simple joke or activity to gain attention does not truly create a felt-need where students have a deep desire to learn more. Relevancy also does not need to be an elaborate, time consuming activity. Simply presenting students with a problem or describing an exciting opportunity is sometimes enough to create a desire to know more. Phipps et al. (2008) described how the most effective interest approach at a felt-need level presents students with a provocative situation, has them make a decision about the situation they are experiencing, followed by the teacher challenging their decision and pushing students to think critically about the experience they are having. When students have bought into the content and have a desire to know more, then the teacher has facilitated the learning for students to make the content easier to experience and understand.

State and methods. Next, the teacher designs the methods of instruction they will use to achieve the objectives of their lesson. If they wrote objectives in the cognitive domain, they are trying to have students think differently about content than from before the lesson. Low order thinking skills include remembering and recall, while the highest order skills include creation and evaluation (Bloom, 1956). Teaching methods that tend to target the cognitive domain include lecture-discussion and problem solving/inquiry.

If the teacher wrote objectives in the affective domain, they are trying to have students feel differently about content than from before the lesson. Low order thinking skills include receiving information and responding, while highest order skills include

valuing and characterization. Learners may experience a situation that causes an emotion, but unless there is valuing and organizing that information into their belief system, the learning will likely only be temporary (Anderson & Krathwohl, 2001). Teaching methods that tend to target the affective domain include passionate lecture-discussion, some types of projects, and problem solving/inquiry.

If the teacher wrote objectives in the psychomotor domain, they are trying to have students act/do something differently related to content than from before the lesson. Low order thinking skills include imitating and manipulating a task—usually with support or coaching—while highest order skills include independent articulating and naturalization of a skill where it becomes habit and can be performed without assistance (Dave, 1970; Simpson, 1972). The goal is to move students through guided practice into independent performance. Teaching methods that tend to target the psychomotor domain include demonstration and project-based learning.

After determining which domain of learning the teacher is trying to target, they can select the best method of teaching. No individual method of teaching is better than the others. Certain methods work better in specific situations, depending on which domain of learning the instructor is targeting. It is easiest to think of instruction as a continuum with teacher-centered instruction on the left, and student-centered on the right (see Figure 3.02). At the far left of the teaching methods continuum—pure teacher-centered instruction—is lecture. The teacher has almost full control (or sometimes entirely full control) over the learning and does most of the work. Students assume a passive, inactive role and student engagement is often low. Lecture by itself is rarely an appropriate technique in a secondary classroom unless it is for a limited time (less than 10–15 minutes; Atkinson & Shiffrin,

1968, 1971) on critical content that the teacher needs to communicate in a concise and specific way.

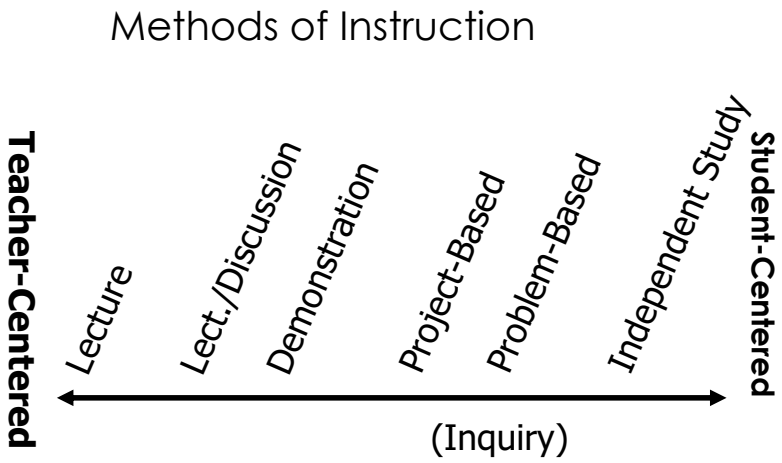


Figure 3.02. Continuum of teaching methods.

At the far right of the teaching methods continuum, pure student-centered instruction, is independent study. The student has almost full control over the learning and does all the work. The teacher is either not involved, or rarely involved. The student would have complete control over everything from the objectives to the format of learning. Independent study is used only in very advanced courses of study or is not appropriate in classrooms at all, as there is limited teaching instruction. More often, teachers adopt a form of supervised study.

Teacher-centered methods of instruction. Within teacher-centered methods of instruction, the learning cycle begins with an abstract concept, followed by student experimentation to make meaning of that knowledge, concrete experience, and finally reflective observation (Kolb, 1984). In general, lecture should not be used as a teaching method on its own. Teachers should pair discussion activities with lecture to make the

lesson interactive and for formative assessment of student understanding. In lecture/discussion, the teacher has released a small portion of the control to students. They guide the conversation, rather than acting as a "sage on the stage." Discussion should consist of Socratic questioning techniques used by the teacher (Talbert et al., 2013). The teacher should ask questions of students, followed by more questions to take knowledge deeper (e.g., why... why... why...). Discussion is a method of instruction, not a check for understanding. If teachers find themselves spending more time talking than students, or using sentences instead of questions, it is likely not an actual discussion.

In demonstration, the teacher shows students a skill (i.e., typically psychomotor) and then has them practice it. Lessons using this type of teaching method are common in laboratory settings, for example, a science class, a mechanics lab/shop, a greenhouse or floriculture lab, or a food science/kitchen lab space. Demonstration should consist of specific steps and key points, followed by guided practice (Newcomb et al., 2004). The instructor should identify the specific steps that must be followed to demonstrate the skill, and share additional key information and points students need to know (e.g., if you switch these two steps around, the rope will come loose and the knot will fall apart). After the teacher has demonstrated the skill, students should practice the skill as soon as possible. The lesson can either be broken into chunks, where a step is taught and then immediately practiced, or all steps can be taught first and then students practice the skill, depending on what makes the most sense for the content.

Student-centered methods of instruction. In student-centered methods of instruction, students begin with an experience of the content (i.e., a provocative situation; Phipps et al., 2008), reflect on the experience they just had, eventually labeling the abstract

concept, and experimenting with the concept in their everyday lives (Kolb, 1984). In student-centered methods of instruction, students have more control over the learning experience than the teacher does. Often the objectives and immersion for the entire class are the same, but the product and outcomes produced may vary. Students may all arrive at the same conclusions and learning outcomes, or quite different results from one another based on the research they completed. It is important to note that in project-based learning, learning must happen through the project. If students are completing a project about content they already know, then the project is an activity to enhance learning or an evaluation tool, not a method of instruction.

Projects should consist of a tangible product, be supervised by the teacher, and be graded by using a rubric (Talbert et al., 2013). A project should include making something tangible (e.g., a poster, a song, a video, etc.). Learning occurs as they make the project. The teacher should supervise students during the learning process, so they do not get off topic in their content. Finally, project-based learning ideally has a handout and a rubric. If students do not know what the teacher is expecting them to do and how the teacher is going to evaluate them, then the teacher is not setting them up for success.

Problem solving methods and full inquiry give students the most flexibility and freedom. The teacher often prepares a scenario, problem, or topic for students to explore (Newcomb et al., 2004). The teacher can either provide the hypothesis (guided inquiry) or students can design it themselves (open/free inquiry). Students then collect data (either from an experiment they conduct or from data mining existing data sources), review their findings, and apply their learning to the future. Inquiry can take place over the course of an entire semester/year or happen all in one day. Inquiry consists of the eight steps of the

scientific method. There should be a final product or report that summarizes their findings which students produce following the experiment. Students should receive a rubric to establish expectations and directions for grading and the timeline of the assignment/activity.

Result and closure. The final component of teaching is the closure of a lesson. To close the lesson, the teacher should review content, thank the students for the positive qualities of their work, and preview the learning to come next time in class. Result is the goal of teaching. It is the question: did students learn? (DePorter et al., 1999). Result is often connected to state or national standards (Talbert et al., 2013). Ending a lesson is more than assessment; it is also proper closure, review, and setting students up for class the next time. This is often the step teachers miss the most; the bell rings and students leave the class without any closure. If teachers do not have meaningful closure, review, and preview for next time, they are missing the mark (DePorter et al., 1999).

At the end of a unit or course, the teacher should assess students to evaluate their learning. Assessment is how teachers evaluate learning; it is a component of review and lets them both (a) measure what students know and (b) determine if they are ready to build new concepts upon that knowledge. There are two forms of assessment: formative and summative. Formative assessment is more qualitative than quantitative. The teacher conducts formative assessment during the teaching process to read the room and gauge student learning (Talbert et al., 2013). The teacher does not want the lesson to be too stressful or difficult, as if there is too much pressure, students may give up. That said, if there is not enough pressure, students may become bored and disengaged. Summative

assessment is more quantitative than qualitative; it is measurable. Summative assessment includes exams, tests, and portfolios to show student learning outcomes.

Implications. Teachers can be taught to use contextual resources and variables of teaching and learning to support students. Teacher preparation programs provide teacher candidates with the resources and tools they need to plan for instruction and gain a sense of efficacy to overcome barriers and hardship (Harlin, Roberts, Briers, Mowen, & Edgar, 2007; Knobloch, 2001; Korte & Simonsen, 2018; Stripling, Ricketts, Roberts, & Harlin, 2008; Swan, Wolf, & Cano, 2011; Tschannen-Moran and Woolfolk Hoy, 2001; Woolfolk Hoy & Spero, 2005; Zee & Koomen, 2016). Teacher self-efficacy—specifically student engagement and classroom management efficacy—are complex skills to develop, but there is some evidence that it can be coached and trained when teacher candidates are provided with specific professional development and intervention (Sheehan & Moore, 2019b). It is important that teachers understand evidence-based methods of instruction and the contextual variables that influence their teaching and student learning.

Summary

The history and prominent literature that have shaped educational psychology and how educators teach are useful to ground the findings of this study. The new theory for context should reflect evidence-based formats for (a) learning objectives to provide students the cognitive resources and clues to plan ahead, (b) the concept of interest approaches/hooks/anticipatory sets to establish affective relevancy and buy in/what's in it for me? (WIIFM), and (c) should provide clear and consistently communicated psychomotor directions and expectations.

Systematic-Style Reviews and Theoretical Grounding

There were two systematic-style reviews within this literature review: a review of both the qualitative and quantitative literature. Both reviews shared common search and inclusion criteria. I did not conduct a full meta-analysis, nor did I explore all available literature on the topic, as such a review and analysis were outside the scope and capacity of this study. I adapted and used systematic procedures to inform and structure the review but did not explicitly follow meta-analytic or systematic review protocols as a research method or analysis process.

Search Strategies

Comprehensive and systematic search strategies are an important part of both a quantitative and a qualitative systematic review. I conducted a search of the literature for the following terms: "moderator" paired with "learning" AND "teaching," and other distinct findings of the multi-grounded theory study. I conducted the search using Texas A&M University's Libraries databases, including Elton Bryson Stephens Company (EBSCO; e.g., Academic Search Ultimate, Business Source Ultimate, Education Resources Information Centre, and PsycINFO), JSTOR, ProQuest Dissertations and Theses, and Web of Science. I further searched Google Scholar in an additional attempt to discover all possible relevant studies. In a systematic review, it is important to search for both published and unpublished literature (Cooper et al., 2009). As a part of the search, I planned to explore dissertations and other literature not found in journals (e.g., ProQuest). I specifically searched for existing meta-analyses and other systematic reviews to inform my efforts. A broad search yielded meaningful results to ground the theory from this study.

Inclusion and Exclusion Criteria

After the initial search, I organized the results into a PRISMA diagram and determined which studies met inclusion and eligibility requirements (American Psychological Association, 2010). To identify the primary samples, I originally used the following inclusion criteria: studies must (a) focus on moderating variables of the relationship between teaching and learning, (b) be full-text and peer reviewed, including dissertations, thesis, and abstracts, (c) be written between 1956 and 2018 (i.e., *Bloom's Taxonomy of Educational Objectives* was published in 1956), and (d) be written in English. Studies for the quantitative review included quasi-experimental, correlational, or survey designs, while I used all other studies in the narrative or qualitative systematic review.

The search for moderators of teaching and learning using both the Texas A&M University's libraries system produced 95 articles; only five of those articles were relevant for the study, resulting in insufficient data to produce a quality review. I then expanded the search to include variations of the original search criteria and findings from the multi-grounded theory interviews including:

- "moderator" AND "learning" (3,330 results),
- "moderator" AND "teaching" AND "learning" (95 results),
- "learning" AND "context," (207,528; too broad, narrowed down),
- "environment" AND "teaching" AND "learning" (12,000 results),
- "interest approach" AND "teaching" AND "learning" (67 results),
- "interest approach" AND "education" (4,690 results),
- "learning" AND "blooms taxonomy" AND "meta-analysis" (2,859 results),
- "learning" AND "classroom management" AND "meta-analysis" (6 results).

The resulting search yielded more than 23,000 possible articles (see Figure 3.03).

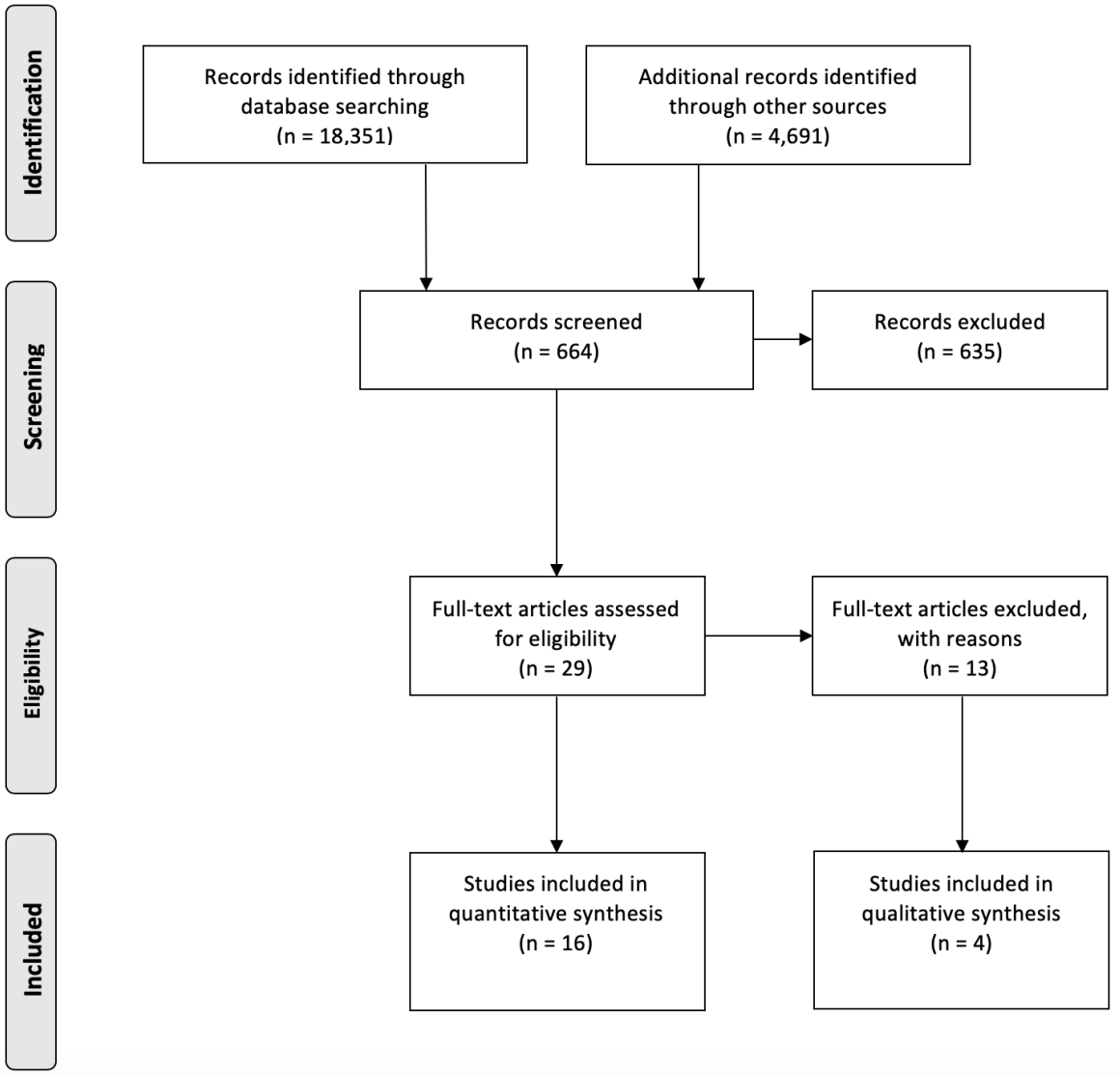


Figure 3.03. PRISMA diagram.

Due to the scope of this study, the complex nature of the variable of context, and the overwhelming volume of literature in the search, I did not examine all 23,000 potential articles. I took a sample of the first 100 most relevant articles within each search to examine potential literature and guide the review (n = 664). The initial search results did

not yield any dissertations or unpublished literature. I was unable to expand the search efforts to specifically target unpublished work due to the complexity and large scope of the initial search results.

Next, I screened publications, removing any studies that did not relate to education, learning, or variables that influence teaching and learning (i.e., studies specifically on methods but not learning; $n = 635$). To measure the dependent variable of context, I coded articles for their focus on (a) interpersonal "who" variables (e.g., acknowledging student needs, prior knowledge, race, teacher immediacy, teacher personality, likeability, humor, etc.), (b) cognitive "what" variables (e.g., use of objectives), (c) psychomotor/physical "how" variables (e.g., directions, clarity, classroom management, discipline, etc.), (d) affective "why" variables (e.g., relevancy, interest approach, situational interest, student motivation, collaboration, etc.), and (e) and any other prominent variables of the study (e.g., teacher burn out, methods, general environment; see Table 2.02). I removed any studies that were qualitative in nature from the quantitative sample and moved them to the qualitative sample ($n = 13$). When studies either focused on teaching methods instead of learning—or were theoretical or speculative instead of using deductive qualitative or quantitative methods—I removed them or used them in the narrative review ($n = 9$).

I first organized studies by methodology and then by the variables they examined. I included 16 studies in the quantitative review. Of those, four focused on interpersonal who variables, six on psychomotor how, six on affective why, and I rejected two (i.e., some articles addressed more than one variable); no articles examined cognitive what within the quantitative sample of literature. I included four studies in the qualitative review. Of those, two focused on interpersonal who variables, one on psychomotor how, one on affective

why, and I rejected one article; no articles examined cognitive what within the qualitative sample of literature.

Additionally, I coded important study features including the publication year of the study, sample setting (e.g., high school, post-secondary, or elementary), important findings, design of the study, and the analysis methods of the study. Overall, there was a large sample size of participants (n = 81,059) across various countries and grade levels. The articles in the review that were meta-analyses included a total of 110 studies.

Quantitative Systematic-Style Review

I included 16 studies in the quantitative systematic-style review (see Table 3.01). The literature addressed a variety of variables relevant to the new context theoretical model developed during this study and provided important evidence for its various constructs. Studies within the who (interpersonal acknowledgements) construct examined student well-being and teacher immediacy, as well as the intersection of student race and discipline. Studies that examined variables within the how (psychomotor directions) construct primarily explored classroom management and discipline, as well as teacher clarity. Finally, studies within the why (affective relevancy) construct explored student motivation, situational interest, interest approaches, and student engagement.

Table 3.01
Quantitative Studies in the Systematic Review

Authors	Year	Construct	Variable
Aloe, Amo, & Shanahan	2013	How, Other	teacher burn out
Belaineh	2017	Other	environment
Dohn, Madsen, & Malte	2009	Why	situational interest
Gage, Scott, Hirn, & MacSuga-Gage	2018	How	classroom management
Haverila	2012	Why	motivation, collaboration
Johnston & Roberts	2011	Why	interest approach
Kennedy, Hirsch, Rodgers, Bruce, & Lloyd	2016	How	classroom management
Kim, Dar-Nimrod, & MacCann	2018	Who	teacher personality
Mitchell	1993	Why	situational interest
Rieser et al.	2016	Why	motivation
Schiefele	2017	How	classroom management
Titsworth, Mazer, Goodboy, Bolkan, & Myers	2015	How	teacher clarity
Van Petegem, Aelterman, Rosseel, & Creemers	2006	Who, Why	well-being, engagement
Witt, Wheeless, & Allen	2004	Who	immediacy: non-verbal
Young, Young, & Butler	2018	Who, How	race, discipline
Zhang	2011	How	teacher clarity

Quantitative research about who (interpersonal acknowledgment). It is crucial for teachers to consider the interpersonal needs of students. Witt, Wheeless, and Allen (2004) synthesized 81 studies (N = 24,474) on the relationship between teacher immediacy (e.g., body posture, pitch, tone, gestures, and positivity) and learning. They found "teacher immediacy has a substantial relationship with certain attitudes and perceptions of students in relation to their learning, but a modest relationship with cognitive learning performance" (Witt et al., 2004, p. 184). Researchers have also examined if teacher personality has an impact on student achievement; while they discovered that personality does not affect learning, it does impact teacher effectiveness and their relationship with students (Kim, Dar-Nimrod, & MacCann, 2018). Other researchers have found a connection between student wellbeing and their level of engagement in a classroom (Van Petegem, Aelterman, Rosseel, & Creemers, 2006). Young, Young, and Butler's (2018) meta-analysis of 29 studies on school discipline and race concluded the "odds of being disciplined if Black are

more than two and half times the odds of being disciplined if White" (p. 95). When a teacher considers the needs of students and forms a positive relationship with them, they can prevent management and discipline issues, and enhance student learning.

Quantitative research about how (psychomotor directions). Teacher clarity of directions, variability, and classroom management have a positive effect on student learning and prevent teacher burnout and attrition. In their meta-analysis of 16 studies that examined teacher classroom management self-efficacy, Aloe, Amo, and Shanahan (2013) found a significant negative relationship between classroom management self-efficacy and teacher burn out. Kennedy, Hirsch, Rodgers, Bruce, and Lloyd (2017) had similar findings. The researchers determined that teachers who use evidence-based classroom management practices are significantly more successful than teachers who do not, and they are more likely to stay in the profession. Kennedy et al. (2017) recommended teachers engage in professional development where they receive coaching and modeling for how to best use classroom management, much like such professional development as what participants experienced during the delta conference.

Teachers who are more confident in their ability to manage a classroom and address behavioral issues are less likely to experience burnout. In a study of 65 elementary schools and more than 1,200 teacher-student dyads, researchers concluded "students in classrooms with low rates of classroom management practices were statistically significantly less engaged in instruction" (Gage, Scott, Hirn, & MacSuga-Gage, 2017, p. 302).

Two different meta-analyses examined the relationship between teacher clarity (i.e., variability, enthusiasm, directions; Roshenshine & Furst, 1971) on cognitive and affective

learning, consisting of 200 effects (N = 86,782; Titsworth, Mazer, Goodboy, Bolkan, & Myers, 2015). The combined research of these two teams provided evidence for the effect of teacher clarity, which has a "larger effect for student affective learning than for cognitive learning" (i.e., 13% of the variance; Titsworth et al., 2015, p. 385), but was significant in both domains. Teacher clarity has clear and positive effects on learning.

These differences may not be consistent across all cultures. In a study of 200 students at a Chinese university, researchers determined:

> Teacher credibility and clarity [are] effective predictors of student affective learning in Chinese classrooms, but teacher immediacy is not. In addition, teacher credibility is more predictive of student affective learning than teacher clarity. Second, teacher credibility fully mediates the effects of teacher immediacy and clarity on student affective learning in Chinese classrooms. (Zhang, 2011)

These results do not necessarily outweigh the findings of the meta-analyses with much larger samples sizes and a synthesized effect size that controls for bias, but the study may point to cultural differences in who and the interpersonal needs of students. These differences suggest that the constructs of how and who within context may overlap and could be more important than participants in the study realized, as cultural and societal differences may moderate and influence how students learn.

Quantitative research about why (affective relevancy). Research on why and relevancy is not unanimous. Within School-Based Agricultural Education, Johnston and Roberts (2011) examined teachers' use of an interest approach, and to their surprise, found that there was "no difference in knowledge from the students who were exposed to interest approaches to those who were not" (p. 143). Context and relevancy did not have a direct

impact, at least within the scope of their study, on the result and student learning. While the researchers recommended the public interpret their findings with caution, specifically because students who "received" an interest approach in the study were more engaged throughout the lesson than were students who did not experience an interest approach. Their finding suggests there is a need to examine context and student engagement at a deeper level. The construct of why may need further research and theoretical exploration to ensure students experience an interest approach at a felt-need level (Phipps et al., 2008), compared to surface-level hooks like a joke or attention-getter.

Other researchers found student engagement and motivation had important implications for learning and education. Dohn, Madsen, and Malte (2009) examined student academic performance and engagement, specifically how the environment and contextual variables create situational interest. They concluded that interest and engagement are "largely under the control of faculty" (Dohn et al., 2009, p. 196). As a result of their mixed methods study combining surveys, observations, and interviews, they recommended teachers use humor, "ah-ha" experiences (e.g., interest approaches), meaningfulness (i.e., relevancy), and social involvement (i.e., who/interpersonal context) to enhance student learning. Mitchell (1993) created a theoretical model for situational interest; he determined meaningfulness, involvement, and group work approaches in a math classroom had the greatest correlation with situational interest. Situational motivation—such as a strong interest approach—can help students to learn.

Rieser et al. (2016) studied 53 German elementary schools, including more than 1,000 students, and found a connection between student motivation, supportive climate,

and learning. They did not find a connection between classroom management and motivation. They clarified,

> A possible explanation might be that an efficient classroom management [strategy] strengthens more extrinsic forms of autonomous motivation (e.g., identification or integration) but is unconnected to students' inherent enjoyment of learning itself or the topic which is characteristic of intrinsic motivation. (Rieser et al., 2016, p. 539)

Schiefele (2017) found the opposite, where in a study of 1,731 students in more than 100 classes, teacher expertise and interest in pedagogy (i.e., their desire to become better teachers) were predicators of classroom management, which had "strong effects on student motivation" (p. 115). Other researchers have found that motivation moderates the relationship between teaching and learning in online, e-learning experiences (Haverila, 2012). It is clear that motivation, interest, and engagement are complicated subjects to study, but the benefits may be worth the effort.

Quantitative research about other constructs related to context. Other factors such as the general classroom environment may also contribute to learning. Belaineh (2017) examined students' perceptions of their learning environment and the contextual conditions of the classroom, determining that students who had more positive perceptions of the learning environment also felt it was more conducive for learning and perceived it to support their learning achievement. Designing welcoming spaces that are well lit, inviting, and comfortable can positively contribute to learning as well.

Qualitative Systematic-Style Review

Four additional articles helped to explain the results of the multi-grounded theory study by using qualitative research methods to generate detailed and in-depth narratives of

student's experiences. To conduct the qualitative systematic-style review, I followed the same procedures of the quantitative review, using similar inclusion criteria and coding the findings of each article in a consistent procedure. Just like the early phases of meta-analysis as part of the quantitative systematic review, in a qualitative systematic review researchers "create data, or evidence tables, in order to tease out the differences in the results of different studies," (Green et al., 2006, p. 104; see Table 3.02) which results in less bias compared to a narrative review.

Table 3.02
Qualitative Studies in the Systematic Review

Authors	Year	Construct	Variable
Fredricks, Hofkens, Wang, Mortenson, & Scott	2018	Who, Why	engagement
Granito & Santana	2016	Other	environment
Oliver, Wehby, & Nelson	2015	How	classroom management
Perks, Orr, & Alomari	2016	Who, Other	perception/likeability, environment

Qualitative researchers in the reviewed studies were able to describe a lived experience of context and how classroom management, student engagement, and the environment of the educational space influenced student learning. To engage more female students in science and math, researchers in one study asked students how to best involve them in learning:

> Both boys and girls discussed how their engagement was higher in classrooms with more student-centered instructional practices and in classrooms with highly engaged peers. Girls were more likely to discuss teacher support and personally relevant instruction as being important to their engagement in math and science. In contrast, boys reported being more engaged in math and science when they were

> interested in pursuing a STEM-related career. (Fredricks, Hofkens, Wang, Mortenson, & Scott, 2017, p. 271)

During the second phase of their mixed methods study, they found "motivational and contextual factors were significantly related to engagement and had comparable effects for girls and boys" (Fredricks et al., 2017, p. 271).

In another study, Oliver, Wehby, and Nelson (2015) asked teachers about their ability to use classroom management strategies to support learning. They provided professional development to teachers on evidence-based management strategies and encouraged them to use a checklist to self-monitor their performance; they found by using this process, and with coaching, teachers were more successful.

Qualitative interviews were also useful to describe the impact of the classroom environment on teaching and learning. Researchers interviewed faculty and students at a midwestern college and concluded that the conditions of the classroom (i.e., work space, lighting of the room, temperature, clutter on the walls, arrangement and flexibility of the desks, and use of technology) were moderators of their learning experience (Granito & Santana, 2013). Faculty interviewed in their study shared,

> • If I have a student who is not prepared for college and we now place them in a room with no space and is too hot, then we really decrease the likelihood that they will be successful.
>
> • I see some older students who are not dumb but have not been to school in a number of years, and we put them in some of the bad conditions in the classrooms and it lowers their motivation.

> • For a kid who has ADD, too many distractions in the room could really cause them to fail in our classes. If they are dealing with noise and the room temperature, it is difficult to pay attention. (Granito & Santana, 2013, p. 5)

One student appropriately summarized the impact of the environment on their learning. "For me the learning space makes a difference because you can be a great teacher, but if I'm uncomfortable, then how am I going to learn?" (Granito & Santana, 2013, p. 5). Researchers in Canada spent three semesters redesigning a learning space to discover students preferred the classroom spaces where they had added technology, changed the color of the walls, and created a more open configuration of the classroom (Perks, Orr, & Al-Omari, 2016). While researchers in this study examined student perception of the environment, not the tangible relationship between environment and achievement—and student preferences does not necessarily mean better outcomes (e.g., students likely prefer not to study, but studying is generally beneficial)—it is useful to consider how students perceive their environment to impact their learning. Class sizes, technology, welcoming or unwelcoming classrooms, and even the temperature and lighting in a classroom space can either support learning or create barriers to it.

Summary

I used the qualitative systematic review to "claim, locate, evaluate, and defend [the] position" (Charmaz, 2006, p. 163) of my theory in relation to relevant theory and a sample of the body of literature. The combined quantitative and qualitative systematic reviews orientated the theory within the existing field and literature and grounded my findings.

Chapter Summary

The literature review within grounded theory research situates and positions the generated theory within the field of study. Within multi-grounded theory, extant literature becomes even more important as the researchers form the theory using both the empirical findings of the study and existing theories and literature.

Pivotal education research and literature grounded Reardon's original context-state-result model and enhances the new revised theory. Research provided evidence that teacher personality, teacher immediacy, and the relationship between the teacher and the student positively impact student learning (Kim et al., 2018; Van Petegem et al., 2006; Witt et al., 2004). It is important for teachers to acknowledge the unique interpersonal needs and experiences of students and their prior knowledge (i.e., who). Failing to do so has significant consequences for students, particularly underrepresented and historically oppressed populations (Young et al., 2018).

Educational objectives (Anderson & Krathwohl, 2001; Bloom, 1956; Dave, 1970; Fink, 2013; Harrow, 1972; Krathwohl et al., 1964; Simpson, 1972) support what (i.e., cognitive expectations) in the new model and provide guidance (Heinich et al., 2001; Mager, 1962) on how to prepare students for the learning process ahead.

Several meta-analyses provided evidence that teacher clarity moderates teaching and learning (Aloe et al., 2013; Gage et al., 2017; Titsworth et al., 2015). It is important for teachers to provide clear, consistent psychomotor directions (i.e., how) and use a rubric when appropriate to support transparency and so students understand what the teacher is expecting of them (Winkelmes, 2013). Teacher clarity can act as proactive classroom

management as well by setting norms and holding students accountable, rather than students attempting to guess at what acceptable and appropriate behavior is.

Interest approaches, hooks, and anticipatory sets (Hunter, 1982; Hunter, 2004; Newcomb et al., 2004; Phipps et al., 2008) support why (i.e., affective relevancy) and help to engage students in the learning process. Numerous studies found support for how student engagement, situational interest, and motivation can positively impact student learning (Rieser et al., 2016; Schiefele, 2017; cf. Johnston & Roberts, 2011).

Even environmental aspects like lighting and classroom arrangement influence student learning, or at least student perception of learning. The literature discussed in this chapter provided evidence and grounded the theory that context (including its four constructs of who, what, when, and why) contributes to the teaching and learning process.

CHAPTER IV

FINDINGS

In this study I explored both School-Based Agricultural Education formal instruction, as well as relevant non-formal settings in the United States, specifically those are that led by educators trained in the context-state-result model, developed by Reardon in 2000 (Sheehan & Moore, 2019a). The objectives of this study were to (a) develop a theory of context within the context-state-result model to better define the variables that influence teaching and learning and (b) revise the current context-state-result model to better explain the role of context within the model.

During data collection and analysis procedures, I used the six conceptual refinement questions recommended by Goldkuhl and Cronholm (2010) for use in a multi-grounded theory study; these questions provided structure and organization for the findings within this section. As a result of purposeful and theoretical sampling, theoretical condensation and integration, and theoretical grounding, four major themes emerged: (a) what is its origin (history) and where does it exist (ontology), (b) what is it (content) and what is its context (related phenomena), (c) what is its function (purpose and impact), and (d) how do we speak about it (language and labels for a new model). While these four categories sometimes overlap and may appear similar in many ways, it is an important aspect of conceptual refinement in multi-grounded theory to analyze the theory from divergent perspectives. Specifically, Concept 2 (context defined; what is it) and Concept 3 (purpose and experience of content) were similar. To maintain the richness of the data, I tried not to conflate the findings and retain the categories from conceptual refinement.

To help describe the emerging theory and best summarize the results, I reported the findings in an interpretative narrative or storyline format (Birks, Mills, Francis, & Chapman, 2009; Charmaz, 2006; Kenny & Fourie, 2015; Strauss & Corbin, 1990) so the findings of the study flowed naturally and were easy to read. Following each of the four themes, I presented a new substantive theory—grounded in both the data of the study and literature—to establish to a new model for context and the context-state-result model.

The history, origin, and evolution of the context-state-result model was the first theme within the findings of the study. Reardon originally created context-state-result in California following his work on *Quantum Teaching* (DePorter et al., 1999). Context-state-result became a key component of the National FFA Organization's delta professional development program for teachers in 2005. National FFA continued to use the context-state-result concept within their programs for state officers and student leadership development conferences long after they discontinued the delta program (i.e., 2007-2009). Staff at FFA adapted and modified the context-state-result model, adding new sub-concepts to context and dropping specific symbols in Reardon's original design.

The second major theme from the findings was a definition of context. Participants described context as environmental and a frame that surrounds the teaching and learning event. Context is proactive classroom management and "sets students up for success" by removing potential barriers. Participants also described context as an influencer of teaching and learning.

The purpose and experience of context was the third theme. Participants described context as a confusing topic, but one that becomes easier with practice. They shared that context makes teaching easier and the experience of learning more enjoyable. When a

teacher provides contextual information about the lesson and develops in students a sense of value of the content, students can focus and learn more easily.

The final theme of the study was language and concepts participants recommended we include in a new context-state-result model to better define context. The new model of context-state-result spirals and repeats itself (but cannot be entered in at any point), includes a variable for error, and positions context as a moderator between state (content and methods) and result (learning). Participants described four factors that surround the teaching and learning experience and provide students with the contextual resources they require to appropriately interpret content: "who" the students are (i.e., interpersonal/social acknowledgement), "what" content they are supposed to learn/objectives they should master (i.e., cognitive expectations), "how" they are supposed to complete the learning activity (i.e., psychomotor/physical directions; as well as "when" and "where" is the learning going to take place), and "why" the content matters to the students/WIIFM? (i.e., affective relevancy).

Concept One: Origin of Context-State-Result

The first major theme I analyzed as a result of interviews was differences in the context-state-result model and its origin. While previous research attempted to historically situate the model and determine its original author (Sheehan & Moore, 2019a), the results of this dissertation added substantially more detail to the origin and history of context, and how the context-state-result model evolved throughout its use during the delta conference program and adoption at the National FFA Organization, as well as by subsequent FFA state associations. In this section, I broke down participants' perceptions of Reardon's

original context-state-result model, followed by two versions of the model from its implementation at the National FFA Organization and the California FFA Association.

Original Context-State-Result Model

While most participants were more familiar with the later version of the context-state-result model—adapted at National FFA (i.e., READ; addressed later in this section)—some participants had been taught context-state-result from Reardon himself using his original model. It is important to examine the original model to discover its intent and design. By exploring the model, I was able to determine which aspects of the original model were lost, but still had value and should earn their way into a new model. Participant descriptions of the original model were helpful to describe how context-state-result changed during the last 15–20 years and which components of the model participants viewed as most important or valuable.

Maryann confirmed that concepts which bear a slight resemblance to those of the original context-state-result model appeared in *Quantum Teaching* (DePorter et al., 1999), even though his model, the context-state-result labels, and the square, triangle, and circle shapes were not explicitly referenced (Sheehan & Moore 2019). While the exact terms of "context," "state," and "result" are not in the book, it is logical to extrapolate how Reardon might have built upon his original quantum teaching design frame (DePorter et al., 1999; see Figure 4.01) to create the context-state-result model.

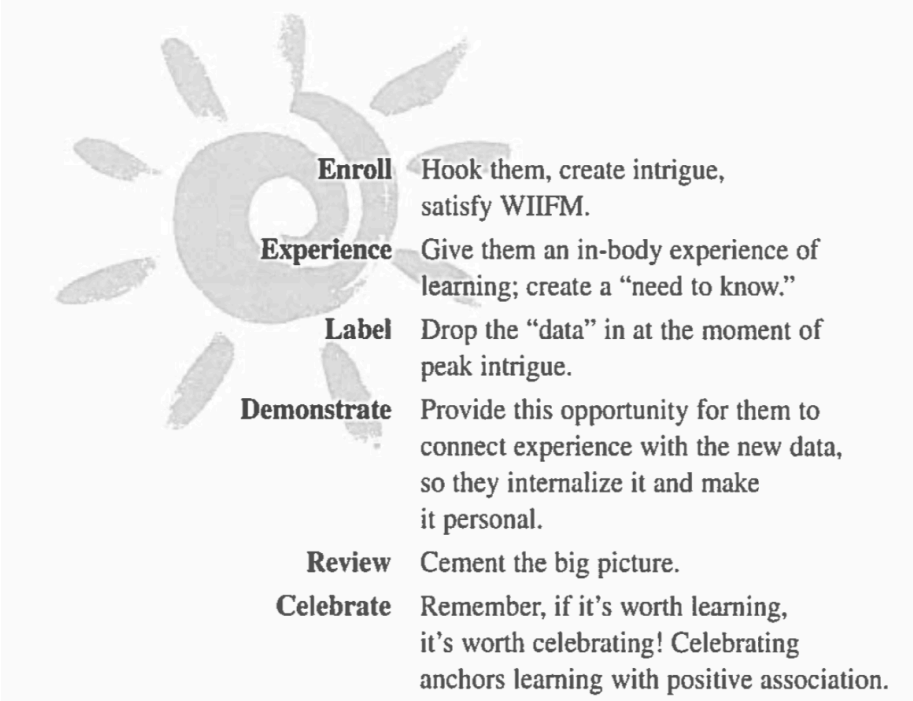


Figure 4.01. Quantum teaching design frame. Reprinted from "Quantum teaching: Orchestrating student success," by B. DePorter, M. Reardon, and S. Singer-Nourie, 1999, Boston, MA: Allyn & Bacon, p. 88. Reprinted with permission.

The concept of enroll to "hook them, create intrigue, satisfy WIIFM [what's in it for me]," (DePorter et al., 1999, p. 89) aligned with aspects of context, but did not completely capture elements of environment, directions, or acknowledging the student's needs—though some of these concepts appear in other places through the book. Experience and label (i.e., "experience before label;" DePorter et al., 1999, p. 89) connected with state and state changes, specifically when aligned with Kolb's (1984) experiential learning model. Demonstrate was like an application activity, either as a part of the method or component of review. Finally, the review and celebrate labels were direct links to result in Reardon's context-state-result model. Participants often described how Reardon would say "if it's worth learning, it's worth celebrating" (DePorter et al., 1999, p. 88); National FFA continued to use this language and the concept of celebrate when teaching context-state-

result. The framework was also like Hunter's (1982) mastery teaching framework, specifically building upon the concepts of anticipatory sets and hooks, as confirmed by Reardon himself (Sheehan & Moore, 2019a). The major difference between the quantum teaching design frame (DePorter et al., 1999) and context-state-result (Reardon, 2000; Sheehan & Moore, 2019a) was context was expanded upon considerably in context-state-result, placing far more emphasis on the environment and the communication of expectations to students.

Most participants who knew of the original context-state-result model had learned the concept at a delta conference. Reardon and staff at National FFA developed delta around 2005 as an advanced professional development training for School-Based Agricultural Education teachers. One participant shared how they were part of the original team to develop the delta conference program.

> I was first introduced to it when I was working with the National FFA Organization. There were a bunch of us that would get together periodically to not only develop teacher resources, but also teacher training efforts. And somewhere along the way we thought that it would be really beneficial to provide some advanced teaching methods opportunities. It may have stemmed from the fact that one of the folks that were in this little task force had seen Mark Reardon present and was really impressed with his approach and his content. And so we're thinking, how can we expose agriculture teachers to his training? … So we developed this teacher training program called delta and he was the facilitator of the entire program. And so, we did that on a national level through FFA for a couple of years. It probably was a resource limitation where we stopped.

Delta continued at National FFA for several years before they discontinued it due to limited resources and their inability to identify immediately measurable results (Sheehan & Moore, 2019a). One participant in this study felt staff at the National FFA Organization eliminated the delta program due to leadership and vision challenges. They shared some staff wanted to profit from the event, while others thought the delta conference should focus on serving teachers and the profession. They commented this was also around the time that National FFA created the LifeKnowledge curriculum. At least five states—specifically those close to Reardon's home state of California—continue to operate the delta conference independently by contracting directly with Reardon himself, as FFA no longer operated the program.

Reardon introduced the original context-state-result model during the delta program as a framework to simplify the teaching and learning process (see Figure 4.02). Numerous participants in this study who had attended delta shared it changed how they thought of their jobs as teachers, causing them to place more emphasis on students and variables in the classroom they had never considered before (e.g., the environment, tone, pace, music, directions.). Reardon shared his model begins with result—or starting with the end in mind. Those participants who attended the delta conference said he would describe result as knowing the cognitive, affective, and psychomotor educational learning objectives (Anderson & Krathwohl, 2001; Bloom, 1956; Dave, 1970; Fink, 2013; Harrow, 1972; Krathwohl et. al, 1964; Simpson, 1972) of the lesson. State was about creating a change in how students think, feel, or do/perform about specific content using methods that target the cognitive, affective, or psychomotor domains, based on what the objective of the lesson was. Context was a concept unlike anything most teachers were familiar with.

Reardon would describe context as something that "sets up" the state change. It gets student's minds (i.e., thinking and feeling) and bodies ready for the content by sharing expectations, considering their prior knowledge, and using appropriate music, voice/tone, and body language.

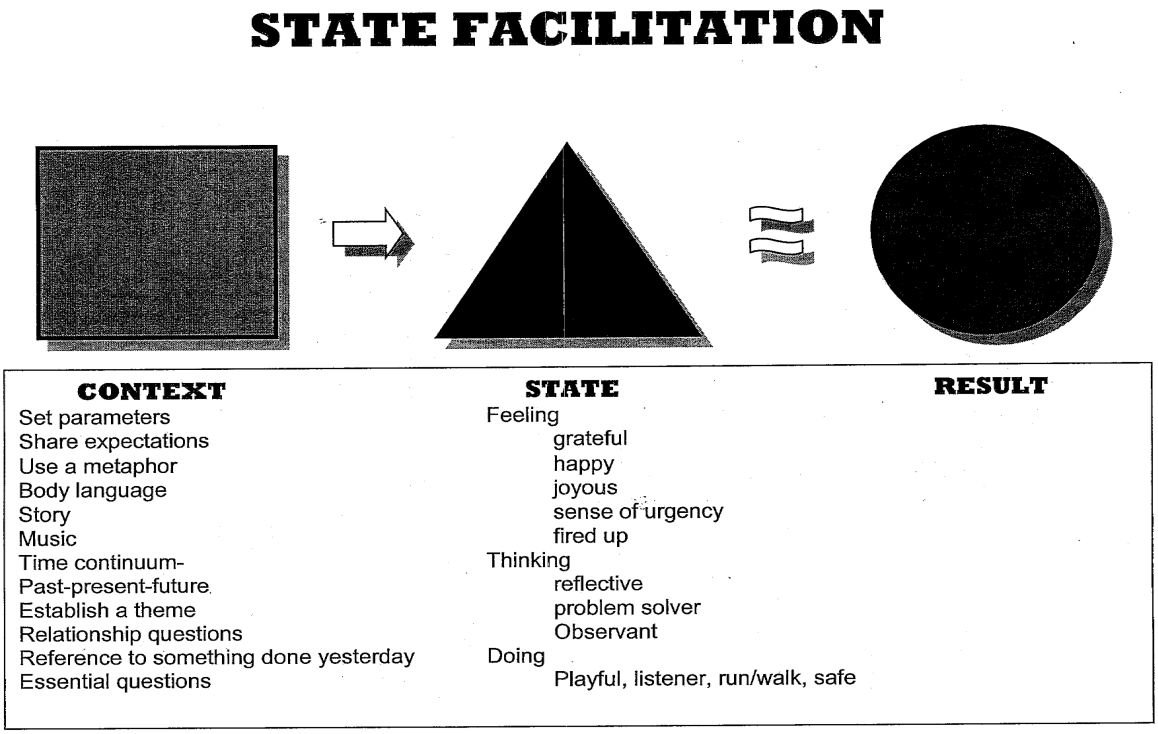


Figure 4.02. Reardon's original Context-State-Result model. Copyright Mark Reardon, Centre Pointe Education, Inc., 2007. Reprinted with permission.

A prominent finding to emerge about the original context-state-result model was the importance of the shapes: a square (i.e., frame) symbolizing context, a triangle (i.e., delta) representing a state change, and a circle (target/bullseye) representing result. Participants said the shapes in context-state-result were useful and helped them to visualize the concepts and remember them long term. Some participants originally struggled to

recall the relationship between context, state, and result, but described the shapes and the equation, later making the full connection as they talked through it aloud.

While the national conference sponsored by FFA and Reardon's formal involvement with National FFA ended, his model and the concepts lived on. The National FFA Organization had integrated context-state-result into training programs for students and FFA state officers where National FFA continued to use these concepts even years later.

READ Model at National FFA

The National FFA Organization expanded the context-state-result model following its introduction to School-Based Agricultural Education at the delta conference. National FFA used the model to train FFA state officers and conference facilitators. At some point between its introduction at the delta conference and modern use, FFA adapted the context variable in the model to have sub-labels using the acronym READ (see Figure 4.03).

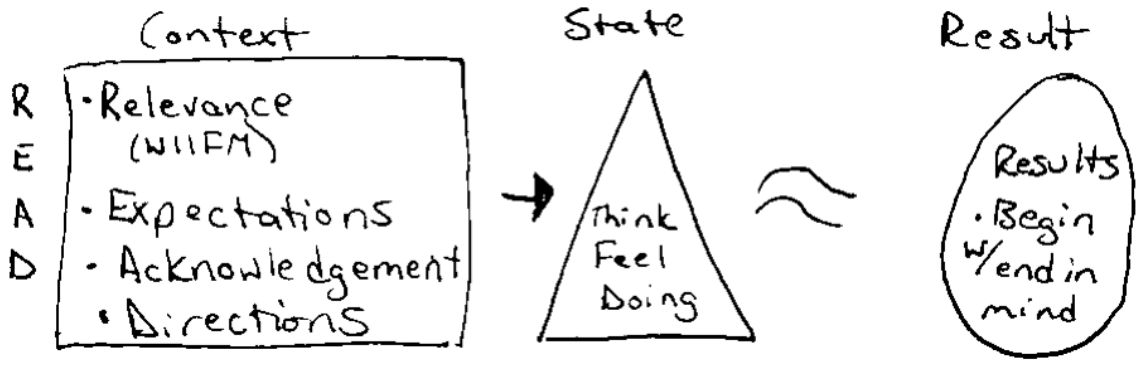


Figure 4.03. National FFA's READ Context-State-Result model, version 1. From the notes of a former National FFA officer. Copyright Mark Reardon. Reprinted with permission.

Participants frequently referenced the READ version of the model to describe context, but also felt the labels were confusing and interchangeable, and shared that those new to the concept often struggle to remember them.

Within National FFA's version of the model, READ stands for "relevancy," "expectations," "acknowledgement," and "directions." David remembered it as, "if we set context, students should be able to 'READ' the content." Alexa described context within the READ model as,

> Getting all of our students on the same page, creating some relevancy for them, providing clear expectations, and setting them up with any directions that they'll need, but then also finding ways to acknowledge them for what they're doing/achieving in that work.

Expectations and directions were frequently blended by participants. Most described it as the expectations and directions for the physical activity (e.g., wear safety glasses, take out a pencil). Some described directions as psychomotor and physical, differentiating the expectations as the objectives or learning outcomes of the activity. They thought of expectations as being certain that students are cognitively aware of the learning objectives. In Reardon's original model, he described expectations and directions as establishing a frame, setting parameters, and sharing expectations.

Relevancy involves creating interest and posing an essential question. Participants frequently cited the WIIFM phrase. Some participants shared how students are constantly wondering "what's in it for me?" Often asking how does this content apply to their life and why do they need to know this? Participants shared that they create relevancy through an interest approach, hook, anticipatory set, or even an attention-getter like a joke. Reardon

and the framework from *Quantum Teaching* (DePorter et al., 1999) described an enrollment or relevancy activity as something that creates a "need to know" (DePorter et al., 1999, p. 88) moment of curiosity. Phipps et al. (2008) described an ideal anticipatory set as one that creates a felt-need.

Wesley said he felt most teachers do not create relevancy for their students. He described relevancy as an important concept but one that teachers often forget because it is dynamic. What creates interest for one class may not work in another because the students have changed.

> Most teachers don't do the relevance piece; and maybe even the expectations. I think some will do just directions or some will do expectations. I would say relevance is probably the weakest of the three because it requires, again, knowing those students, having some sort of relationship with that class where you can engage and feel them and being super present with them. That's probably the hardest part for a lot because it's dynamic, not static.

Acknowledgement is potentially the most complex aspect of the READ model. Participants described acknowledgement as the process of considering the unique needs of the students. Alexa described it earlier as recognizing the work students are about to do as challenging. Others shared that they viewed acknowledgement as considering student's prior knowledge. Some felt it was thinking about the complex issues that students are dealing with to create a space appropriate for learning. Reardon's original model did not include acknowledgment, but he did recommend considering the relationship between the student and the teacher and referencing to something done yesterday (i.e., prior knowledge).

Several participants described acknowledgement as different that the other three concepts. Those who did not learn the READ version—originally having learned context-state-result from Reardon—thought relevancy, expectations, and directions connected well to one another, but acknowledgement was different than the other concepts. Larry reflected, "the biggest hang up in the READ model was the acknowledgement piece." Rachel held similar beliefs, "I think what is most often forgotten—and maybe that's why I talked about it so much—is acknowledging what the students know—so like their prior knowledge and their experiences."

Eventually, the READ model was adapted by FFA once again (see Figure 4.04). A few participants thought that because Reardon was no longer working with National FFA, those not directly trained by him were less familiar with the model. As time went on, staff made adjustments and changes based on their own understanding of context-state-result. The READ version of the model became the most widely adopted and recognized version of context-state-result and is the version most participants in this study were familiar with.

More than 75% of the participants in this study described the READ model as confusing; this was one of the most frequently discussed topics in the study. While David liked National FFA's READ model of context—specifically because it puts the focus on student needs—he felt it was confusing. He had spent time training state officers in National FFA's Base Camp and Checkpoint development conferences (formerly BLAST Off and NLCSO), and shared that students often forget components of context-state-result, specifically within READ. "Context is so hard for state officers to grasp... I wish there was an easier way." Glenn's views were similar. Glenn was a teacher, but also a former officer.

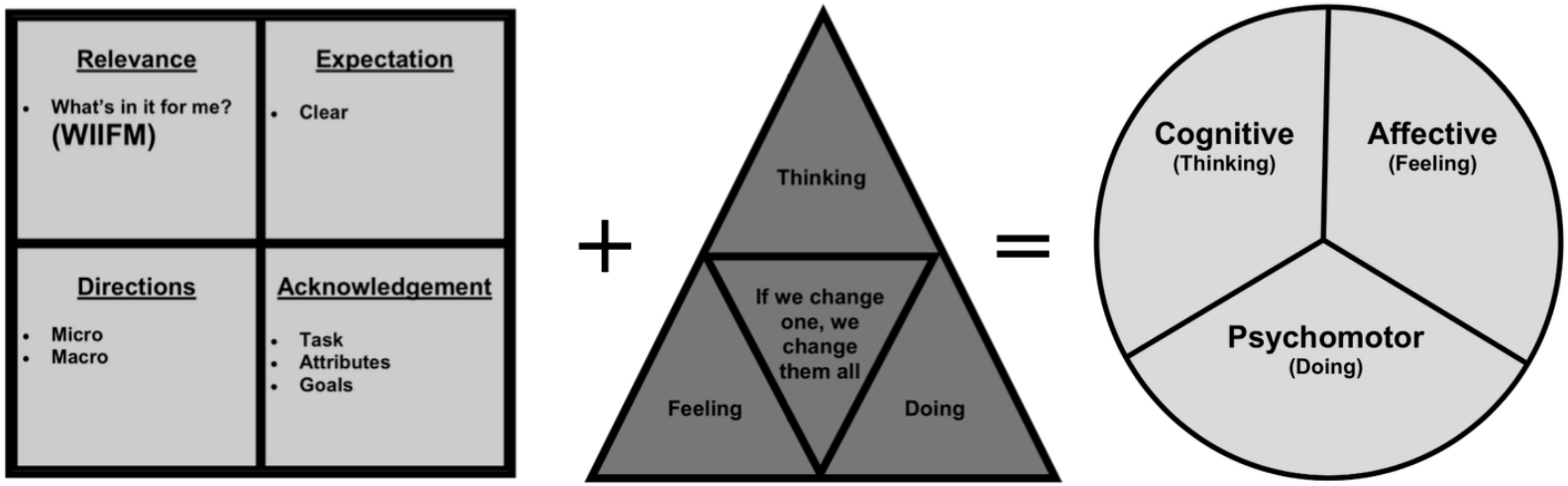


Figure 4.04. National FFA's READ Context-State-Result model, version 2. Copyright Mark Reardon. Reprinted with permission.

It took him hearing the context-state-result model several times in general, and going through more than one training, to fully understand and catch on to the concepts. He learned context-state-result prior to the READ model's development. Glenn thought READ helped to describe the various aspects of the context-state-result, but it did not necessarily make it any less confusing for others to understand. Glenn reflected,

> I'm describing it as somewhat vague because there's so many concepts that kind of build off of context-state-result. And you can take so many rabbit trails into breaking [context] down that it can be confusing or jumbled. But I think that the [context-state-result] framework or concept is as relevant today as it ever was.

Holly has used context-state-result as both a former FFA state and national officer. She has gone through training on context-state-result several times and still struggled to remember what each of the specific READ labels stood for. She could clearly remember the overarching concept of context and how important it is to use when teaching, as well as how to use it in practice, but felt the labels in READ were difficult to remember. Holly reflected, "I really don't remember. I think if I'm being completely honest... I know context's end results. I just don't remember the four pieces [of READ]." Holly described her understanding of the model, even though it was hard for her to remember the READ labels,

> Well, I do remember the idea. The idea is you want [students] to understand what's about to happen and why it's important for them to notice these things. So, for example, if I would give a direction set, [I would say] 'Hey, this is how we're going to be doing this, this is why we're doing it, and this is how it's tied or connected to what we're learning.'

Participants in this study felt the READ version of the context-state-result model was useful, but confusing. Most participants described context using the relevancy, expectations, acknowledgement, and directions labels, but often their interpretation of each label's meaning was different. Others would forget a label, especially acknowledgement, or could not remember the labels at all. Several participants described situations where FFA state officers and those new to context would struggle with READ. Participants recommended someone create new labels to define context that are easier to understand and apply, and to describe to others when teaching context-state-result.

Summary

Participants described various versions of the context-state-result model. Reardon's model did not include sub-concepts within context, but he did provide examples of what context included. National FFA adapted Reardon's model and developed concepts within context: relevancy, expectations, acknowledgment, and directions (i.e., READ).

Concept Two: Context Defined; What is it?

The second major concept of the findings was a definitive definition of context within the model. There was a clear difference between those who were trained by Reardon or had learned about context-state-result at the original delta conferences compared to those trained by FFA or with knowledge of the READ version of the context-state-result model. Those who learned the model earlier tended to think of context solely as a precursor to preparing a mental, emotional, or physical state/state changes (e.g., your voice, tone, pace, music) for learning. Participants who learned a later version of the model (i.e., READ) usually thought of context more holistically (e.g., everything speaks). Deeper questioning and active interviews revealed most participants were describing the same

concepts and similar experiences, but approaching them from differing perspectives (i.e., two sides of the same coin). Common themes within the definition of context were addressed in this section of the paper, including (a) context as a frame around content, (b) environmental aspects of the term, (c) context's ability to act as an influencer of teaching and learning, (d) the construct as a tool to "set students up for success," (e) how good context acts as proactive classroom management, and (f) the relationship between context and the other two components of the context-state-result model: state and result.

Context as a Frame: The Prime Directive

In both the original context-state-result model developed by Reardon and the READ version of context-state-result from National FFA, a square or a frame symbolized the concept of context.

> I always think of a frame and it reminds me of how we are going to frame their learning and frame expectations and directions and acknowledge them throughout their time of learning. (Alexa)

This symbol is powerful and often came to mind when most participants defined or attempted to describe context. Holly—a former FFA state/national officer who had been trained in context-state-result several times—was not able to remember all parts of the model verbatim but could still remember the square/frame concept. "I remember in the past that there was a frame, like there was a square and there's different things that were inside that square."

Noelle's analogy for context was helpful to connect the term with the symbol of a square and construct of a frame,

> Your context is a picture in a picture frame. If that's the target that you're going for, you can put a different frame around the same picture and get a different vibe off of it every time, but the content in the middle is still the same, the picture is still the same.

If content is the picture, then context is frame around it. Noelle illustrated how a different "frame" around the lesson can create an entirely different result, just like a different frame can change how a person who is viewing a picture will receive it. The exact same lesson taught by two different teachers, even if they use the same methods and approaches, will feel different, because they have a different relationship with students. The same lesson taught by the same teacher, but at contrasting times of the day or in a different classroom, will change. The content, and even the methods, may be the same, but the context has changed.

In describing the frame of context, several participants recalled the concept of the prime directive. Reardon created the prime directive, but the National FFA Organization has long used it to explain the process of creating (i.e., setting) context, specifically to invite students into a common space (see Figure 4.05).

When participants described the classroom/learning environment as a mental, emotional, and physical space, they often labeled context as the frame or boundaries of that environment. Teachers and teacher educators in the study described students as having thousands of things going on in their lives (e.g., family issues, hunger, sports/activities, friends, significant others, health), and when they enter a classroom, many teachers expect them to magically be ready to learn. That is often not the reality.

So how are we creating an environment that helps them kind of leave that garbage at the door so that they're thinking about what they need to be thinking about, or feeling comfortable and safe and cared for so that they can be open and receptive to the knowledge or skills that you're trying to teach them? (Larry)

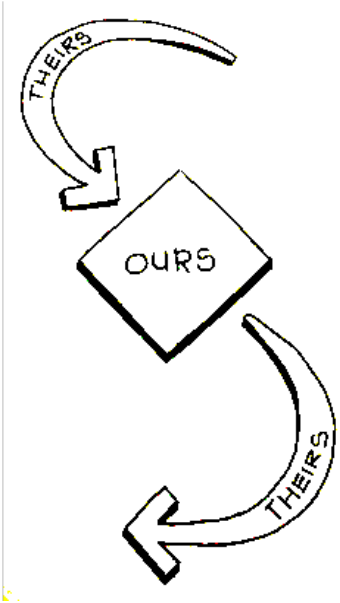


Figure 4.05. Theirs to ours, ours to theirs (aka prime directive). Reprinted from "Quantum teaching: Orchestrating student success," by B. DePorter, M. Reardon, and S. Singer-Nourie, 1999, Boston, MA: Allyn & Bacon, p. 6. Reprinted with permission.

Participants shared how when students enter the classroom or frame/environment, the teacher needs to create a common space by establishing interest, providing clear expectations for behavior, outlining the purpose and desired outcomes/objectives of the lesson, and relating to their students; by doing so, the teacher moves students from a "their" perspective to a common, shared, "our" perspective where learning happens together (i.e., the prime directive). Noelle explained, "where we are, where we've been in light of where we're going, and how we're doing it right now that is going to get us there."

The teacher makes adjustments along the way to context to maintain interest, expectations, etc., and finally closes out context as students leave the lesson and classroom space, applying the content to their lives long term. Most participants described context as something that happens at both a macro level, as well as a micro level, where the teacher makes adjustments along the way. Alexa described how she sets context "big picture" to create the shared environment/frame, but then does not need to address all aspects of context during the lesson, instead making formative adjustments as needed. "As time went on, I understood that when I'm giving context, it's not necessary to have all four components [of the READ model] at once, every single time. But it's more of a golden thread that's interweaved." This process of "theirs to ours to theirs" as the prime directive, as Larry put it, is the "golden thread that goes throughout the entire learning experience" to create the ideal learning environment.

Environmental Context

One of the more prominent definitions or concepts to emerge when participants discussed context was the word "environment." Participants would often describe context as being everywhere and everything; as something more than just teaching and content. Larry described context as everything a teacher says or does to create the environment, including anything from the music, lighting, and visuals to the tone, pace, and speed of their voice. Maryann also felt similar, sharing that to her context is everything that is not content (i.e., state changes), including the emotional and physical space. Larry and Maryann—who first learned about context-state-result at a delta conference—tended to describe context more as a tool to create a student's mental, emotional, or physical state for learning. For example, soft, calming music can prepare students for a reflective, affective

learning lesson, while upbeat, fast music will create excitement and prepare students for a high energy, psychomotor activity. Many participants who learned context-state-result during its early years tended to first discuss context as an influencer of state from a perspective of the learner, more so than others who focused on its influence on teaching.

Scarlett described context as "any environmental factor that is teacher facilitated," for example, the seating chart, surroundings and materials on the walls, directions, economy and use of language (i.e., inclusive language "we" language v. "I, me, or you" language; concise directions), objectives, etc. Glenn felt similar. "I would describe context as everything. The simple answer is [context is] everything in a student's environment that has an effect on their state. Everything." Scarlett and Glenn—a teacher educator and teacher, respectively—viewed context first through a lens of teaching and methods. They recognized that the environment of the classroom and teaching has a direct impact on students and the educator's ability to teach. How the teacher arranges the room, sets up supplies, and provides directions will impact their ability to teach, which in turn impacts learning. Glenn further shared, "we can break down context into 'everything speaks, everything, all the time.' And then if you take that concept, there's so many sub-concepts of that." The concept of "everything speaks" comes from *Quantum Teaching* (DePorter et al., 1999, p. 20), which contains many original ideas from the context-state-result model. Many participants described sub-concepts of context and preparing the environment, using language and examples from National FFA's READ model.

Doug took a "holistic approach" to context and context-state-result, stating context is "anything a teacher does to get to learning." David—a former FFA officer and current teacher—felt similar. "Context influences everything... every piece of our content. And, so,

whether we [do] it intentionally [or not], we're always setting some sort of context" (David). Doug and David both explained how the environment is always there; the concept of context is simply whether the teacher is actively influencing it. They felt that because of the very relationship between the teacher and the student—including the authority that comes with it—the teacher is always setting some form of context (e.g., providing directions and expectations for students). Once teachers become aware of this and begin to take control of environmental context, they can recognize how context can act as an influencer of teaching and learning.

Context as an Influencer

The theme of defining context as an influencer of teaching and learning (i.e., context makes learning and teaching easier or harder) was prominent throughout the findings with more than 75% of participants addressing it in their interview. They shared that once teachers become aware of the value of context, it is as if a light bulb goes off. Morgan—a state/national supervisor of agricultural education and former teacher—shared,

> I taught [15–24] years prior to delta and I thought I was pretty good, but I wasn't. I became much better because of my experience being involved with the delta conference, putting more value on context and value on the way students learn.

Learning about context was a life changing moment for Morgan. He had previously spent most of his time thinking about his teaching efforts, not focusing enough on if students were learning and what he could do to better support them. For Morgan, the delta conference introduced him to the concept of context. The context-state-result model—first introduced publicly during the delta conference program—proposed that contextual variables, like those in the environment, contribute to learning and teaching. Context

makes it easier for a student to learn because the teacher is actively removing barriers and adding support structures. David would agree, "Context really influences how well the content is received." When a teacher is cognizant of context, they act as a facilitator (i.e., "someone who helps to make something happen, or who makes it easier;" Cambridge English Dictionary, 2019) of learning for students.

Doug had a profound realization during the interview that if context is truly an influencer, both positively and negatively, of teaching and learning, then context is always present and always having an impact. He shared,

> [Have] you [ever wondered] why kids with good grades can learn from poor teachers? Because they set their own context, right? They say, I need to know this 'because.' I'm going to figure this out; I'm going to ask questions; I'm going to read the book... because I don't get it from the teacher.

Doug hypothesized teachers can either positively or negatively impact student learning through environmental context. Good directions help students learn, while the lack of directions make it more challenging and confusing to participate in class. Teachers concerned with context look for ways to streamline a lab or activity and ensure students have all the tools they need to be successful. The teacher has organized all materials students need for the lab and removed anything they do not. Errors and mistakes happen when teachers are not aware of the context. A good, relevant, interest approach or hook at the beginning of class facilitates students' ability to learn; the lack of an interest approach leaves students to wonder why the lesson is happening and how it applies to their lives. Doug added, "either the teacher is going to facilitate state [and set context] or the student sets it." It is still possible for students to learn when the teacher does not extrinsically set

context or is unaware of environmental influencers, but then context must happen intrinsically for students where they find their own motivation and ask questions, because the teacher is not doing this for them.

Larry's comments were in line with many of Doug's beliefs. Larry felt mediocre teachers never, or rarely, think about context and often do not do a decent job of creating a positive learning environment for students, which leaves students to do the work themselves. He felt students may still learn in these environments, but it is harder for them than it needs to be. "I don't know that you can't have learning [without the teacher setting context], but I think it just makes learning so much easier when it's done well" (Larry).

Noelle shared a story of a time when she was traveling to visit FFA members in a different state and her context had a negative impact. She told a joke, but instead of causing the room to laugh, she offended many of the people in the audience. Rather than gaining interest and hooking her audience, students were now shutting her out and not paying attention to her message. Poor directions, distractions in the room, an off-topic interest approach, or not knowing your audience and their needs can negatively influence learning and teaching.

Good context then becomes a way to enhance teaching and learning. Educators "facilitate" (i.e., make easy) the learning process by providing a powerful hook to establish relevancy, clear and consistently communicated directions and expectations for behavior and an activity, acknowledgement of student's unique needs, and defined learning objectives that are understood by both the teacher and the learner. Scarlet felt that context having an influence on learning was one of the most important aspects of the model. She

shared that context-state-result is meant for all students, not just those who can set their own context. It affords all students with the tools they need and sets them up for success.

Context Sets Students Up for Success

About half of the participants in this study used the phrase "setting students up for success" during interviews. Educators, specifically Rachel, Wesley, Alexa, Glenn, and Holly, viewed context as a roadmap or onboarding process for the lesson to help students learn most effectively.

Early in her interview, Holly shared "when you give the context, you set students up for success." Rachel—a former teacher, and current teacher educator—shared she describes context as getting students ready to learn. Alexa has had experience in both formal and non-formal educational spaces and found context valuable in both. "I think this is just our opportunity as an educator or facilitator to set up a student for the environment they're about to go into for learning or for their state change." Wesley—a teacher—felt it is crucial to think of context as "relationship driven." He further added, "Anytime a student walks into a classroom, they want to figure out the parameters in which to be successful." The clearer an educator can make those parameters for students, then the more successful students can be.

Alexa, who now trains FFA state officers as a state/national agricultural education supervisor, likes to view context as an "onboarding" or orientation process.

> I heard an analogy from one of our state officers that I thought was really neat about context. He explained it as: before anyone goes on a cruise, everyone has to go up this ramp and it takes them up to enter onto the boats or the cruise ship. I have people coming to me from all different walks of life, all different backgrounds

> … feelings, what they're thinking in that moment. And it's my job as a facilitator to help guide them up that ramp to the end. To get everyone on the same page as they enter the boat. Or like physically lift them up on that ramp and help frame the way they think. So even if a teacher doesn't do it or make a point to do it in their class, it's going to happen either way. But if we're able to help control what that looks like for a student and help bring them to that—to the way they should be thinking, feeling or doing—I think it'll help aid the teacher a lot more.

She expanded on the officer's original analogy to share an example of what it feels like to experience context. Many people are familiar with the process of boarding a plane or ship. The travel company has posted clear rules at security about what passengers can bring aboard the ship and what they cannot. Staff are available to help guests go through security. Staff make announcements about the order everyone is to board the ship in. Information about the trip is available on monitors, the ticket, and applications on their cell phones. Without these resources, boarding the plane or ship would still happen, but it would be far more chaotic. In many ways, these procedures ensure the safety of guests and staff while traveling and create a more consistent and positive experience. While the process of going through security and boarding a plane is inherently stressful, it is easy to see how staff have made efforts to facilitate the process—to set passengers up for success and make boarding as easy as possible.

Glenn attributed his focus on context as a major reason his students were successful in his classes when he was teaching. "It was the context-state-result model that got [students] excited about learning again." Glenn felt context-state-result allowed his students to "score a little higher [on tests]" and "have some confidence in themselves and

then look forward" to future lessons. When teachers focus on the contextual conditions of their classroom and the environment, they become hyper-aware of what actions they can take and barriers they can remove to help students be as successful as possible.

Context as Proactive Classroom Management

When done well, context facilitates the learning environment to such a degree that behavior and discipline issues are uncommon; context becomes proactive classroom management. About half of the participants I interviewed in the study described context as a strategy to prevent student behavioral issues and address conflict before it requires discipline.

Doug shared a personal favorite quote of his, "if [students] don't understand what [they are] supposed to be doing, [they] might just engage in something [they are] not supposed to be doing." He believed clear relevancy and expectations frame the experience for students so that they know what is appropriate, as well as what behavior the teacher will not allow. Several participants described how students have a desire to know where the line is and the boundaries of what is acceptable in the learning environment. For example, Wesley shared, "I never had management problems in my classes because I could adjust [my context] based on my continuous, ongoing assessment of the state."

By communicating the rules and procedures, educators do not leave students to guess and form their own assumptions about appropriateness of behavior. Participants believed too often teachers expect students to know how to act or what to be working on, but they do not always appropriately communicate those expectations to their students. When educators provide context, there is less of an opportunity for inappropriate behavior.

Maryann initially disagreed that context and classroom management were the same thing. After thinking through it aloud, she came to the realization that they have more in common than she had previously ever considered. After talking through her thoughts, she shared,

> Maybe all of this really is just classroom management. If I have good context, I don't really need [classroom management], because managing a classroom is probably just setting the context [expectations, directions, norms, culture, etc.] … If you're doing a good job of it, you need less management. (Maryann)

Maryann eventually concluded that context is a useful tool to prevent potential problems. By setting clear expectations, students are less likely to behave in an inappropriate manner.

Context involves considering the needs of the student over those of the teacher and their methods. It puts the focus on how well the teacher has communicated directions and expectations. Several participants felt that if classroom management issues arise, it is probably because they missed a step in their norms/rules, directions for the activity, creating appropriate interest/engagement, or that they failed to consider the unique needs of all students. Many of the state supervisors and teacher educators noted it is also important for those who are learning about context and context-state-result to consider that classroom management and contextual skills take practice and time to develop. Veteran teachers still struggle with management issues; the unique needs of students and teaching methods are constantly evolving. It will often take time for a novice teacher to develop their ability to manage a classroom, but context can be a useful concept to proactively address the behavioral and emotional needs of students.

Definition of State within Context-State-Result, Relationship with Context

In describing context, participants naturally discussed its relationship with other variables in the context-state-result model. When participants would share their thoughts about state and state changes, they often referenced the three domains of learning (i.e., cognitive/thinking, affective/feeling, and psychomotor/doing). Larry responded to a question about the relationship between context and state by saying, "it was always taught to me that all learning is state dependent."

Within the context-state-result model, learning is a change in behavior, specifically in one (or more) of the three domains (i.e., cognitive, affective, and psychomotor). Larry shared, "I've heard learning defined as a permanent change in behavior due to experience." That experience that students have must cause them to think, feel, or act differently than before the experience for learning to have occurred. Hannah described how if you create a change in one domain, it influences the other domains as well. Wesley added, that it was his opinion, "the better context you set—and the more you have—the more likely [students] are to be in the state to achieve the results, the easier your job ends up being on the back end." We can thus define context as an influencer of a teacher's ability to use instructional strategies to give students a meaningful experience that changes their state and how they think, feel, or act relevant to specific content, and as a result, learning.

Wesley also felt good context makes teaching and the efforts of the teacher to create learning for students easier and more fun. He shared,

> It's fun, you know, and you start to get good at it. It's really enjoyable. But if you don't put your heart and soul into that at first and really get your head around it [context], I think the likelihood of them being in this state—[the state] they need to

> be in to learn—is thinner. And at that point you're just beating your head against a wall. Who wants to do that day after day?

Wesley described context-state-result as a process to make teaching more enjoyable and effective. Rather than being frustrated by lessons that did not go as planned or methods that were unsuccessful, he felt he could better control the outcome by connecting it back to context. Several participants shared when there was a mistake or problem in their lesson—something simply did not go how they thought it would go (e.g., behavior issues, a lab went off the tracks, students researched the wrong content, etc.)—it was often due to a mistake in context.

Definition of Result within Context-State-Result, Relationship with Context

Finally, participants connected context with result within the context-state-result model. Participants—specifically Scarlett, Glenn, Alexa, David, Doug, Hannah, Larry, Noelle, and Wesley—frequently indicated that result is about "beginning with the end in mind." This often involves having a clear plan for the objectives of the lesson and using summative and formative assessment along the way to get there. Noelle described beginning with the end in mind as having a roadmap,

> I think it's really difficult to go somewhere without having a roadmap, right? We can just drive somewhere and expect to get there, and you might, but if you don't have a roadmap, we're not as efficient or as effective as we could be.

Others described result as closure, reflection, and processing content to ensure the students have met the objectives and are ready to move on. Hannah felt students should be able to review what they learned at the end of class and apply it to their lives moving forward. To

her, part of result is making sure students learned the content (i.e., both formative and summative assessment) and are ready for the next lesson.

Wesley felt he must be "super present as a teacher" for students to achieve a desired result. Morgan shared how when Reardon discussed result at one of the first delta conferences, he talked of how it "doesn't matter how well teachers teach; the only thing that matters is how well students learn." In other words, the needs of the teacher are not highly relevant; the only thing that matters is if students learned. Participants described that it is all for nothing to stand in front of a room and lecture, or even design the best project-based lesson, if students did not learn anything from it. Teachers must be hyper aware of their students and measure if learning has legitimately happened.

Summary

Participant beliefs about context centered on the construct as an environmental framework, context as an influencer that supports student learning and teaching, and context as proactive classroom management. To set context is to provide students with the emotional, mental, and physical boundaries of the learning space. Context is environmental. It is everything and anything that is not content, including how the teacher speaks and delivers directions, their relationship with students, the set up and configuration of the classroom, the arrangement of supplies, and the ability to create interest for students. Good context sets students up for success by providing them the support and resources they need, while removing barriers and distractions that would disable them. When a student understands the boundaries and expectations of the learning space, they are less likely to act inappropriately and have behavioral issues. Context serves as proactive classroom management.

Finally, context relates to state changes and result. Because participants described learning as a permanent change in behavior due to an experience—specifically an experience that changes how they think, feel, or act—context influences state and teaching methods. When students understand the directions and objectives, they may care more about the topic and believe that the teacher cares about them, which makes it easier to teach. As a result, context enhances learning and may increase its likelihood to occur. Many participants in this study felt when there was an error or discrepancy between their plan for the lesson and how things actually went, it was normally due to a problem in their context (e.g., they forget to provide a supply or give a direction, they were in a bad mood and students could read it, students with disengaged and uninterested). As a result of the findings in this study, we can define context as a frame that surrounds the educational event of teaching and learning and provides students with resources for content's appropriate interpretation, which either positively or negatively moderates the relationship between teaching and learning.

Concept Third: Purpose and Experience of Context

Participants discussed the purpose and experience of using context in formal and non-formal educational spaces often throughout interviews. Once participants defined context, it was helpful to analyze what it looks like, how teachers and non-formal facilitators can use context in the classroom and conference hall, and what its impact is on students and teachers.

Most participants described context as a confusing topic. They would often share how it took them several times learning about context or going through a training program before it truly made sense, and even then, it still took time and practice to apply. Those

who coach others in context shared how participants often struggle with the concepts, leaving some components of the model out, or conflating them because they do not understand the differences. Most of the people I interviewed in this study shared that context gets easier and less confusing in time, especially if there was someone to coach or mentor them on how to adopt and apply the concepts.

Most of the conversations about the purpose and experience of context centered on how it impacts students and teachers. In general, teachers believed setting context supported students and made learning more fun, less frustrating, easier to experience, and, when done well, students were more engaged in the learning experience. Teachers had similar experiences when using context. Rather than being frustrated with classroom management issues and confused students, teaching became more exciting and rewarding. Overall, good context makes the learning and teaching experience better for both teachers and students alike.

There was mixed discussion about what context looks like based on teaching method. Some believed context was more important in teacher-centered learning methods (i.e., lecture, lecture-discussion, demonstration) than in student-centered learning methods (i.e., project-based learning, problems, and inquiry-based instruction), likely because the teacher has more control over the learning environment and must set context as students have less opportunity to do it themselves. Others felt the opposite, stating it is more important to set context in student-centered learning as the teacher has given more control of the environment over to students, and those students need clear expectations, directions, and buy in to complete the lesson. Participants agreed context is important in both domains of teaching methods but looks and feels different in each of them.

Context Becomes Easier with Practice

Context is confusing. Nearly every participant in the study described how they struggled to understand context-state-result, specifically context, when they first learned the model. David shared that context-state-result and context is "very, very philosophical." David learned the model as a former FFA state/national officer and has since trained state officers how to use context-state-result. He described how they often get confused when he teaches them context. Larry is a state/national supervisor and felt students often skip aspects of context when they go through training on the model with the National FFA Organization. Larry felt they skip aspects of context because they do not fully understand it and are struggling to differentiate between the various labels/constructs of context. Gabby thought it might be easier for someone to learn context after they have had some experience teaching. Gabby first learned the context-state-result model at a delta conference (i.e., delta is often not available to novice teachers during their induction period but delivered to teachers in years 3–15 of their teaching). She thought the concept is so vague and difficult to describe—at least the version she learned during the early years of the delta conference and context-state-result. Gabby shared, "a beginning teacher... they are worried about so many other things. It's a really hard concept to understand and master." Scarlett had similar thoughts. She learned the context-state-result model at a delta conference but did not fully understand it until several years later as a teacher educator when she was teaching her students to use context-state-result and context.

Wesley described an experience where a fellow educator did not understand context. He was team teaching/facilitating after he and his teaching partner had recently learned the context-state-result model at a training. Wesley understood the concepts well,

while his partner did not. They were leading an activity where students in their workshop were working to create a project. His partner panicked due to the noise level and amount of commotion happening in the room. He assumed they had lost students and was desperate to change how they were teaching to fix what he perceived as an unorganized and off-topic class. Wesley shared,

> [Wesley's teaching partner:] 'We've got to do something different. They're dying out there.'
>
> And I looked and I was like, what the hell?
>
> [Wesley:] 'Every single student that I see is focused; they're working, they're attentive, they're engaged in their own learning and development of the product.'

Wesley's teaching partner could not recognize good context and was confused about student-centered teaching methods. He mistook productive conversation for noise. Because students did not have questions, he assumed they were confused. He was so accustomed to giving poor directions, he assumed they would always have more questions later. Instead, Wesley and his partner had established such good context and given such directions that students were focused and engaged. They hooked students with a strong interest approach; therefore, students wanted to work on the project and were loud because they were excited. Context—as well as adjusting context (i.e., micro-context) and using formative assessment to gauge learning and teaching—are skills that take time and practice to develop.

Doug described his experience of coaching novice teacher candidates as a teacher educator during their student teaching experience to recognize context. Doug had previously taught students how to use the context-state-result method during their

instructional methods course and was now expecting them to apply it with students in their classrooms. He shared how too often the student teachers get nervous when they are not the one talking or when students are working. Rather than observing and making tiny, micro adjustments to context to clarify misunderstandings or hook students again when they are disengaged, he felt they almost sabotage good context with endless talking and clarification. For example, Doug pulled a student teacher aside mid-lecture to help them see context in the moment.

> [Doug:] 'Just stop what you're thinking [and doing] and look around. Look at the students. Listen to the conversation. Look at their faces. Look at their bodies. Is this what you envisioned, AKA, the result?'
>
> Then she smiled and she goes, 'yeah.'
>
> I said, 'are all of them engaged?'
>
> [Student teacher:] 'Yeah.'
>
> [Doug:] 'Are all of them engaged in the right thing?'
>
> [Student teacher:] 'Yeah.'
>
> [Doug:] 'Do they seem to be enjoying what you want them to do?'
>
> [Student teacher:] 'They seem to be.'
>
> Bingo.

Good context is something hard to describe. It is something that good teachers seem to do with ease; something they did not always have a label for but could instantly recognize as good teaching practice. Glenn reflected, "context is one of those things that really good teachers do masterfully and do almost without thinking; because it constantly sets up for whatever activity you're doing." Hannah—a teacher and former conference

facilitator/state/national officer—told an excellent story of using context in the classroom during an observation with her administration.

> At our school site we had a brand-new administrator come in last year. And she came in. She observed me. I had my lesson ready. We had met before. I knew when she was coming in. I had this great lab all set up. Students will work. I'm going to be moving around the room. I had really thought about it. That was actually my highest level of students. They were all freshmen in the [Gifted and Talented] program, so higher level math, higher level English. Anyways, they're always on task and they're always working and they're doing great. She comes in and for some reason all the wheels fall off the train. Everyone is talking. Everyone's working differently than they have in the past.
>
> So, at that point, regardless of what was planned to happen, I said [to myself], all right, I'll have to regroup everyone. [I said to the students,] 'Take a seat. Doesn't matter where you are. At this point in time, this is what we should be working on. We should all have cups, A, B, C, and D labeled...'

At this point Hannah clarified directions for the class. She reminded her students that they should be working in partners, not alone. She once again told her students the expectations for the laboratory activity, specifically to be following the directions on the handout.

> Then I said, 'Okay, now jump right back into it. If you have questions, please let me know. Ask the person next to you. Don't wait until it's too late.'
>
> I think it was kind of shell-shocking that, I absolutely just in the middle of it, paused my lesson and said, we're gonna just stop this train right here because everyone is all over the board.

Using formative assessment, Hannah recognized there was an issue with her directions and context. Students did not understand what they should be working on and were off topic. She stopped the class and gave new directions and expectations for what they should be doing.

> Now, was I proud to have this lesson that I had planned so well and thought had gone so well the previous class periods—in front of the site administrator—where I had to just hold everybody up? No. In the moment I was totally going to die because I thought I was going to lose my job. I felt like my classroom was out of hand; I knew I could do better, because of the time and the practice that I had put into it. I was thinking about other teachers that I know. Oh, 'she would've said it this way. He would have asked the student this question at the beginning.' And so those things are running through my mind as well when I'm working on this.

Hannah's perception of adjusting context and using formative assessment is valuable. Novice teachers are likely to view mistakes like this as a problem that they should hide. Hannah was embarrassed that her class did not go perfectly during an observation, when more often, rarely does the class ever go perfectly. Rather than seeking coaching and help, and confronting mistakes and issues head on, too often teachers run away from the problem. Hannah has had training in context-state-result and practice with context. She was able to recognize the problem and knew what to do to fix it. She did not have to run away from it. Because Hannah stopped the class and made adjustments, she was able to salvage the lesson, improve student learning, and impress her administrator.

> Now the administrator, she thought it was great. She thought that it was amazing that I didn't just let students continue because, well, it's already halfway down-hill.

> [I could have thought to myself] ‘why don’t you just let it ride out? The kids will finish it. What are they going to learn today anyways?’ After that, she [said], ‘Hey, I don’t know what kind of training [you have been through]; I don’t know what you guys are working on. I don’t know if you did this in Undergrad or Grad school, whatever. Like you can like give instructions! And these labs, it properly states the materials for students and everything kind of follows the same format. And, oh, what’s on your warmup? Just all of these things.’ She’s like, ‘This is really cool. Where did you get this?’

Hannah’s administrator was impressed, because even though Hannah is a novice teacher, she understands concepts that generally only veteran teachers do naturally. Something most educators struggle to label, because concepts from context-state-result are not well known and understood. Hannah was able to read the room and modify her micro-context to adjust her directions, clarify expectations and culture, and engage her students.

> So, then it was, ‘hey, this is also another new teacher. Do you have a couple of steps of things that she should be thinking about when she gives instructions to the students, whether they’re verbal [oral] or written instructions?’ I'm like, ‘Oh heck yeah, of course.’

Now Hannah gets to help train other teachers at her school site on context-state-result and the strategies she uses to create a positive learning environment for her students. The administrator recognized how Hannah had clear and consistent directions; that she chunks her directions into appropriate steps and only provides students what they need to know to be successful. That she uses a warmup and engaging interest approach/anticipatory set to hook her students and create curiosity in the lesson. And when things do not go as planned,

Hannah is not afraid to make adjustments to get the class back on track. Hannah's story is useful to describe how context is a confusing topic at first, but becomes easier with experience, and eventually becomes natural and second nature, even in a stressful situation like an evaluation from an administrator.

Context is something that gets easier with time. It helps to have prior experience to relate the concepts to. While some participants felt it might be better to wait to teach context-state-result and context to teachers until they have experience to build upon, Hannah is a good example of how context-state-result can be taught to teachers early on in their career. It might be that we need better labels to describe context, so it is less philosophical and complex. Alexa shared how the labels need to change that we use for context, specifically the READ model at National FFA. She discussed how context is difficult to understand as is, but if the labels to do not make sense, people are more likely to walk away from it. Participants described a need for a new model/labels that make it easier to understand context, knowing the benefits and impact on teachers and students makes it worth it to learn.

Impact of Context: Influence and Moderator of Teaching and Learning

Participants were asked to describe the impact of context on themselves as a teacher/non-formal educator, the impact on their students, and if context varies based on their method of teaching, between teacher-centered learning (i.e., lecture, discussion, demonstration) and student-centered learning (i.e., project-based, problem-based, and inquiry instruction). Overall, participants shared that context makes teaching more fun and exciting, as well as easier for both the student and the teacher.

Moderator and influence. All but three participants we spoke with defined context as a moderator (i.e., what is context), either directly on students or on the teacher themselves (see concept two: context as an influencer). In this section of the chapter, participants described how context as a moderator tangibly impacts students and teachers (i.e., the purpose and impact of context's moderation). Context and context-state-result puts the focus on the student/learner. Larry shared how context-state-result made him far more mindful of his students. He felt that when he focuses on the needs of the students, the entire process changes. It becomes less work and flows better. Wesley felt similar; he shared; it is "like you've kind of created a little bit of magic." Hannah said when she has set context well and things are working, she can feel a difference and feeds off the energy of her students.

> I'm not going to sit down at my desk in the middle of the lesson to respond to an email because I'm so fired up about the lesson and so excited about what they're working on. At the end of the day, [students] don't want the class period to end because they're so hooked. (Hannah)

Hannah described how teaching with context-state-result makes the process more enjoyable for the students. Both Wesley and Hannah talked of how they can push their students, especially in difficult coursework like agricultural science and high-stakes classes, because there is greater clarity and engagement from students.

> They claim that we are 'easier,' but that's not it. We just walked the students through what they should be working on. We help them...We're... giving them the beginning and the end of what they need. So hopefully at the end of it, the students are learning more and making our jobs easier. (Hannah)

Context can make the learning process easier and more enjoyable. It can also make the process worse. Earlier, Noelle told a story about setting poor context with a bad joke, which caused students to check out. Rachel—a teacher educator—had a similar experience in a graduate class she took during her doctoral program. Her professors were giving context for an activity they were trying to do by sharing an agricultural example. To think of STEM concepts, they had students in the course brainstorm a project about how they could prevent cross pollination of GMO crops in a field. Unfortunately, the instructors in her course did not really understand the content they were teaching. The class ended with students proposing the farmer build a brick wall in the middle of the field, without students considering the feasibility of the concept. Rachel felt angry and disappointed in her professors, causing her to not want to engage in the class in the future. She shared, "So, context facilitates our learning, but if we do a poor job of it, it can actually negatively impact your learning and cause you to check out or become frustrated." Therefore, context can influence learning in both a positive and a negative way.

More than half of participants mentioned making teaching easier as an impact of context. Some discussed the impact on the student, while others focused more on the teacher; about half the participants in each category. Every participant described context as a useful tool to support learning, with direct benefits to education. Teachers noticed how much better it made their jobs. Former FFA officers said it was a confusing topic but changed how they facilitated workshops and gave keynote addresses. Teacher educators and state/national supervisors described it as something good teachers seem to do naturally, but a key concept they wished more teachers knew. So often teachers are in survival mode, struggling to engage students, and in the process, hating their jobs. Doug—

a veteran teacher educator—shared a tip he gives to students when teaching them about context-state-result. He said, “at the end of the period, you should be celebrating, and the students should be exhausted because they did all of the work.” Teaching should be fun. Learning should be fun. Context facilitates that process to make it easier for both groups of people. Good teaching requires the instructor to properly set context, create buy in, and be clear with expectations, and consider the individual needs of the students.

Context and methods of instruction. In this study I specifically asked participants to reflect on domains of teaching to see if context varied between student-centered and teacher-centered methods. Participants had mixed views. Some individuals felt context was more obvious in teacher-centered methods like lecture because the teacher is doing most of the talking. Other participants described context as important in projects and inquiry (i.e., student-centered methods) because it is hard to have students work on a project without context (i.e., directions).

Maryann felt in student-centered learning, it is important to have strong context. She commented, “If you don’t set the context expectations clearly from the beginning, then there’s a lot of interruptions or lot of [room for misunderstanding].” She felt strongly that because the teacher gives more control over to the students under project-based, problem-based, and inquiry instruction, the teacher must provide clear context. Participants who felt context was more important in teacher-centered learning would say that was because in teacher-centered approaches, the teacher has more opportunity to correct context. Reflecting to Hannah’s story in concept two, when using a student-centered learning approach, Hannah had to stop her lesson to correct her context. She shared that it can be challenging and embarrassing to have an entire class check back in to provide contextual

adjustments. It would have been easier for her to let it go and move on, without ever adjusting her context.

In several ways, participant's discussion about context in various methods reinforced the idea that context is always there. Everything in the environment has an impact on context. It is a question of whether the teacher is setting context and providing the clear directions and creating interest, or if students must regulate it for themselves intrinsically. Participants described context as being more common in student-centered methods because the instructor has spent more time thinking about the environment, supplies, and lesson. This is equally important in a lecture-discussion or demonstration. The teacher should still be creating interest for the lecture, reminding students to take notes, and setting expectations for the quality of student work. Therefore, regardless of the type of teaching, context is important; it simply looks different based on the level of control.

Summary

Participants felt context influences or moderates the relationship between teaching and learning. Good context enhances learning, while poor context can reduce it. Context varies by teaching method, specifically in student-centered approaches where the teacher has given up some degree of control to the students. It may be harder to engage students in a project or problem without providing context. Lecture and discussion still benefit from context to ensure students have the support they need to be successful. Context remains important in all forms of teaching, but the way the teacher uses context as well as the experience of the student varies between differing methods of instruction.

Context is very confusing for most people when they first learn it, mostly because it is a vast concept; earlier, participants in the study defined context as an environmental factor that is everything and anything that is not content. Several participants told in-depth stories of their experience using context to positively influence student learning. They would describe it as a magical experience of being "in the zone" where things flow and connect, making teaching fun. Context is also something that becomes easier with practice and coaching and is something that good teachers are skilled at and constantly aware of. Because context can be confusing, some participants proposed I develop a new model for context-state-result that is easier to understand, with new labels that more accurately reflect the various constructs of context, without jargon or insider terms that only someone who went through the training would be able to understand.

Concept Four: Language and a New Model

Finally, recommendations for a new model, shared by participants, was presented, including the need for the model to spiral (i.e., macro- and micro-context) and symbolize error (i.e., approximately equals), and the desire from participants for research to create new labels that are less confusing and more direct (i.e., READ labels were viewed as jargon). I therefore theorized new labels and language to conceptualize context.

New Context-State-Result Model

Throughout the study, participants provided recommendations for concepts they thought were most important within context-state-result or that I should change when designing a new context-state-result theory. The first major concept was that context is a moderator between the relationship of teaching and learning. More than two-thirds of participants discussed macro and micro-context. The original context-state-result model

was linear; participants agreed that context-state-result is a cyclical process that spirals and repeats through the lesson as teachers make adjustments to context and use formative assessment to adapt their methods. Some participants pointed to the original model having an approximately equals sign (i.e., ≈), compared to the modern versions using an equals sign. Those who were familiar with the original model recommended I re-integrate the concept to account for error and how a mistake in context or state (i.e., teaching methods) would result in decreased learning. Participants also provided clues to what new labels could look like based on their language and attempts to describe the complex subject of context. Finally, there was discussion about context-state-result's application to teacher preparation and facilitation training, specifically that it would be useful to integrate context-state-result into lesson plans so those learning about the model have examples to better understand the application of the model.

Moderator. Based on the findings of Concept 3, Based on the responses of participants, and reflective of the original context-state-result model from Reardon, I have redesigned the context-state-result model and proposed that context is a moderator/ facilitator of the relationship between teaching and learning (see Figure 4.06).

Good context enhances learning, while poor context negatively impacts learning. Context is a multiplier that compounds or reduces the impact of instruction. If students clearly know what they should be learning, why it matters, how to complete the learning activity, and that the teacher cares about who the students are as individuals, teaching becomes easier and learning enhanced.

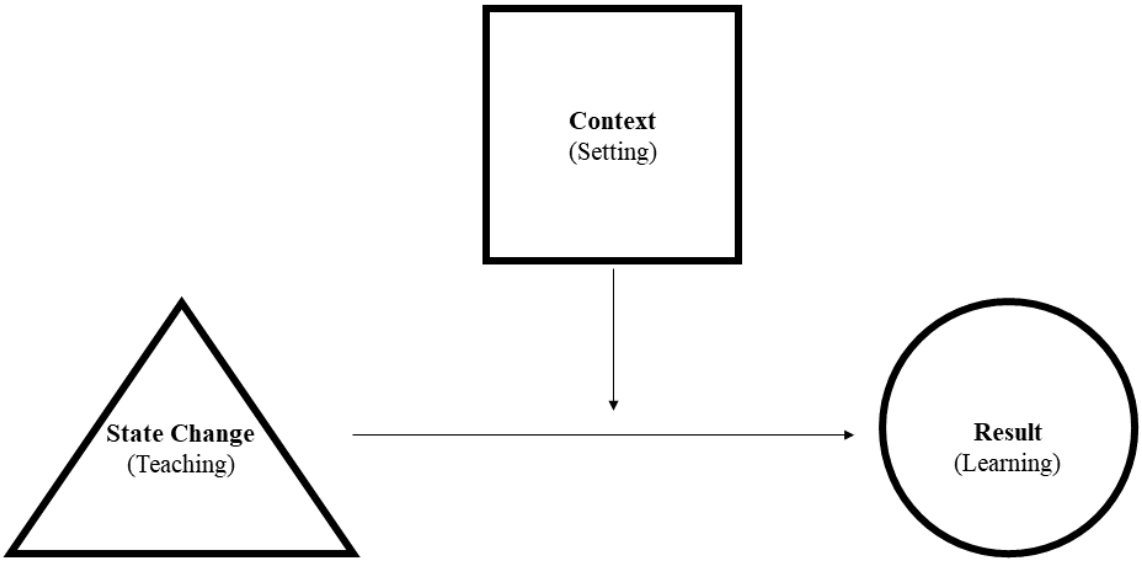


Figure 4.06. Context as moderator of the relationship between teaching and learning.

Spiraling. The concept of micro- and macro-context—or spiraling (Bruner, 1960)—was the second most discussed topic in the study, mentioned by more than two-thirds of participants I interviewed. The original context-state-result model was a linear process (i.e., context plus/yields a state change equals a result). Participants stated that is not how teaching works. Teaching and facilitation require adjustments to context and state (i.e., methods) throughout the lesson. Wesley compared the small adjustments made throughout the lesson like guiding an animal in the livestock show ring, "I think of showing a hog with a cane. It's just a little tap, tap, a little tap, tap, a little tap, tap to guide them and make sure they know where they're going throughout the lesson." Noelle expanded on the symbol of context as a frame, by sharing that while thinking of context as a picture frame around content as the picture, it is helpful to imagine there are more pictures inside the picture itself (i.e., frames within a frame),

> There could even be moments where it's a picture of you in the middle and you're holding a picture of your dog in the middle, and [he has another picture]. There's a

> lot of different frames in that example. So, the macro-context is the overall frame on the outside, but there's micro things that help explain the deeper picture in the middle of it. (Noelle)

Participants described that macro-context is big picture concepts, while micro-context relates more to activities in the moment. For example, macro-context could be setting context (expectations, relevancy, etc.) for an entire course/conference or unit, while micro-context might be details for a specific activity (e.g., take out a pencil) or making adjustments to prior context that is not working perfectly. Several participants described context as a continuum. For example, middle context—or meso-context—might be context for a lesson or hour-long session, somewhere in-between expectations and directions for a course and those for a specific activity (see Figure 4.07.)

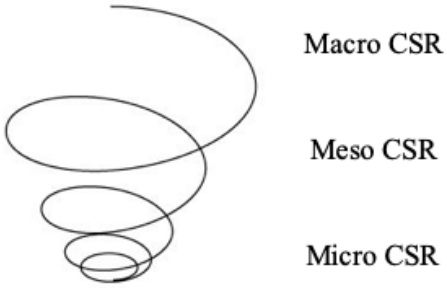


Figure 4.07. Spiraling nature of Context-State-Result model.
Note: CSR = context-state-result.

Because the process repeats itself (e.g., overall context for the lesson, micro-context for objectives and activities within the lesson), context is not a linear process. It spirals and repeats numerous times throughout the lesson (but still has a starting point). Reardon did discuss this concept during delta conferences—known as a contextual bridge—where the teacher sets new context to bridge and transition between objectives.

Unfortunately, this idea was not well documented in the original and revised context-state-result models. Noelle described the spiraling nature of context as continuously re-evaluating her context and how she needs to make adjustments along the way.

> If I'm helping get students to a point in a workshop, I've got to continually be thinking like, where are my students at, where am I wanting to go? Are we there yet or no? And so, it's not a linear process, it's more of a cyclical process.

Participants also stated that micro-context might not need to contain all the same elements of macro, big picture context. Alexa previously thought she would need to deliver all four elements of READ each time, even in micro-context. Alexa said, "I do believe all four components need to be there at some [point], or in some way or form in a macro sense, but not necessarily at every moment within a micro perspective of context." Larry reflected how it generally felt awkward and forced when teachers and facilitators would try to acknowledge students each time in micro-context, particularly when there was really no need to do so. A spiraling model helps to clarify this, as excellent macro-context for expectations and culture (e.g., wearing safety glasses during a lab activity) might be so well reinforced that it is a habit and there is no need to remind students of this expectation at a micro level. Larry shared, "every time you 'deliver context,' it's not always going to look that way or be in that same format. And so, it's kind of like you have to understand the rules before you can break the rules."

Error. Participants also discussed the need to compare the current READ version of context-state-result to the original version of the model created by Reardon. Noelle, Doug, and Larry all discussed how the original context-state-result model was not context plus state equals result (i.e., C + S = R) but instead was context yields state, which

approximately equals result (i.e., C → S ≈ R). Scarlet learned it this way as well, but recently attended a training that taught students context-state-result and noticed the model had changed. Based on interviews with participants, it appeared that the model had changed over time (i.e., 2006/2009 to 2019) as various staff at National FFA—perhaps unfamiliar with the original model—taught and adapted the model, and as Reardon was no longer involved with the program. All four individuals who learned context-state-result under the original model recommended the approximately equals sign (i.e., ≈) be reintroduced in a new model. They felt strongly that if there is a mistake in context or state, there was a direct impact on result.

Alexa learned context-state-result from staff who used a modern version of the model (i.e., C + S = R) at an FFA national organization or state association training (i.e., READ model), and has since seen the original design. She believed that when a teacher acknowledges students' differences, it is impossible to know and see everything. There are always going to be questions the teacher does not see or directions that could have been clearer. Participants described teaching as both a science and an art. Doug shared, "you can do your very best to set context and facilitate state, but it doesn't guarantee ideal results." A new model should therefore reintroduce the approximately equals sign into the equation and reflect the possibility of error (see Figure 4.08).

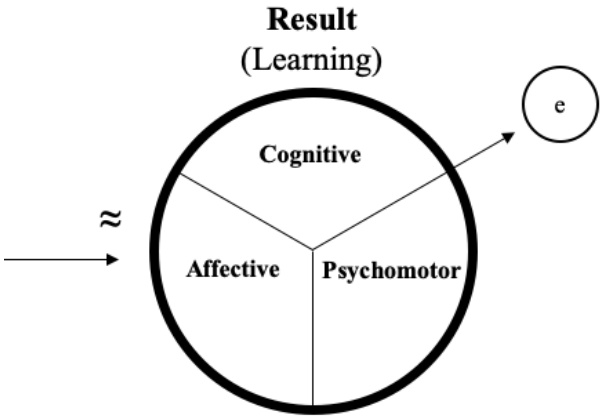


Figure 4.08. Role of error within Context-State-Result model.

A new model should include an indicator for error and mistakes in both context and content (state changes). Wesley described how "if there's a disconnect between what they should be doing [aka the state and the desired result], then we messed up on context."

Application to Lesson Planning and Teacher Preparation. Participants in this study also discussed a potential need to integrate context-state-result into lesson plans, which has implications for teacher preparation and facilitation training. Wesley shared that context is "one of those things that if we can shine a spotlight on the need to do it well, then it will help teachers do their jobs better." By connecting context-state-result to lesson planning and workshop delivery, the concepts become less conceptual and philosophical, and more practical.

There was some controversy among participants about when was the best time to introduce context-state-result to teachers and facilitators. National FFA designed the delta conference for advanced teachers, while context-state-result is now more frequently taught to state officers, conference facilitators, and novice teacher candidates during their teacher preparation program. Gabby—who learned context-state-result during a delta conference

as an experienced teacher—felt the right time to learn context-state-result was when she found herself craving professional development as a teacher. "'What do I need to do differently?' I think is when, when teachers are ready to receive and implement this model and it drastically changes your results." Others disagreed, sharing how context-state-result helped them develop strong teaching habits from the beginning—that it was simply a confusing or complex topic to understand without experience to build upon.

To help the topic be less confusing, there might be value in integrating context-state-result into curriculum so students can study context and see how it works. Holly felt it was helpful when she saw context-state-result embedded into curriculum as an FFA officer. Hannah also found value in integrating context into curriculum. Both individuals had delivered FFA conferences at the state/national level where staff at that time had integrated and structured the lesson plans using context-state-result. They each described how staff had used context and the square shape to identify components of the lesson plan that set directions and expectations or established relevancy during an interest approach, a triangle for methods and content, and a circle for review and closure. This helped them see it in practice, in addition to understanding context-state-result theoretically.

The National FFA Organization has long used the "magic formula" framework to structure lesson plans, speeches, and presentations for state officers. The magic formula consists of four phases (a) planning: get the information, show you care (i.e., audience analysis), action (i.e., objectives), (b) introduction: preview and connection (i.e., interest approach), (c) body: points, support, and application, and (d) conclusion: review and close (National FFA Organization, 2005; see Figure 4.09).

These ten steps have much in common with other frequently used lesson plan design formats in School-Based Agricultural Education (Hunter, 1982; Newcomb et al., 2004; Phipps et al., 2008; Talbert et al., 2013). Some participants described the magic formula as useful, but more complicated and harder than context-state-result. Because the models have a great deal in common, there may be value in combining them into one framework, rather than two different concepts, and using context-state-result to structure lesson planning and speech design.

New Labels

It quickly became clear through interviews that the READ labels in the modern version of the model were confusing. It also became clear that a new model would still benefit from labels and identifying sub-concepts within context. Context is a complex topic and is confusing; sub-concepts within context help to add vocabulary and language to describe what context is, how it works, who it impacts, and why it is relevant to teaching and learning.

Get the Info

- ☐ Have you clearly noted information about the logistics for the workshop, including: length setting, number of participants, age of participants, special expectations, materials needed, audio/visual resources to request?

Show You Care (audience analysis)

- ☐ Is your chosen topic clear throughout your program?
- ☐ Is your chosen topic going to be vital to your audience?
- ☐ Are you going to be passionate about the topic?
- ☐ Do the activities and points in your presentation include all audience members?

Action

- ☐ Have you developed a clear statement to reflect the overall goal?
- ☐ Is your overall goal closely related to the topic you chose?
- ☐ If necessary, have you written other objectives for the workshop related to the overall goal?

Points

- ☐ Are your main points and content clearly noted in your presentation outline?
- ☐ Do your main points remain consistent with your topic and related objectives?

Support

- ☐ Do your activities or teaching strategies match the setting?
- ☐ Have you written out your directions for each activity or teaching strategy?
- ☐ Have you noted materials needed for activities to be successful?
- ☐ Have you noted debriefing or discussion questions as needed?

Application

- ☐ Have you identified a way for the audience to apply the take home message to their lives?
- ☐ Have you written out some real life examples demonstrating how others (or you) have applied each concept?
- ☐ If you are using a handout, does it offer the audience an opportunity to apply the information?

Review and Close

- ☐ Do you know what your last line will be?
- ☐ Are your final comments going to make an impact?

Connection

- ☐ Have you planned for an engaging and interesting way to get your audience interested in the program?
- ☐ Is the interest approach meaningful to the audience? Will they relate?

Preview

- ☐ Have you provided a clear statement about where the audience is headed and what they can expect to get out of the workshop in the introduction?

Transitions

- ☐ Have you planned for transitioning between objectives, points, activities, etc., throughout your workshop?

Figure 4.09. Magic formula. Reprinted from "The arsenal: A guide to team performance and improvement and effective workshop development," by the National FFA Organization, 2005, Indianapolis, IN: National FFA Organization, p. 96. Reprinted with permission.

Participants frequently referenced the relevancy, expectations, acknowledgement, and directions concepts, even though many participants used them differently, and sometimes interchangeably. Doug felt it was important to have labels for context as they represent the successful things amazing teachers do naturally, but have a tough time describing. Hannah shared, “I think vocabulary, or some sort of a key, would have been helpful for me just because I’m not as much of a visual person.” She liked the shapes, but they were not enough for her to completely understand context. Because participants both frequently referenced the labels within context-state-result and found them to be confusing, there is a clear need to reconstruct the concepts within context-state-result as something new and easier to teaching and understand.

By analyzing the codes and language participants used throughout the study, I was able to de-construct and develop new labels for context and a new model for the context-state-result framework. Throughout the process of interviews, participants would describe context using numerous examples and various language to help paint a picture for a complex and sometimes confusing topic. Halfway through the interviews there was an “ah-ha” moment where it became apparent that participants were often using language known as the 5W1H questioning technique (National Library Board, 2018) to describe context. The National Library Board (2018) described the 5W1H technique as a framework to use when “gathering information and investigating a topic.” The basic questions of who, what, when, where, how, and why are essential questions people ask themselves when confronted with a new situation. These questions help the brain to create the boundaries of a situation and paint a picture to define what it is experiencing. Often when someone says, “let me give you a bit of context...” before telling a story, they answer these questions for

the listener to frame the situation. The technique provides essential background information that is necessary to understand the content; they contextualize the event. Frequently throughout interviews participants would describe context as the need to consider (a) who students are—including their specific interpersonal and social needs and prior knowledge, (b) what the objectives of the lesson are—what should they cognitively know by the end of class, (c) how the content is to be learned—including directions and expectations—how will they accomplish the lesson from a psychomotor perspective, and when and where the lesson will occur, and (d) why the content matters and what's in it for the students (WIIFM)—or why does the content matter to them affectively. Participants described context in such a way that suggests teachers need to be aware of these essential questions to teach as effectively as possible and students need to be communicated to in an effective way so they can answer these four/six basic questions as well and be prepared to learn. As a result of initial sampling interviews, and subsequent theoretical questions that I added to later interviews, I was able to conceptualize new language and labels to describe the four fundamental aspects of context: who, what, (when, where) how, and why. I theorized the contextual factors below not by frequency of discussion by participants in the interviews, but in the standard order of the 5W1H questions: who, what, (when, where) how, and why.

Contextual Factor One: Who

The concept of acknowledging students was the most discussed topic in this study ($f = 60$; i.e., number of references by all participants throughout all interviews) and is the first contextual factor to emerge for the new context-state-result model based on the 5W1H format. Every participant ($n = 14$) discussed acknowledging individual student needs and

prior knowledge during their interview; most described it as one of the most neglected aspects of context-state-result. For the purposes of the new context-state-result theoretical model, I defined this contextual factor as knowing your audience, valuing their prior experience, and celebrating their effort to learn. Based on the 5W1H framework, I used the label "who" to describe the social and interpersonal needs of students to contextualize and interpret the educational event (formerly acknowledgement in the READ model).

"Who" is relationship driven and knowing your audience. Context within the who sub-construct is relationship driven (Wesley). It is about setting up the student's needs socially and interpersonally. Hannah described context and the new who label as all about finding a connection with the student; something that creates a bond. To build community and rapport, Larry would often greet students at the door. He wanted students to know at least one person in the school looked forward to seeing them each day. Larry reflected, "creating an environment where students feel safe, protected, and comfortable to share and learn together was always something that was a high priority of mine." Teachers must fulfill their students' basic needs of safety and belonginess before they are ready for self-actualization and learning (Maslow, 1970). He reflected,

> If I'm here to help guide you [students] through this experience and make sure that you gain everything that you're supposed to gain out of it, I have to take into account where are these young people coming from, what are their backgrounds, what do they know?

Wesley described context as knowing your students and who they are as individuals. In his experience, students have thousands of things they are dealing with daily. He felt he needed to consider their unique needs for them to be ready to learn. He continued,

> ‘Cause they walk into your classroom, they’ve had, God knows what experiences prior to walking in there. So how do you build the kind of frame that they can see the parameters, how they’re expected to think and learn, and then allow them to work within that.

Wesley taught in a school and community where equity and inclusiveness were important due to the rich diversity of students. More than half of his students were students of color, who were members of an ethnic community that was traditionally underrepresented and historically oppressed within agriculture. Wesley worked hard each day to help students feel welcome and cared for in his classes, agriculture program, and FFA chapter.

Holly spent a year traveling to schools and visiting communities as a state/national officer. She reflected, “there’s so many different demographics of students that we work with and not every single student is going to learn the same way. So, context-state-result was almost like a blanket for all students.” Morgan believed context becomes particularly important in diverse populations of students. Morgan thought it was important to consider the unique needs of students because communities and agriculture are more diverse now than ever before. Students have unique needs and teachers must consider how are these students different than those in another community or state, another subject or class, or a different time of the day. Gabby felt strongly that who was an important concept in the new model for many of the same reasons as Morgan and Holly.

> I personally love the who … All this curriculum jargon sounds really great in theory, but classrooms are so different now and what kids are dealing with is so different than any of the people who are teaching it. We have major social issues going on with all kids… not just kids who are at risk or poverty/low [socio-

economic] status... real issues. And so, I loved the who. Like, who are my students and what do they really need? (Gabby)

Knowing the audience might be as simple as being aware of what is going on in their lives at this time. Hannah told a story about how her students were distracted one day and how it was affecting her lesson. She later realized there was a big football game that night and students were not able to focus. Simply recognizing what was going on in the lives of her students allowed her to both adjust the lesson to change her expectations, and to hold students accountable to class and the content they needed to get through. Noelle shared that she thought it was particularly important to conduct audience analysis and build rapport with her students. "This is also anchored to the understanding of 'knowing your audience;' that's something that is super valuable in my career right now, especially in communications: knowing your audience."

"Who" changes each time because the audience is never the same. Hannah commented that all students are unique. Participants described how what works for one class may not work for another. No two contextual sets will ever be the same because the who has changed; the students are different. Even if it is the exact same students, but a different day, the students are not the same people they were the first time. New things have happened in their lives. A teacher must constantly consider who the audience is and what their needs are when creating the parameters of the classroom and the lesson. Morgan shared "I don't know that there's ever a magical thing that always works."

Because context happens on a continuum from macro to micro, and spirals throughout the lesson, there is a need for the teacher to focus on interpersonal context, or who, throughout the lesson. Hannah shared,

> Sometimes what I've used in the past for context does not make a connection to students and it totally goes way over their head. So, I have to go back, and backtrack, and say, 'okay, that doesn't work for this class period.' Whether it's [later] in that class period, or even if I can catch it during that [exact moment in] time, I've got to find a connection, so that they can really understand what we're working towards.

Hannah recognized that she might not notice her context did not work for a set of students until midway through the period. At which point she would need to adjust context to hook them or made a connection in the middle of the period.

"Who" is valuing student's prior experience and acknowledging the rigor of the content. Larry felt it is important for teachers to consider their student's prior knowledge and experiences. He identified it as a key aspect of context. Rachel shared that when she advises teachers, she has them ask themselves, "what is the student bringing into the learning experience? … Understanding where they're coming from, so that you can bring them into the learning environment that you've created." Rachel felt this aspect of context was most neglected. Alexa felt similar, specifically because the acknowledgement component of the READ model did not fit as well with other three concepts (i.e., the other three labels in READ more clearly relate to the cognitive, affective, and psychomotor domains).

David shared that too often teachers do not acknowledge the difficulty of the lesson, which sets students up for failure. He believed when teachers consider their students' prior knowledge, they are better able to structure the lesson and prepare students for the rigor of the upcoming content.

> I think one thing that even a lot of teachers just will leave out is the acknowledgement piece. And I know from experience that if we don't acknowledge the difficulty of the task, then they're like, 'I'm struggling with this and it shouldn't be that hard.' But if we acknowledge that in advance, like 'this might be a little tough, that it's a little confusing.' They're going in expecting to face challenges, and if they know that coming in, they'll be a little more tolerant of it. (David)

"Who" is celebrating the learning and thanking students for their effort.

Several participants thought it was important to thank students for their effort and work. Larry shared how the acknowledgement part of context-state-result always felt forced for him. Sometimes the teacher thinking about who students are might be enough. The teacher does not always need to verbally acknowledge students to celebrate the learning. When the teacher acknowledges student effort, the comments should be authentic and specific; general praise can often appear insincere.

Participants described that Reardon frequently shared "if it is worth doing, it is worth celebrating," which comes from *Quantum Teaching* (DePorter et al., 1999). Alexa recommended teachers, "do that at the end of the day with some sort of TAG out where you acknowledge the "task," what "attributes" it took to complete that, and setting them for a "goal" for their future." A TAG out is an FFA facilitation strategy to review content students worked on (i.e., what), recognize their effort to learn it (i.e., who), and preview the objectives of future lessons (i.e., what). The teacher should always celebrate the accomplishments of the lesson in general, so students feel proud of the work they did, and they are ready to learn more next time.

Summary. The new sub-concept of context known as who is about the interpersonal and social needs of students (Atkinson, 2014; Bennett, 1986; Hammer, Bennett, & Wiseman, 2003). It is about recognizing their prior experiences and knowledge, valuing who they are as individual, unique people, and being aware of what is going on in their lives in order to best prepare them to learn and create an educational environment that is safe, inclusive, and collaborative.

Contextual Factor Two: What

The concept of setting expectations for students was the fourth most discussed topic in this study ($f = 51$; i.e., number of references by all participants throughout all interviews) and is the second contextual factor in the new context-state-result model based on the 5W1H format. Of the 14 participants in the study, 12 discussed expectations as a core component of context. This construct of the READ model is complex, as most participants would blend and conflate expectations with directions, making them difficult to differentiate from one another. For the purposes of the new context-state-result theoretical model, I defined this contextual factor as educational learning objectives, rigor and scaffolding of the content, and clear evaluation and rubrics. Based on the 5W1H framework, I used the label "what" to describe the cognitive needs of students to contextualize and interpret the educational event (somewhat captured within expectations in the READ model).

"What" is educational learning objectives that are communicated to students. Context within the what construct is about thinking and knowing. Students have a desire to know what they are learning, what the instructor is expecting of them, and to what degree they need to know content. Noelle described this aspect of context—from a "holistic

perspective"—as, "the overall theme of the lesson or the workshop … [which] can be measured through learning outcomes and learning objectives."

This aspect of context is about preparing students to know what they are going to learn. Larry commented, "When you are able to set very clear context, you're able to achieve whatever it is the objectives are for the experience." Participants described how it is difficult to complete any task if there is a not a clear goal or outcome. Doug always tells his student teachers, "If you tell me what my expectations are, I'm more apt to meet them." David said by sharing the objectives, the teacher is "preparing the students for what they're going to experience." By communicating the objectives, students are better able to learn.

Maryann recommended teachers put their objectives and agenda on the board, so it is clear what the teacher is going to do and what students need to know by the time the period is over. Larry felt that by sharing the objectives students know "what level do we want them to be able to do or know" the content of the lesson. It is therefore important within this construct of context to communicate the objectives to students in a clear and consistent way so that they understand the cognitive expectations of the lesson and the major points they should understand by the end of the day.

"What" is rigor and challenge. The what aspect of context builds upon and overlaps with the construct of who, as the teacher must consider the student's prior knowledge and experiences to determine what degree of rigor and scaffolding is appropriate for the upcoming content students will learn. Before the teacher can set appropriate rigor, participants recommended the teacher take time to understand their student's prior knowledge. Larry recalled that when he would write objectives and design a lesson, he would think back to his time as a student, "I appreciate having my experience

and my knowledge recognized, utilized, and expanded upon;" therefore, he would try to do the same for his students.

Finding the right level of challenge is important to support learning. Rachel felt it is important to build upon prior experience and scaffold the lesson to ensure the appropriate level of difficulty and challenge: not too hard that students shut down, but not too easy that students are bored and unengaged. Doug believed students do best when teachers challenge student's brains and create curiosity. Wesley described that his courses were harder than those of other teachers at his school, but because he was clear about the objectives and his expectations for learning, students did well.

> Most students would say my classes were really challenging for them. I taught [agricultural] anatomy and physiology. It was tough and demanding. But if I did my job right in context, they were confident enough to think that they could do it. (Wesley)

Participants described that by setting an appropriate level of rigor—both by considering who students are and their prior experience, and scaffolding the content to challenge their minds—teachers are able to push students to learn more and do so at a faster rate. Alexa described how having appropriately rigorous objectives and a clear what, "gives them something to grasp on to; something to feel like this matters to me in some way or form." Context within the what aspect of the model should challenge students.

"What" is clear expectations for evaluation and outcomes. Morgan thought the use of a rubric and clear expectations for mastery of content was important. For example, in his welding class—when he was a teacher—how he evaluated student's work was clear: it needed to look correct and not break when he struck the weld with a hammer. The

teacher can make evaluation clear verbally, but a better option for evaluation would be to use a rubric. Maryann—a teacher educator—commented that by designing a rubric, the teacher is "being very clear on what you're going to do as the teacher and your expectations of what you want the students to do, but also setting them up for success." Larry felt that "setting clear expectations and holding people accountable to those expectations helps to live up to whatever those expectations are." A rubric is an effective way to make the expectations clear and hold students accountable. When using a rubric, there is less room for interpretation and confusion about the desired outcomes of the lesson. Students are clearer about the expectations when using a rubric. Noelle shared,

> I believe students will rise or fall to the expectations set of them so as a teacher or a facilitator, being super clear with those expectations is so valuable because students know what the bar is set at. So, using a roadmap metaphor: expectation sets the route.

A rubric becomes the roadmap for what students are supposed to learn and what objectives they should master; it tells students what the end destination is. It also lets students recognize the rigor of the content and self-select their level of effort to achieve a specific grade and desired result.

Summary. The new construct of context known as what is about the cognitive needs of students (Anderson & Krathwohl, 2001; Bloom, 1956). It is about communicating the objectives of the lesson, appropriately scaffolding the rigor and challenge of the content, and providing clear expectations for evaluation and the outcomes of the lesson. When students know what they are supposed to do and learn, they are more likely to accomplish it.

Contextual Factor Three: How, When, and Where

The concept of providing directions to students was the fifth most discussed topic in this study ($f = 46$) and the third contextual factor in the new context-state-result model based on the 5W1H format. Of the 14 participants in the study, 12 discussed directions as a core component of context. It was difficult to differentiate expectations from directions in the READ model, but generally when participants were discussing expectations for students, at deeper analysis, they were referring to directions for student learning. For the purposes of the new context-state-result theoretical model, I defined this contextual factor as clear directions (i.e., chunking directions, cognitive load, attention span, mind before body), economy and laws of language (i.e., voice, tone, rate; inclusive language), and considering the needs of the space and timing (i.e., routine, safety, energy). Based on the 5W1H framework, I used the label "how," as well as "when" and "where," to describe the psychomotor needs of students to contextualize and interpret the educational event (formerly directions in the READ model).

"How" is clear and chunked directions. Rachel felt teacher preparation programs do not do a good enough job of instructing student teachers how to provide directions in a classroom. Directions should be simple, clear, concise, and chunked. Doug said that a good set of directions is "absolutely key." At Doug's teacher preparation program, he worked hard to make sure teachers could give clear and high-quality direction sets. To him, directions and what are the most important aspect of context.

When directions are not clear and concise, students become confused. Hannah discussed how sometimes the things teachers get frustrated with are the result of poor context and directions. One time after a class did not go well, Hannah later realized it was

because her directions were lacking, and students were confused. “I really needed to think back, and I was like, okay, was it a ‘me’ thing? Did I do something wrong? Oh, I didn’t give them instructions. Right.” Hannah reflected and shared that when students do not have “clear, concise instructions to participate in the activity” they get confused, and that in turn frustrates the teacher.

How can reduce confusion. Holly shared that she thinks of a good direction set as an opportunity to set the stage, so that students have all the information they need to know how to do something. “I’m just setting the stage for them and providing instructions and direction for them to do the activity or to do the experience” (Holly). David felt similar about the value of clarity and directions; that when students have a clear how and set of directions, “they can then focus on the content, and not be confused about what they’re supposed to be doing.” When students have all the information they need for the how of the activity or lesson, there is greater clarity and less confusion.

Directions must also be simple and organized to give students only the details they need to be successful in that specific moment. Doug advised that a “good set of directions” includes only the necessary information and nothing more. By chunking directions into smaller directional sets, broken up into parts, “the students know what they’re to do” without distracting them or confusing them with extraneous details. “And when they know what to do, and do it effectively, then they can benefit from the activity” (Doug).

A sub-concept of concise and chunked directions is something Reardon frequently discussed during the delta conference—now a concept teachers and facilitators frequently reference—called “mind before body.” Mind before body is about telling students the details and directions of the activity but withholding a key step they would need to

physically act. Once a teacher provides a direction that includes their body, students tend to act (e.g., working with a partner, turning to a specific page in a textbook, moving to the library). Reardon recommended teachers provide as much detail as possible to set up student's minds, before providing the information that has them use their body. David recalled this as, "mind before body: we're supposed to get them thinking before they actually start moving." Good context and directions tell students what they will be doing before how they will be doing it.

"How" is precise and inclusive language. David felt poor directions and parameters for the lesson were where teachers most often fall short in providing context. Participants in this study frequently discussed how using precise and inclusive language has an impact on directions sets. They talked of painting a vivid picture and focusing on specific words in a direction set to avoid confusion. Some participants discussed how voice, rate, tone, pitch, and enthusiasm of the teacher during directions are important. Most participants laced their recommendations with language and labels from Reardon's concept of economy of language. Economy of language is a term Reardon used in *Quantum Teaching* (DePorter et al., 1999) and expanded upon in the delta program, later adopted by National FFA in its own programs. Economy of Language comprises four concepts: "elicit the image, direct the focus, be inclusive, and be specific" (DePorter et al., 1999, p. 118).

"Elicit the image" is about using positive language. Rather than a teacher telling their students to pay attention, or they will fail, teachers should tell students that their efforts will pay off, and by working hard they will earn a better grade. Participants described that using proper tone, voice, pitch, and stories are useful tools to elicit a proper

image for students with directions. Teachers can paint a picture and set the tone for the activity with directions.

"Direct the focus," like elicit the image, is about intentionality and word choice. Rather than telling students what not to do (e.g., put away your phones), teachers should tell students what to do (e.g., focus on the video playing on the white board). When a teacher tells a student to put away their phones, all they are now thinking about is their phone. By telling students what to do, instead of what not to do, their attention is where it should be. Direct the focus has much in common with Reardon's mind before body concept from the delta conference, where the teacher focuses on the key information and directions of the activity before telling students the information they would need to move and act. By directing the student's focus on key information and removing obstacles and withholding details that would distract them until the ideal moment, students can be more successful.

"Be inclusive" is about the teacher acting as a "guide on a side" rather than a "sage on the stage." When a teacher uses "we" language, compared to "I, you, or me" statements, it shifts the culture in the classroom. Inclusive "we" statements imply that the teacher views themselves as doing the activity with students. When a teacher says, "I want you to open your books to page 33," it projects a position of authority. When a teacher says, "we will open our books to page 33," the teacher is doing the activity with the students and learning alongside them; they are doing it together. "A simple change in words fosters an inclusive, everyone-is-invited, collaborate relationship" (p. 122) between the teacher and their students (DePorter et al., 1999). Inclusive language shifts the culture of the classroom by changing how the teacher gives directions.

Finally, “be specific” is about treating words and language as having value; an economy of language. DePorter et al. (1999) recommended teachers “say what needs to be said with the greatest amount of clarity and the least amount of words” (p. 122). Rather than add extraneous details, they advise teachers plan their directions in advance to be specific, concise, and economized. Maryann and Doug—both teacher educators—shared that teachers sometimes sabotage good context by giving unnecessary information. They advise teachers plan what they are going to say, say it, and then get out of the way until it is clear the students need further context and directions.

“How” is the unique requirements of space and time. Even a great direction set in the correct order that sets up mind before body and strong economy of language can still fail. Directions vary based on the space (i.e., where) and time (i.e., when) of the lesson. The location of the lesson can affect what directions the teacher should provide. Several participants discussed safety as a key aspect of directions. An activity in a laboratory or shop setting requires different directions than in a classroom or lecture space. Teachers will need to adjust and modify directions and the how of a lesson based on where the lesson will take place.

Wesley thought it was also important to recognize the when and timing of the lesson, as that influences the how of context as well. He shared, it takes time to reflect and think through “the time of the day that you’re teaching the class and how those students behave during [it]. Context is way more dynamic and specific to the group than just a standard set of information.” He continued,

> So, for example, there was one year that I had two very, very different periods of ag economics. One group that was a little more academically enthusiastic. It was

> earlier in that day; they were more confident about their ability to learn. And so, context for that group was usually a little thinner, because it was easier to get them into the state that would help facilitate the results. The second group, the one that I had the last period of the day: not as academically inclined, a little more willing to just throw up their hands and give up, and they were just tired at the end of the day too. So, I often had to work quite a bit harder in the context piece to ensure they had at least enough of a state of mind that could facilitate the learning. So, I feel like it's much more dynamic and requires a lot of attention to those people beforehand. (Wesley)

Participants described how context changes based on the time of the day and location or space of the lesson. Therefore, while when and where are not major themes in the new theory for context, they do influence the construct of how and the directions that teachers provide to students.

Summary. The new sub-concept of context known as how is about the psychomotor and physical needs of students (Dave, 1970; Harrow, 1972; Simpson, 1972). It is about structuring directions and providing students with the key information they need to act, in a way that includes clear and chunked directions, uses precise and inclusive language, and where the teacher is aware of how time (i.e., when) and different spaces (i.e., where) might influence a contextual direction set.

Contextual Factor Four: Why

The third-most frequently discussed topic in this study ($f = 55$) was the concepts of relevancy and why the information matters to the student, which is the final contextual factor in the new context-state-result model based on the 5W1H format. Every participant

in the study mentioned the word relevancy during their interview and nearly every person described it as the most important construct of context. For the purposes of the new context-state-result theoretical model, I defined this contextual factor as an educational activity or method (i.e., interest approach/hook/anticipatory set) that creates relevancy and satisfies the question "what's in it for me" for students at a felt-need level. Based on the 5W1H framework, I used the label "why," to describe the affective needs of students to interpret the educational event (formerly, "directions" in the READ model).

"Why" is relevancy and "what's in it for me" (WIIFM). Rachel and Gabby both felt establishing relevancy and sharing with students why content is useful is the most important part of context. Gabby believed relevancy is the most important thing in teaching right now. She felt students can learn content and what by searching online with their phones; that students have endless access to content, but do not have context to understand it. She said it is the responsibility of teachers to show students why content is important. To Gabby, this generation craves relevancy and to be able to answer the question "what's in it for me?":

> This generation of students need 'relevancy' and 'why is this important?' and 'what's the point of this?' more than any generation before them. So, I think the context becomes 'why is this important?' 'why does this matter to us, to our school, to our community, to our world?' and 'what's the buy in?' And so, in some of my classes, I think the good days come when they get the importance of their work. And where their work is going to live on in time ... not a PowerPoint they're just going to delete off a hard drive. (Gabby)

Alex felt the world is more connected than ever, but students do not always have the experience they need to understand the complex information they have access to that previous generations did not.

> There's an influx of all this information in their mind. But a student doesn't necessarily have the experiences to be able to contextualize all of that information. And so, I think setting context can help build a bridge between the loads of information that they're able to get online and actually making sense of it for them. Because at that point, without it, they might not have anything to grasp onto or to attach onto. (Alexa)

Modern learning must have application and context. David felt if there is no life application or if the information is not useful to students, then why are teachers spending time to teach it? Gabby expressed concern that teachers are stuck in an old mindset, unable to recognize that memorization and the methods of the past are no longer effective. Maryann, Gabby, Alexa, and David all held similar beliefs that relevancy is one of the key aspects of context. The teacher must help students understand why content matters.

> It's getting the kids excited about what they're learning or letting them know, why do I need to know this? How does this build on what I've already learned? How will this build on what I need to know in the future? That's what I think of when I [hear] contextual understanding. (Maryann)

But the teacher knowing content is important and the why, is not the same thing as the teacher successfully communicating relevancy and the why to their students.

"Why" is an interest approach, hook, or anticipatory set. The teacher knowing the content is relevant is not enough; they must conduct an activity or engage students in a

conversation where students feel, affectively, that the content is relevant to their own lives. Maryann described this moment as an "anticipatory set, or the gotcha statement in our lesson plans." Scarlet thought the use of a hook or interest approach is important because it satisfies relevancy and answers the question of WIIFM for students.

Rachel was able to differentiate between the teacher understanding the why, and their ability to communicate it to their students. "I think you as a teacher need to know why it [the content] is relevant before they actually apply it. But I think how you show it to students is different" (Rachel). Participants described the need for teachers to understand the content itself, why the content matters, and communicate why it applies to the lives of their students. Teachers create relevancy and engage students using an interest approach, hook, or anticipatory set, which may look quite different depending on the situation or need. Rachel's main point was to remind teachers that telling students content is important or that it will be on the test is not the same thing as truly creating interest and relevancy within the why aspect of context.

Hannah gave an example of a powerful interest approach she used in an agricultural mechanics class during a safety unit. She showed her students a picture of safety glasses with a drill bit stuck into the lens. The bit had snapped off while the student was using the drill press and bounced off a wall, hitting the student in the face, right where their safety glasses were. Luckily, the safety glasses stopped it. Hannah asked students what would have happened if the student had not been using safety glasses that day. The conversation set students up to take the lesson seriously and engage in the content.

Hannah was also quick to clarify that there is a difference between a warmup activity or a bell ringer, and an activity that creates relevancy. Hannah uses a warmup each

day in class because it calms down the class and creates a routine for her, but she also has an interest approach. She shared,

> It's not just a warmup that gets them thinking or a warmup question that happens at the beginning of the class period. It's something that's connected to the lesson or that I can make a connection to the lesson with (Hannah).

A warmup might be a good attention getter, but it does not hook students at a felt-need level.

"Why" establishes curiosity at a felt-need level. When done right, an interest approach or hook at the felt-need level (Phipps et al., 2008) "looks like buy-in or excitement before we even get started; extreme interest in the content that's about to come" (David). Hannah described this as an experience where students buy into the lesson and want to know what is going to happen next. Noelle expanded upon an interest approach or anticipatory set needing to be at a felt-need level: "getting buy in from the very beginning is critical. I think that it's more than just gaining interest though. You're getting students to want to continue the lesson." Participants felt relevancy needs to hook students at a level where they have a desire/curiosity to learn more. Students must be able to answer WIIFM and have ownership in the learning experience, which is more than basic attention.

Summary. The new sub-concept of context known as why is about the affective needs of students (Krathwohl et al., 1964). It is about students' desire to know "what's in it for them (me)" and why the content matters to their lives. Teachers accomplish why using an intentional activity or method (i.e., hook or anticipatory set) to establish interest and curiosity at a felt-need level.

Summary

Participants proposed several recommendations in this study for a new theory of context-state-result, including (a) how context acts as a moderating variable in the relationship between teaching (state) and learning (result), (b) that the context-state-result model spirals (i.e., a continuum between macro and micro-context), (c) there should be a symbol for error (i.e., ≈) to account for mistakes in context and state, which impact result, and (d) there is potential to integrate context-state-result into curriculum and lesson planning so the model has more practical application beyond its theoretical and philosophical value.

The new theoretical model of context within the context-state-result model has four components: who, what, how (including when and where), and why (see Figure 4.10).

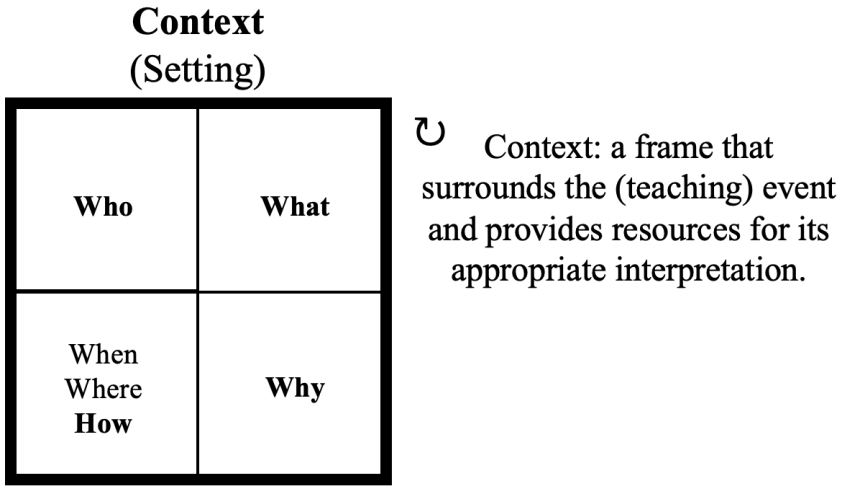


Figure 4.10. Context revised.

Who is about the interpersonal and social needs of students (Atkinson, 2014; Bennett, 1986; Hammer et al., 2003). When teachers address the interpersonal needs of students in context, they recognize students' prior experiences and knowledge, value who

they are as unique people, and consider what is going on in their lives to create an inclusive environment. Who is accomplished through interpersonal relationships.

What is about the cognitive needs of students (Anderson & Krathwohl, 2001; Bloom, 1956). When teachers address the cognitive needs of students in context, they communicate the objectives, scaffold the rigor of the content, and provide clear expectations using a rubric. What is accomplished through well designed and communicated objectives.

How is about the psychomotor and physical needs of students (Dave, 1970; Harrow, 1972; Simpson, 1972). When teachers address the psychomotor needs of students in context, they use clear, concise directions, precise and inclusive language, and are aware how time and physical spaces affect the how of their lesson. How is accomplished through planned directions and clear boundaries of the lesson.

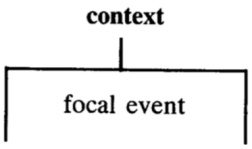
Why is about the affective needs of students (Krathwohl et al., 1964). When teachers address the affective needs of students in context, they answer the question "what's in it for them (me)" and why the content matters. Why is accomplished using an intentional activity or method (i.e., hook or anticipatory set) to establish interest and curiosity at a felt-need level.

Together these four labels for the new multi-grounded theory of context capture and replace the former READ model: who (i.e., acknowledgement), what (i.e., expectations), how (i.e., directions), and why (i.e., relevancy), but rely less on jargon due to the elementary nature of the 5W1H questioning technique (National Library Board, 2018) as an inquisitive research method. The new model also addresses the three domains

of learning cognitive (what), affective (why), and psychomotor (how), along with the debated fourth domain of learning: interpersonal (who).

Chapter Summary

Within the fields of pragmatics and language use, Duranti and Goodwin's (1992) *Rethinking Context: Language as an Interactive Phenomenon* expanded upon the work of Goffman (1974) to describe the dimensions of and conceptualize context. In Duranti and Goodwin's (1992) definition, "context is thus a frame (Goffman, 1974) that surrounds the event being examined and provides resources for its appropriate interpretation" (p. 3; see Figure 4.11). This definition most comprehensively encompasses participants' description of context within teaching and learning within this study. I therefore defined context as: a frame that surrounds the educational event of teaching and learning and provides students with resources for content's appropriate interpretation. Context is environmental and is everything that is not content. Context moderates the relationship between teaching and learning, making the experience easier and more enjoyable for both parties, resulting in enhanced results. Context is proactive classroom management.



The notion of context thus involves a fundamental juxtaposition of two entities: (1) a focal event; and (2) a field of action within which that event is embedded.

Figure 4.11. Context as a frame. Reprinted from "Rethinking context: Language as an interactive phenomenon," by A. Duranti and C. Goodwin, 1992, Great Britain, UK: Cambridge University Press, p. 3. Reprinted with permission.

Participants described how context is something good teachers seem to do naturally. Teacher educators and coaches can teach others about context, specifically when they label and define it so that it becomes practical and application based. Context is often confusing for those new to it, but it becomes easier with practice and coaching.

The context-state-result model has been through several revisions. Reardon originally created context-state-result following his work on *Quantum Teaching* (DePorter et al., 1999). He wrote materials used in the delta conference, where staff taught context-state-result to teachers as a form of advanced development. Since then, National FFA adopted the model and revised it, using the model during their state officer and conference facilitator professional development programs. Over time, the model lost aspects of its design, while gaining sub-concepts within context not present in the original design.

As a result of my research efforts in this study, I have proposed a new theoretical model using multi-grounded theory. The new model is not linear, instead it spirals and repeats itself. The new model has a symbol for error to represent how a change in context or state (i.e., instructional methods) has an impact on result (i.e., learning). The new model also re-arranges the original context-state-result model to position context as a moderator of teaching and learning. Finally, the new theoretical model creates new labels for the sub-concepts within context: who (interpersonal/relational acknowledgment), what (cognitive expectations), how (psychomotor/physical directions), and why (affective relevancy).

Substantive Theory

Based on the four main themes (origin, definition, purpose and experience, and language), I developed a new theory of context, grounded in both data and existing literature, to describe the relationship between teaching and learning within the context-state-result theoretical model. See Figure 4.12 for the context-state-result model, revised.

The new model positions context as a moderator between teaching and learning. Within the new model, I have divided context into four constructs: who, what, how, and why. These four essential questions together create the frame that surrounds the learning event and provides resources for its appropriate interpretation. The new context-state-result model repeats itself/spirals to recognize how context-state-result occurs on a continuum from a macro level to a micro level. Finally, the new theoretical model has a symbol for approximately equals to account for differences in teaching (state) and environment (context) that have an impact on learning (result), as well as error for variables outside the scope of those captured in the context-state-result model. The application of this new multi-grounded theoretical framework has important implications for School-Based Agricultural Education, FFA leadership development, teaching and learn in general, which I discussed in more depth in the next chapter.

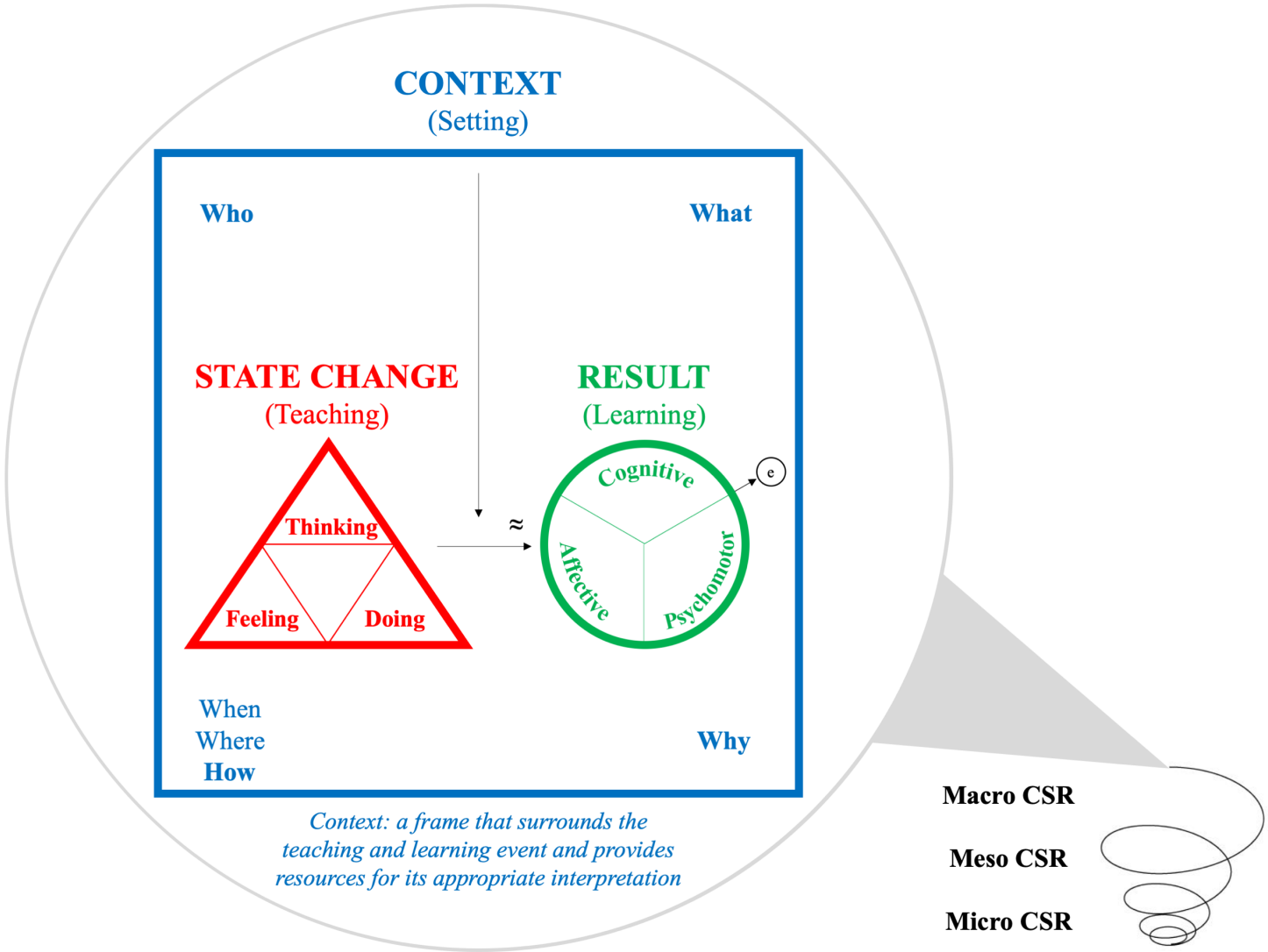


Figure 4.12. Context-State-Result model, revised.
Note: CSR = context-state-result.

CHAPTER V

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

An alternative conceptual model of teaching and learning had emerged in School-Based Agricultural Education. Reardon of California designed the framework known as the context-state-result model in 2000 (Sheehan & Moore, 2019a). While School-Based Agricultural Education and FFA national-level leadership, and numerous state education agencies, had adopted the framework, there was still much to learn about context-state-result. It was not available publicly and did not appear in academic literature. Specifically, the concept of context—operationally defined as environmental factors that contribute to teaching and learning—was under-defined and inconsistently described when used within School-Based Agricultural Education and teacher professional development/teacher education programs. The purpose of this multi-grounded theory analysis was to develop a theory of the contextual factors that influence teaching and learning within the context-state-result conceptual model.

Summary of Method

This dissertation was a multi-grounded theory study of the contextual factors which influence the relationship between teaching and learning. I conducted the study between April and November 2019. Multi-grounded theory is an extension of traditional grounded theory. Unlike classical grounded theory—where only empirical findings and data from interviews and focus groups ground the theory—in a multi-grounded theory study the researchers use extant theory and literature to ground the theory as well. This study included and extended all components of a constructivist, subjective, grounded theory

(Charmaz, 2014). There are four phases in multi-grounded theory: purposeful sampling and inductive coding, theoretical sampling, theoretical condensation, and theoretical grounding, including grounding within the literature review.

I interviewed 14 participants in this study from the following categories: (a) formal agriculture teachers, (b) teacher educators in agricultural education, (c) School-Based Agricultural Education and FFA state supervisors and (d) non-formal agriculture instructors (e.g., conference facilitators). I collected data using interviews that were semi-structured, active, and intensive. Consistent with a multi-grounded theory protocols (Goldkuhl & Cronholm, 2010, 2018), I analyzed the data using rigorous constant comparative analysis and coding procedures. I grounded the findings of the study in both data from interviews and using a systematic literature review. I established the trustworthiness of my findings by maintaining an audit trail, using peer debriefings with my dissertation committee, and by triangulating my data between memos, journals, and extant literature.

Summary of Findings

Context is a frame that surrounds the educational event of teaching and learning and provides students with resources for content's appropriate interpretation. Context is environmental and everything that is not content. Context moderates the relationship between teaching and learning, making the experience easier and more enjoyable for both students and teachers. Context results in proactive classroom management because students are engaged in the learning process and clearer about what is appropriate and expected of them. Context is often confusing, especially for those new to it, but it gets easier with practice. Context is something good teachers seem to do constantly and

consistently. It is possible for teacher educators and trainers to teach others about context and coach. Those new to context do better when the person training them has labeled and defined context-state-result, particularly when the trainer has connected the model to a practical application like planning for instruction and lesson plans.

Those who work in School-Based Agricultural Education have revised the context-state-result model several times. Following his work on *Quantum Teaching* (DePorter et al., 1999), Reardon created the context-state-result model. He then created the delta conference as advanced professional development for agriculture teachers, which also used context-state-result. FFA continued to use context-state-result, even after they formally discontinued the delta program. Over time, the model lost aspects of its original design, while gaining sub-concepts within context not present in the original model.

Because of this study, I proposed a new theoretical model. The new model spirals and repeats itself (i.e., macro-, meso-, and micro-context, state, and result); it is not linear. The new model has a symbol for error to symbolize how a change in instructional methods (i.e., state) or context impacts learning (i.e., result). The new model also re-arranges the original context-state-result model to position context as a moderator between teaching and learning. In the new theoretical model, I created new labels for constructs within context: who (interpersonal/relational acknowledgment), what (cognitive expectations), how (psychomotor/physical directions), and why (affective relevancy).

Conclusions and Discussion

To support "meaningful, engaged learning in all environments" (AAAE national research priority four; Roberts et al., 2016), the purpose of this study was to explore and conceptualize the contextual factors that influence teaching and learning. In the study, I

explored both School-Based Agricultural Education formal instruction, as well as relevant non-formal settings (e.g., FFA conferences), in the United States, specifically those are that lead by educators trained in the context-state-result theoretical model, developed by Reardon in 2000 (Sheehan & Moore, 2019a). The objectives of this study were to:

1. Develop a theory of context within the context-state-result model to better define the variables that influence teaching and result.
2. Revise the current context-state-result model to better explain the role of context within the model.

Objective One: Develop a Multi-Grounded Theory of Context

Based on the findings of this study, I developed a new theory of context within the context-state-result model. I defined context as: a frame that surrounds the educational event of teaching and learning and provides students with resources for content's appropriate interpretation. I theorized that context has four constructs that frame (i.e., create a square) the learning event, based upon the 5W1H questioning technique (i.e., who, what, when, where, how, and why; National Library Board, 2018):

- who (interpersonal/relational acknowledgment),
- what (cognitive expectations),
- how (psychomotor/physical directions), complemented by when and where, and
- why (affective relevancy).

"Who" is interpersonal/relational acknowledgment. The construct of who is the relationship between teacher and student. It provides students with the interpersonal/social (Atkinson, 2014; Bennett, 1986; Hammer et al., 2003) contextual resources required for learning. Participants in this study described the who aspects of context as teachers

addressing the interpersonal needs of students: they recognize student's prior experiences and knowledge, value who they are as unique people, and consider what is going on in their lives to create a safe and inclusive educational environment.

Specific traits of the teacher (i.e., personality, immediacy) and the teacher-student relationship positively impact student learning (Kim et al., 2018; Van Petegem et al., 2006; Witt et al., 2004). Teachers should acknowledge the unique interpersonal needs and experiences of students, as well as their prior knowledge (i.e., who). Not acknowledging student needs and prior knowledge negatively impacts students, especially students in historically underrepresented and oppressed populations (Young et al., 2018).

"What" is cognitive expectations. The construct of what is well-designed and communicated objectives. It provides students with the cognitive/thinking (Anderson & Krathwohl, 2001; Bloom, 1956) contextual resources required for learning. Participants in this study described the what aspects of context as teachers addressing the cognitive needs of students: they communicate the objectives, scaffold the rigor of the content, and provide clear expectations using a rubric.

Objectives are the outcomes that students should be able to know, feel, or do because of the learning experience (Talbert et al., 2013). Objectives are often aligned to national or state standards and occur in one of three domains: cognitive, affective, and psychomotor (Anderson & Krathwohl, 2001; Bloom, 1956; Dave, 1970; Fink, 2013; Harrow, 1972; Krathwohl et al., 1964; Simpson, 1972). The label what (i.e., cognitive expectations) represents educational objectives in the new model and provides guidance on how teachers can prepare students for the learning process ahead.

Teachers can provide students with the cognitive contextual "what" needs by using and communicating well-written objectives, which have four components (i.e., ABCD method; Heinich et al., 2001): (a) audience: who is the audience/what makes them unique, (b) behavior: what is the specific skill that the audience will be able to accomplish as a result of the lesson? (i.e., performance in the PCC model; Mager, 1962), (c) condition: how the audience is expected to show the skill (i.e., also condition in the PCC model; Mager, 1962), and (d) degree: the level the audience is expected to perform the skill at (i.e., criterion in the PCC model).

"How" is psychomotor/physical directions. The construct of how—including when and where—is planned directions and clear boundaries of the lesson and provides students with the psychomotor/doing (Dave, 1970; Harrow, 1972; Simpson, 1972) contextual resources required for learning. Participants in this study described the how aspects of context as teachers addressing the psychomotor needs of students: they use clear, concise directions, precise and inclusive language, and being aware of how time and physical spaces affect the how of the lesson.

Several meta-analyses provided evidence that teacher clarity moderates teaching and learning (Aloe et al., 2013; Gage et al., 2017; Titsworth et al., 2015). It is important for teachers to provide clear, consistently shared and enforced rules for behavior, as well as psychomotor directions (i.e., how) and a rubric, when appropriate, to support transparency and so students understand what the teacher is expecting of them (Winkelmes, 2013). To proactively manage class behavior, educators should focus on teacher clarity. This helps students by consistently communicating expectations and norms, rather than students having to guess at what acceptable and appropriate on their own.

"Why" is affective relevancy. The construct of why is an intentional activity or method (i.e., hook or anticipatory set) to establish interest and create curiosity at a felt-need level, and provides students with the affective/feeling (Krathwohl et al., 1964) contextual resources required for learning. Participants in this study described the why aspects of context as teachers addressing the affective needs of students: they answer the question "what's in it for me" and why the content matters.

An interest approach or anticipatory set is an experience at the beginning of the lesson to hook students, engage them in the content, and prepare students for the learning they are about to experience (Hunter, 1982, 2004; Newcomb et al., 2004; Phipps et al., 2008). Interest approaches, hooks, and anticipatory sets support why (i.e., affective relevancy) and help to engage students in the learning process. Motivation, situational interest, and student engagement impact learning (Rieser et al., 2016; Schiefele, 2017; cf. Johnston & Roberts, 2011). An interest approach or anticipatory set must occur at a felt-need level (Phipps et al., 2008) to fully engage students.

Summary. One of the most crucial aspects of the new theory of context is that the teacher must both be aware of the who, what, how, and why of the content, and appropriately communicate it to students. It is not enough to know content is important and tell students it matters; the teacher must make students feel it is important and create a need for them to learn more and discover the information. Communication must occur at a two-way level where the teacher receives feedback and confirmation from the students via formative assessment (i.e., micro-context) to ensure students are ready to proceed.

Objective Two: Revise the Context-State-Result Model

Based on the findings of this study, I developed a revised version of the context-state-result model. I theorized that context, within the context-state-result model, moderates the relationship between teaching and learning. The use of any of the four constructs of context (ideally all four)—for example (a) audience analysis that acknowledges the unique needs and culture of students (i.e., who), (b) communicated objectives that include the audience, behavior, condition, and degree (i.e., what; ABCD model, Heinich et al., 2001), (c) transparent and consistent directions for the lesson and a rubric for evaluation as a form of proactive classroom management (i.e., how, when, and where; Winkelmes, 2013), and (d) an interest approach/anticipatory set delivered at a felt-need level (i.e., why; Hunter, 1982; Newcomb et al., 2004; Phipps et al., 2008), will have a positive impact on teaching (i.e., state) and learning (i.e., result). Whereas the lack of context, or worse: negative context (e.g., a bad interest approach that shuts students down, confusing directions, or a poor relationship between the teacher and student) negatively impacts learning and an educator's ability to instruct students.

Implications

This study provided a theoretical framework to describe the relationship between teaching and learning, and how contextual variables influence it. Researchers have studied many of these factors independently, but have not evaluated them in a study together, at least within the scope of the context-state-result model. Contextual variables such as teacher immediacy, student engagement, classroom management strategies, and the relationship between the teacher and student have a significant effect on teaching and learning. If a teacher uses various aspects of context—such as audience analysis, clear and

communicated objectives, concise directions and transparent rubrics for evaluation of learning activity, and an interest approach at a felt-need level—they can enhance their teaching ability and improve teaching.

The new model has implications for teaching methods and planning for instruction. Participants in this study described that context was confusing, therefore I theorized a new model, which may help teacher candidates and facilitators learn methods of teaching and the context of learning better than the previous model. Participants also recommended educators use the context-state-result model in practical situations, such as lesson planning. The integration of context-state-result into lesson plans and curriculum may help context become easier to understand and help to ensure curriculum addresses all four constructs of context, as well as have an appropriate state change and review in the results section.

Limitations

I conducted this study within the scope of School-Based Agricultural Education and the context-state-result model. It is possible that other contextual variables exist outside of those identified by participants in this study. This study was also subjective in nature. The researcher contributed to the active and intensive interview process to generate data with participants. While I believe the findings of this study are useful to describe context and have meaningful application to the field, it is possible another researcher may have discovered additional variables or interpreted responses differently. Finally, most of the participants in this study were from the western geographical region of the United States, as there was an assumption that states within these areas of the country had heavily adopted the model. As the adoption of the model grows, there would be value in evaluating the perception of these variables with a different sample of participants.

Recommendations for Practice

Based on the findings of this study, I recommend the following for practitioners within School-Based Agricultural Education:

1. The National FFA Organization and FFA state associations using both the original context-state-result model and the READ version of the model should examine the new theoretical framework I have created and update their training materials where appropriate to better prepare facilitators to use context-state-result.
2. Teacher education institutions should introduce the concepts of context and context-state-result to teacher candidates to help them better understand the impact that audience analysis, objectives, directions and rubrics, and interest approaches have to moderate teaching and learning.
3. Teacher educators should develop new lesson plan formats that better integrate the contextual conditions of teaching and learning. Further, as there is some degree of overlap between FFA's format and template for lesson planning (i.e., the magic formula) and context-state-result, National FFA should look at integrating the two concepts to improve clarity and avoid confusion.
4. There would be value in developing a textbook or instructional training resource about context and context-state-result, like tools developed from Hunter's (1982) mastery teaching, either by Reardon or others involved in School-Based Agricultural Education.

5. Continued implementation and a renewed focus on professional development programs like the delta conference may better prepare those in the field to use the concepts of context and context-state-result.

Recommendations for Future Research

Based on the findings of this study, I recommend the following for researchers within School-Based Agricultural Education:

1. Researchers should conduct a full systematic review of the quantitative and qualitative literature as a research method (i.e., meta-analysis) on the various variables of context to synthesize the effects of context on teaching and learning. As there are thousands of articles that researchers might include in such a study, and as the variables are complex and difficult to search for, this project should involve a team of highly qualified researchers with experience in both educational psychology and systematic review.
2. It would be useful for researchers to examine context from the perspective of students, particularly to determine what students believe to be most useful and important in supporting their learning.
3. Participant in this study primarily discussed acknowledgment and the who variable from the perspective of teacher-to-student. It would be beneficial to consider if who/interpersonal acknowledgment occurs student-to-student, particularly how it influences context, state changes, and result (learning), and what role the teacher plays in this relationship.

4. Researchers should further explore the concept of relevancy and interest approaches, specifically an interest approach at a felt-need level, to better compare it to other strategies of student engagement.
5. Research should examine the relationship between student and teacher, and propose strategies for fostering interpersonal acknowledgement, like the strategies that exist for in the other constructs (i.e., interest approaches, objectives, rubrics).
6. Researchers should conduct an experiment that measures the impact of the four variables of this theory in a classroom setting with the intention to develop a structural equation model.
7. Future research should explore the concept of context outside of School-Based Agricultural Education, and outside of the United States, to assess if contextual variables change by content area or culture (i.e., cultural phenomenon).
8. Philosophically examine context as a fluid and evolving experience, rather than a thing with borders.

Concluding Remarks

My journey to learn more about context and the context-state-result model has been life changing. The first time I saw the shapes (i.e., ●+▲=■) was when I was navigating curriculum materials in California at my new job in 2013. I thought it was some silly diagram clearly created by someone who did not understand teaching and learning. Surely this context-state-result framework was not based on sound educational theory and comparable to the training I had received in my teacher preparation program. As I learned

more, I saw how impactful the model was, and how I had a complete blind spot to the contextual conditions of teaching and learning.

I reflect to the thousands of times I have started a lesson where I read the objectives off a piece of paper, not caring if students understood them or cared. Sometimes I might have used an interest approach, but more often I played a funny video completely unrelated to the lesson to start class. Other times I did things that were good but did not understand why. For example, I had an excellent bell ringer. Each day I opened class with a PowerPoint slide located on the class website that told students which activity we were going to work on from their binders, when assignments were due, the objectives for the day, and had students answer a reflection question to gauge knowledge from the previous class period, which counted as their attendance. That simple bell ringer provided students with a road map of the day and established expectations and routine. One time I was gone with students and the school forgot to order a substitute. It took several periods before my teaching partner noticed there was no one in my classroom supervising. Students simply pulled up the bell ringer slide, read the objectives and got to work. They understood my expectations and did not need someone there to tell them what to do. It was not until years later that I realized how this daily activity helped to set context and support student learning, nor all the ways I could have been a better teacher had I understood more about the contextual conditions of teaching and learning.

Unfortunately, the context-state-result model was nowhere online. A search for "context state result" on Google produced zero results. Some would describe Reardon as the creator, but he was a published author and high-profile speaker. It was not until I had

the opportunity to run a delta conference with him that I learned more and had the opportunity to conduct research to track down context-state-result's origins.

Even when I began this study, I thought I knew what the outcome would be. It is impossible to enter grounded theory as a blank slate. As an experienced teacher educator and state supervisor of School-Based Agricultural Education, I figured I knew all the answers. I knew the components of the READ model matched well with the three domains of learning (i.e., cognitive, affective, and psychomotor) which were also reflected in other parts of the model too (i.e., state and result), therefore my perceived solution was to drop the fourth letter (i.e., acknowledgement) of the READ model and propose a new theory.

I was wrong. Participants in this study described rich experiences of context. They talked of the value of relationships with students and how important it is to consider how unique each learner is, specifically in modern education where those at the margins and the historically oppressed have been ignored for too long. Those I interviewed talked of how amazing it feels to have a direction set and activity that works; to see students in the zone and working hard without questions is a wonderful experience. Others described how frustrating it can be to have classroom management issues, and as they focused on context—specifically expectations and culture of the class—these issues went away. Most importantly, participants frequently talked about relevancy and how crucial it is to create engagement—not just awareness or basic interest—but genuine curiosity and a felt-need to learn more. I thought I knew the answers for what context is, but now we know so much more because of this study.

I also thought I knew how the interviews were going to go. Conducting a study using multi-grounded theory was an enriching experience. I depended heavily on my chair

and members of my committee to debrief and refocus my interview protocol to produce rich, valuable data. Members of my committee helped me to wrestle with positionality and my own experiences related to context-state-result. My chair guided me through initial and theoretical sampling, most notably when the new labels and concepts began to emerge, and we theorized what context-state-result could look like based on our data and literature review.

I genuinely believe School-Based Agricultural Education has one of the best models for education. We believe in academic instruction, technical and experiential learning, and leadership development. Agriculture teachers are hardworking, amazing people who make a difference every day. I also believe context-state-result is a superior model compared to other methods for structuring a lesson plan, teaching a class, and engaging students. This is how we do better as teachers. This is how we change more students' lives. Context matters.

We now have more information to support adopting context-state-result in teacher education and non-formal educational spaces, specifically how to make it less confusing and what the key constructs are within it. We can now define context as a frame that surrounds the educational event of teaching and learning and provides students with resources for content's appropriate interpretation. I feel confident that context moderates the relationship between teaching and learning, partially due to the lived experiences of the teachers, state supervisors, non-formal educators, and teacher educators I interviewed to construct this theory, but also because of the literature I explored to ground this theory that provided evidence for how context impacts students and teachers. I now theorize that

context has four constructs: who (interpersonal acknowledgement), what (cognitive expectations), how (psychomotor directions), and why (affective relevancy).

This journey to discover and define context began in 2013, taking me through a doctoral program and into the uncharted territory of creating a theory using multi-grounded theory. I am hopeful we can make a positive difference with this new theory to support both students struggling to understand why content matters to their lives and how they are going to use it, and the thousands of educators who give of their time and resources and desperately need evidence-based strategies to stay in the profession and more effectively teach the public about food, fiber, and natural resources.

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Note. * = primary studies used in the systematic-style reviews.

APPENDIX A

CONSENT FORM

Title of Research Study: The context of learning: A multi-grounded theory of the moderating variables of teaching and learning

Investigator: Mr. C. Zane Sheehan, Dr. Lori L. Moore.

Funded/Supported By: This research is funded/supported by Texas A&M University

Why are you being invited to take part in a research study?
You are being asked to participate because you are considered an expert in the context-state-result method having potentially supported this method's adoption in our field.

What should you know about a research study?

- Someone will explain this research study to you.
- Whether or not you take part is up to you.
- You can choose not to take part.
- You can agree to take part and later change your mind.
- Your decision will not be held against you.
- You can ask all the questions you want before you decide.

Who can I talk to?
If you have questions, concerns, or complaints, or think the research has hurt you, talk to the research team at [redacted] (zsheehan@tamu.edu) or [redacted] (llmoore@tamu.edu).

This research has been reviewed and approved by the Texas A&M Institutional Review Board (IRB). You may talk to them at 1-979-458-4067, toll free at 1-855-795-8636, or by email at irb@tamu.edu, if

- You cannot reach the research team.
- Your questions, concerns, or complaints are not being answered by the research team.
- You want to talk to someone besides the research team.
- You have questions about your rights as a research participant.
- You want to get information or provide input about this research.

Why is this research being done?
An alternative conceptual model of teaching and learning has emerged in School-Based Agricultural Education. The conceptual framework is known as the context-state-result model, designed by Mark Reardon in 2000. While national level School-Based Agricultural Education and FFA leadership, and numerous state education agencies, have adopted the framework, aspects of the model remain underdeveloped. Specifically, the concept of context—environmental/contextual factors that contribute to both teaching and learning—are under-defined and inconsistently described when used within school-based agricultural education and teacher professional development/teacher education programs. The purpose of this multi-grounded theory analysis is to develop of theory of the contextual factors that moderate the relationship between teaching and learning within the context-state-result conceptual model.

How many people will be studied?
We expect to enroll about 30 people in this research study.

What happens if I say "Yes, I want to be in this research"?
Semi-Structured Interviews will be conducted. Interviews will last 60 minutes and will be conducted by phone with an investigator at Texas A&M University. If your approval is given, you will be recorded during the call to ensure accuracy of the research.

The following objectives will be explored in this study:

1. Develop a theory of, and within, the context-state-result model, to explain the contextual variables that moderate the relationship between teaching and learning.
2. Empirically synthesize literature on the concepts related to the context of learning.

What happens if I do not want to be in this research?
You can leave the research at any time and it will not be held against you.

What happens if I say "Yes", but I change my mind later?
You can leave the research at any time and it will not be held against you.

Will being in this study help me in any way?
We cannot promise any benefits to you or others from your taking part in this research.

What happens to the information collected for the research?
Efforts will be made to limit the use and disclosure of your personal information, including research study and other records, to people who have a need to review this information. We cannot promise complete privacy. Organizations that may inspect and copy your information include the TAMU HRPP/IRB and other representatives of this institution.

What else do I need to know?
When the study is complete, we will share a copy of our findings with you.

Please indicate your willingness to participate in these optional activities by placing your initials next to each activity.

I agree	I disagree	
_____	_____	The researcher may audio or video record me to aid with data analysis. The researcher will not share these recordings with anyone outside of the immediate study team or TAMU Compliance.

Signature Block for Capable Adult

Your signature documents your permission to take part in this research.

Signature of subject	Date
Printed name of subject	
Signature of person obtaining consent	Date
Printed name of person obtaining consent	

APPENDIX B

RECRUITMENT LETTER

June 1, 2019

You are being asked to participate because you are considered an expert in the context-state-result method having potentially supported this method's adoption in our field.

As part of a research study on this emerging teaching method, approved by Texas A&M University, we are working to further define the context-state-result framework, specifically to explore and conceptualize the contextual factors that moderate the relationship between teaching and learning for formal and non-formal/informal School-Based Agricultural Education instructors in the United States:

- Develop a theory of, and within, the context-state-result model, to explain the contextual variables that influence teaching and learning.
- Revise the current context-state-result model to better explain the role of context within the model.

We would like to conduct a **60-minute phone interview** to discuss these objectives. If you are interested in participating, please respond to this email and we can work to schedule a time that works best for you. If your approval is given, you will be recorded during the call to ensure accuracy of the research. If you agree to participate, please review and sign the attached informed consent form.

If you have questions about the research project or the consent form, you may contact Mr. Zane Sheehan, Graduate Instructor and Research Assistant at [redacted] or Dr. Lori Moore, Associate Professor of Agricultural Leadership, Education and Communications at Texas A&M University at [redacted].

Thank you for your time and assistance in this study. We look forward to talking with you.

Mr. Zane Sheehan	Dr. Lori Moore
Graduate Instructor, Research Assistant	Assoc. Professor of Ag Lead., Ed. & Comm.
Texas A&M University	Texas A&M University
Co-Investigator	Primary Investigator

In accordance with Institutional Review Board (IRB) requirements, you should know that your participation is strictly voluntary. Information you provide is not considered confidential. Efforts will be made to limit the use and disclosure of your personal information, including research study and other records, to people who have a need to review this information. Your decision on participation will not result in any loss of benefits to which you are otherwise entitled, nor will it impact your relationship with School-Based Agricultural Education, the National FFA Organization or Texas A&M University. This study does require participants to complete a consent form for agreement to participate. You may "opt out" at any time without any negative ramifications.

APPENDIX C

INTERVIEW PROTOCOL

1. What is your background and history with education, specifically School-Based Agricultural Education?
    a. What is your background and understanding of the context-state-result model?
2. Can you describe each of the three components of the model?
    a. Where did you first learn about it?
    b. How has it influenced your teaching practice and philosophy?
3. What is your understanding of the context label within context-state-result?
4. If you were trying to teach another educator about the contextual conditions of teaching and learning, how might you describe them?
    a. What advice would you give to establish context in the classroom?
5. What is the result of "good" context?
    a. As an educator, what are the contextual factors that you believe support (positively moderate) teaching/methods/content?
    b. Support learning/results?
    c. What are a few specific examples of activities or methods you use, or avoid using, to set context?
6. What is the result of "poor" context?
    a. As an educator, what are the contextual factors that you believe hinder (negatively moderate) teaching/methods/content?
    b. Hinder learning/results?
    c. What are a few specific examples of activities or methods you use, or avoid using, to ensure context is not detracted from?
7. How might contextual factors influence students learning as a method, e.g.,
    a. Learning as a result of thought (cognitive)?
    b. Learning as a result of feeling (affective)?
    c. Learning as a result of action (psychomotor)?
8. How might contextual factors influence student learning overall, for example on assessment and standards?
9. How might contextual factors influence you, as a teacher, to use teacher-centered teaching methods (lecture, discussion, and demonstration)?
10. How might contextual factors influence you, as a teacher, to use student-centered teaching methods (projects, problems, and inquiry)?
11. If you were to change the context-state-result model, specifically the context component, what might you add or remove?
12. Anything further you would like to share?
13. Demographics: age, gender, and number of years teaching.