MOVING TO THE OTHER SIDE OF THE DESK: LEARNING EXPERIENCES OF PRESERVICE TEACHERS AS THEY TRANSITION TO PROFESSIONAL TEACHERS

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DOCTOR OF PHILOSOPHY

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ABSTRACT

This study sought to understand learning through the lifeworlds of preservice teachers who are in the last semester of their elementary education program at a Midwest University. The research was an explorative study into preservice teachers' understanding of how they learn, how they define learning, and how their own experiences as students will transfer, as they become professional educators.

This study addressed the overarching question: What does it mean to learn and think about learning through the lens of 21st century senior standing elementary education preservice teachers as they transition to the other side of the desk? This study employed a staged data gathering design in which 25 preservice teachers participated in an online questionnaire, a focus group session, and individual interviews. The data was analyzed systematically according to methodology outlined in transcendental phenomenology procedures. Two categories of themes were identified: (a) Preservice teachers' own learning, and (b) Preservice teachers' teaching. Within the categories, eleven themes were identified that addressed learning according to the lifeworlds and experiences of the preservice teachers involved with the study. The lessons learned through this study can be used to inform teacher education programs as more and more 21st century learners are taught to become teachers of other 21st century learners.

ACKNOWLEDGEMENTS

When I was a preservice teacher, I told my cooperating teacher that someday I would be a teacher of teachers. I knew 20 years ago my career path would take me toward earning a doctoral degree. However, this would not have been possible without the many people who supported, encouraged, and helped me find my passion for education.

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My students are what drive me to learn and to teach. The passion I have for teaching stems from interactions with students. I could have never accomplished this research study without the support of my preservice teachers. Each day they would ask how many pages I wrote and tell me I had to get this degree because I mattered to them. Thank you, students, for sharing in my passion for learning.

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DEDICATION

This dissertation is dedicated to my daughter Melissa Marlene. During her year of life on this earth, she gave me the courage to make my life worthwhile and memorable. I will forever love and miss you my sweet baby girl. I would like to dedicate this dissertation to my wonderful family: my husband Douglas, my children Andrew and Megan. You are forever in my heart for the support you gave me on this journey. I would also like to dedicate this dissertation to my parents, Marvin and Joyce Langerud, who raised me to follow my dreams and reach for the stars.

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CHAPTER 1. INTRODUCTION

The United States educational system is built on the ideals of a democratic society. Learning in a democratic society or any society is "determined to a large extent to the needs of the current society" (Merriam, Caffarella, & Baumgartner, 2007, p. 5; Jarvis, 1987). The preparation of citizens under our democratic society has been accomplished through the education of young people, with teachers providing the necessary tools towards advancing democracy. Contributing to political, civic, and economic life is "increasingly important to the success of both individuals and nations" (Darling-Hammond, 2006, p. 300). The importance of educating children and adults has influenced government agencies in the United States and these agencies' efforts to implement various reform initiatives in public school systems and teacher education programs. During the past century, these reform efforts have included emphasis on rigor in core academic areas and 21st century technological literacy knowledge (Harasim, 2012; Beatty & Koenig, 2012; Tack & Cuba, 1995).

In the quest to promote future success in our knowledge-based society, parents, students, legislators, accrediting agencies, foundations, and even universities are showing a growing interest in the quality and value of the education of our children and in knowing *how* children learn. (Bowen, 2012; Darling-Hammond, et al., 2002). This interest in learning, the importance of preparing young people, society's expectations, and the multitude of ways in which knowledge can be obtained, all bring about a need to further understand the concept of learning. Merriam, et al., (2007) contended that within our current society's structure we need to understand "human beings rather than educational institutions as a beginning point - the *learning society*" a term that parallels the social context in which we live (p. 25). The 21st Century has created endless

possibilities for anyone who wants or needs to learn; emerging technologies have provided "opportunities to guide and enhance learning" (Merriam, et al., 2007; Darling-Hammond, 2006).

> Everyday teachers enter their classrooms with lesson plans, experience, and the hope that what they are about to present will be understood, remembered, and useful to their students. The extent that this hope is realized depends largely on the knowledge base that these teachers use in designing those plans and, perhaps more important, on the instructional techniques they select during the lessons. (Bowen, 2012, p. 146)

Despite our society's interest in learning, and despite the knowledge that teachers are essential contributors to student learning, there has been limited impact on teacher education training programs. In fact, many of the components of educating preservice teachers have remained relatively stable (Darling-Hammond, 2006; Douwe, et al., 2007). For example, the National Council for Accreditation of Teacher Education (NCATE) purported in the opening report of the Blue Ribbon Panel on Teacher Education that the "education of teachers in the United States needs to be turned upside down" (NCATE, 2010, p. ii). The Carnegie Corporation (2007) discussed teacher preparation program reform as crucial for our current knowledge based society. Yet, research on the "issue of teacher learning has until recently drawn relatively little attention from researchers" (Douwe, et al., 2007, p. 105). One aspect upon which many researchers agree is that the quality of a teacher impacts student achievement more than any other factor in student learning (Rivkin, Hanushek, & Kain, 2005; Douwe, et al., 2007; Hanushek, 1992; Sanders, Epstein, Connors-Tadros, 1998; Darling-Hammond, 2000). In fact, Hanushek (1992) contended that the effect of a bad teacher on student achievement could be negatively equated to one grade level of learning.

> Teacher learning has emerged as an important research topic. Currently, much emphasis is being placed on characterizing the ways in which teachers learn and on factors that promote or hinder their learning. The question of 'how teachers learn' is important because answers to this question may result in recommendation for the improvement of both initial teacher education and further professional development of teachers. (Douwe, et al., 2007, p. 105)

The issue of learning in teacher education programs is complicated because preservice teacher education majors are also in the process of learning how to transition from student to teacher. Put another way, a common saying in education circles is they are moving to *the other side of the desk* in their education program. The personal beliefs that preservice education majors and teachers hold about learning and teaching are influenced by the years they have spent in the classroom as *students*. These beliefs, in turn, can influence learning and engagement with education course material, as well as classroom decision-making processes (Pajares, 1992; Schommer, 1990). For instance, in an examination of relationships between the qualifications of elementary school teachers and student achievement King-Rice (2003) concluded that the emphasis of teacher education coursework and the degree earned affect first grade student reading achievement (p. 20).

Another issue confronting teacher education programs is the processes utilized to teach teachers. While promoting methods that integrate content as a means for helping children learn holistically, teacher education coursework itself remains disjointed. In other words, teacher education programs do not practice what they preach. For example, professors tend to approach teacher education coursework autonomously and in isolation from the other professors while trying to teach preservice teachers to teach subjects in an integrated manner designed to improve

students' abilities to retain and transfer knowledge in multiple contexts. Additionally, coursework is typically separate from fieldwork. As a result, the context in learning to become a teacher is through a combination of academic and field-based experiences that are rarely integrated (Ben-Peretz, 2011).

Teaching is complex. The expectations of teachers is that they will assist students in learning core content while connecting the content to auditory, visual, and kinesthetic learners, something that teachers have difficulty doing well (Kolb and Kolb, 2005; Lachenmayer and Sharp, 1997; Bowen, 2012). The difficulty in achieving success in teaching for all students is based on the complexities of the profession, as the following statement contends:

> Teaching may be even more complex than law, medicine, or engineering. Rather than serving one client at a time, teachers work with groups of twenty-five to thirty at once, each with unique needs and proclivities. Teachers must balance these variables, along with a multitude of sometimes competing goals, and negotiate the demands of the content matter along with individual and group needs. They must draw on many kinds of knowledge – of learning and development, social contexts and culture, language and expression, curriculum and teaching – and integrate what they know to create engaging tasks and solve learning problems for a range of students who learn differently. (Darling-Hammond, 2006, p. 14)

Problem Statement

In endeavoring to address the complexities that affect how preservice teachers can learn to be more effective, where does one begin? Cannella (1998) posited that to "adequately address the needs of other learners, a teacher must first understand him/herself as a learner" (p. 27). A study conducted by Holt-Reynolds (1992) described the difficulty that their population of

preservice teachers had in describing what constituted learning. "Learners" and "learning" are terms that are connected and used frequently, yet what it means to learn is not clearly defined or understood. Still, "The need and ability to learn and hence to educate effectively and efficiently is at the root of human survival and civilization" (Harasim, 2012, p. 16).

Understanding learning is difficult. The issue or problem with understanding "learning" is due in part to the vagueness of the term; operationalizing a definition for learning is a task some researchers believe is almost impossible (Harasim, 2012; Illeris, 2007; Jarvis, 2006; Rogers, 1969; Smith, 1982). The difficulty in understanding what learning means stems from the uniqueness of the learning process, since individuals acquire knowledge in very personal and private ways.

Preservice teachers need to become "empowered learners who understand the processes of human concept construction, first for themselves and consequently for students in their classrooms" (Cannella &Reiff, 1998, p. 27). For instance, Fosnot (1996), in his research on teaching and learning, discussed how one of his teacher participants realized during his research the importance of understanding how learners think and that "*what one knows*, and *how one knows* affects *what one can learn*" (p. 39).

In attempting to understand how individuals learn, Bowen (2007) contended that it makes sense to begin with a "dissection of what we currently do…collecting data, and embracing a feedback loop that uses results to inform change" (p. 206). This research study embraces the dissection of learning from the perspective of preservice teachers who are in their final semester before becoming a professional educator.

Purpose of the Study

This research study attempted to understand preservice teachers' thoughts on how they learn and how their own learning will affect them as professional educators. The purpose of this transcendental phenomenological study was to develop an understanding of the pattern of meanings and/or themes related to what it means to learn in the 21st century. Through participants' own voices their opinions, self-efficacy beliefs, and lived experiences as students and as preservice teachers were explored to gain an understanding of how they think about learning, how they define learning, and how their own experiences as students in learning will transfer, as they become professional teachers.

Exploratory Research Questions

The research questions in this study are considered exploratory research questions. This study began with one overall guiding research question: *What does it mean to learn and think about learning through the lens of 21st century senior standing elementary education preservice teachers as they transition to the other side of the desk?*

The following investigative sub-questions addressed the overall guiding research question in this study and emerged through the review of the literature on learning, the collection of data, and the focus of the initial research question.

1. How do 21st century elementary education senior level students in postsecondary education define learning?
2. What helps 21st century elementary education senior level students in postsecondary education learn?
3. How do 21st century elementary education senior level students in postsecondary education know when learning has occurred for them?

4. What experiences influence learning for 21st century elementary education senior level students in postsecondary education?
5. How do *21st century elementary education senior level students* in *postsecondary* education think their personal ways of learning are going to impact how they teach?

Nature of the Study

The study used a transcendental phenomenological qualitative approach to develop an understanding of the pattern of meanings and/or themes related to what it means to learn for 21st century senior standing elementary education preservice teachers. The phenomenological approach is descriptive in nature and is used to describe the perceptions of the participants in the study. Based on the work of Edmund Husserl and Clark Moustakas, transcendental phenomenological research uses a systematic procedure in the analysis of data collected. This methodology was chosen based on the research questions and the three forms of data that were gathered.

A conceptual framework [See Figure 1] was used as a lens for conducting the study. Maxwell (2005) defined conceptual framework as a "system of concepts, assumptions, expectations, beliefs, and theories that support and inform research through a graphical or narrative form of communication" (p. 33). In this study, the purpose of the conceptual framework was to guide the researcher in organizing and understanding the research study's components.

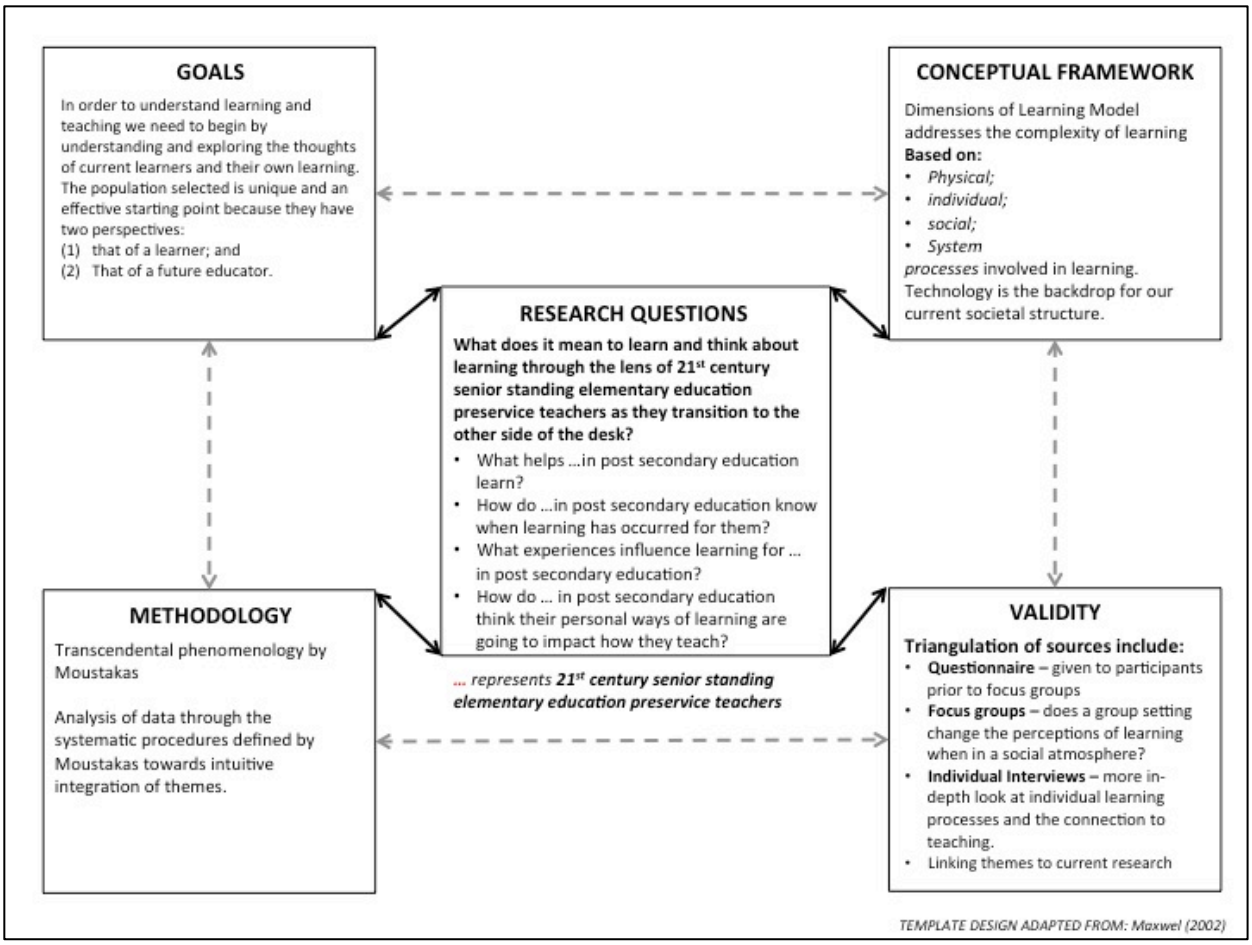

Figure 1. Conceptual Framework

Significance of the Study

This study contributes to the body of literature regarding learning in the context of preservice teachers who are transforming from learners to teacher/learners. This study sought to understand how learning occurs for the population studied through their experiences. The inquiry into preservice teacher learning will help teacher educators understand how preservice teachers view their own learning and the thoughts they hold regarding learning and teaching. Knowing how preservice teachers perceive learning and teaching may help teacher educators better prepare preservice teachers to become more effective teacher learners.

Limitations of the Study

This study was limited to a purposive, homogeneous population of preservice senior level elementary education majors who would be student teaching during the study's data collection period or the semester following the period of data collection. The researcher was a prior instructor of the population being studied; therefore the population was familiar with the researcher, which could have impacted the kind of data gathered. The study's population was unique because the participants were a cohort of a specific university system and were all identified having the same major of elementary education. Because this was an initial, exploratory study, it is not advised that the results of the study be generalized to other universities or groups of preservice elementary education majors. Participation in the study was voluntary, and 25 out of 44 invited participants participated in the study, which provided a relatively ample sample size.

Operational Definitions

1. *Preservice teachers.* "a student whose professional goal is to teach one specific grade level of students, usually ranging from kindergarten to sixth grade. University prerequisites for acceptance into teacher education include a fairly broad range of liberal arts" (Kile, 1993, p. 25).
2. *Teacher:* "a facilitator who encourages learners to reflect, analyze and interpret in the process of knowledge construction" (National Council for Teacher Education, 2006, p. 24).
3. *Teacher education:* an educational system which provides education majors with "core ideas and broad understanding of teaching and learning that give them traction on their later development" (Darling-Hammond, Chung, Frelow, 2002, p. 3).

4. *21st Century:* a period in time in which technological advances have changed the focus of how information is obtained.
5. *Principles of Learning:* "factors that influence learning and describe the specific effect that the factors have…tells us what factors are important for learning" (Omrod, 2008, p.5)
6. *Theories of Learning*: "explanations about the underlying mechanisms involved in learning…tell us why the factors are important" (Omrod, 2008, p.5).
7. *Learning*: Learning has several meaning associated with the term. No one association is identified in this study, rather learning will be defined as it relates to the theories of learning presented in the literature review and by the participants in the study.
8. *Learning Strategies*: "the intentional use of one or more cognitive processes to accomplish a particular learning task" (Omrod, 2008, p. 357).
9. *Paradigm:* "general framework for empirical research…more than just a limited theory…corresponds more closely to a school of thought or an …ism" (Hergenhahn & Olson, 2005, p. 24).
10. *Transcendental Phenomenology:* A systematic qualitative data analysis process developed by Edmund Husserl and Moustakas.

Summary and Organization of the Study

Our society has moved beyond functioning as an industrialized nation; we are now a globalized society, where "the need and ability to learn and hence to educate effectively and efficiently is at the root of human survival and civilization" (Harasim, 2012, p. 16). Preservice teachers are at the forefront of educational reform or changes in teaching methodologies because this generation of preservice teachers will soon become the next generation of educators who

train individuals for future employment in our society. The introduction in this chapter showcased the background and significance for this study, the purpose for researching preservice teachers perceptions on learning, and the conceptual framework guiding this study.

This dissertation is organized into six chapters. Chapter 1 provides the introduction to the study. Chapter 2 reviews the literature based on the Model of Dimensions, including: (a) a descriptive analysis of the components of the dimensions of learning model, (b) educational learning theories, (c) preservice teacher attributes, (d) 21st century cultural aspects, and (e) technology's use in education. The literature review in chapter two provides the groundwork for the study. Chapter 3 outlines the methodology procedure used to conduct the study. Chapter 4 contains the process used in the reduction of the data collected and provides examples of significant statements that were found in the data collection process. Chapter 5 explains the intuitive integration analysis of the essence of the experiences by the population examined. Chapter five revisits and extends the literature review based on the findings of the research. Chapter 6 discusses the results, what was learned, and opportunities for potential further study.

CHAPTER 2. LITERATURE REVIEW

This chapter reviews relevant literature concerning the theoretical perspectives regarding the term *learning* as it applies to preservice teachers. The lens for this literature review is based on the theoretical underpinnings of the research conducted in this study on learning. This literature review served as the foundation for the research study. A second review of the literature was completed after the data has been gathered and analyzed.

Philosophical Foundations of Learning

"Humans begin to learn prior to birth and learning remains a continuous process until one's death" (Levine & Munsch, 2011). In casual conversation, when using the word 'learning', everyone seems to be talking the same language and have a common understanding of the term and what it means individually. Yet the term learning is ubiquitous by nature. When trying to operationally define the concept of "learning" or how people "learn", there is much confusion and dissention. Hebron (1983), through his research to create a conceptual framework on learning, found that although there is a multiplicity of theoretical constructs about learning, all constructs appeared to only offer a partial explanation based on personal perceptions and respective philosophical foundations.

Given the unique learning experiences of the individual, providing a definitive definition to the term *learning* and understanding the process of learning seems to be an issue for theorists. Several noted researchers agreed that there is no generally accepted definition of learning (Illeris, 2007; Rogers, 1969; Jarvis, 2006; Smith, 1982). The wide array of definitions of learning is based on assumptions held by the theoretical underpinning of the theory to which they subscribe. Smith (1982) suggested that, while there is no general agreement on the definition of learning, "there is general agreement that it has to do with very complex processes – not all the same kind

that involve the mind, the emotions, and the total self, or one's entire being" (p.34). Furthermore Weibell (2011) made an argument that "while the process of learning is generally complex it is not entirely unpredictable" (p.1). Because of the challenges in defining learning, Smith (1982) identified three ways to describe learning based on the use of the term:

> (a) When learning is used to describe a product, the emphasis is on the outcomes of the experience, (b) when learning is used to describe a process an attempt is made to account for what happens when a learning experience takes place, (c) when learning is used to describe a function, the emphasis is on certain important aspects which are believed to help produce learning (p. 35).

The basis for Smith's views on learning coincides with the main theories used in education and examined in this literature review: (a) behaviorist theory; (b) cognitive theory; (c) critical theory; (d) constructivist theory; (e) humanist theory; and (f) constructionist theory, of learning. Each theory examined provides a definition of learning based on the theoretical constructs and framework.

Technological advances in the 21st century brought about a need for increased knowledge and understanding of how to gain new knowledge. New knowledge does not last long; it is rapidly replaced by newer knowledge. "One of the most persuasive factors in our technological society is the shrinking half-life of knowledge" (Gonzalez, 2004, p. 1). The World Wide Web has increased the availability of information to individuals with the access to technological components. Yet, as Brookfield & Holst (2012) contended, this has created assumptions regarding learning as "taken for granted beliefs about the world and our place within it" (p. 1). Furthermore, as Bransford, Brown, & Donavan (2000) purported, learning as an individual process acknowledges that, "people must learn to recognize when they understand and when they

need more information" (p. 12). The recognition of knowing when learning has occurred can be directly related to the education field and how teachers teach their students. In short, there is much more knowledge to be learned, and higher education and teachers are at the forefront of this learning revolution occurring because of technology's advances.

The personal beliefs that professional teachers hold about learning can influence how they teach and their classroom decision-making processes (Pajares, 1992; Schommer, 1990). Preservice teachers, having spent a majority of their lifetime learning as students, spend a majority of their post-secondary education studying philosophical foundations of learning theory as future practitioners of teaching. Because learning is personal, it is possible that the beliefs about learning that preservice teachers hold as former students may be in conflict with the beliefs about learning that these same preservice teachers hold as future teachers. If this is the case, then understanding preservice teachers' beliefs about learning is the first step in bringing about positive change in educational reform.

This research study is based on understanding how preservice teachers understand their own learning and how their own learning will transfer as they move to the other side of the desk as professional educators. This literature review will focus on providing a background of learning theory based on the *Dimensions of Learning Model* as a guide in understanding learning from the perspective of teaching. The literature review begins with an introduction to the literature on learning. A discussion regarding the focus of the *Dimensions of Learning Model* will be next. The literature review will then move on with a discussion on the major theories included in the model.

Harasim (2012) proposed that understanding historical perspectives on learning provides a framework and context for identifying new theories of learning based that accompany changes

occurring in our current society. A review of 21st century learning research outside of the discussion on each learning theory's contributions will be further explored. Then, an analysis of what the research has shown regarding learning for preservice teachers will be discussed. Finally, a summary synthesizing the information found in the literature review will be presented. It is important to note, again, that this literature review serves as the foundation for the research study. A second review of the literature will be completed after the data has been gathered and analyzed.

Dimensions of Learning Model

A Dimensions of Learning Model [Figure 2] was designed by Erichsen (2012) as a result of the tenets of her work with this doctoral candidate and her own scholarly research. The model consists of four quadrants in which a lens of learning is depicted. An overarching fifth dimension--21st century technology--impacts learning within each of the quadrants. This model attempts to classify the major theories of learning into dimensions rather than subscribing to just one school of thought. The Dimensions of Learning Model is not a be-all-end-all model by any stretch; it is simply an example of another way of thinking about learning. In a way, the model attempts to address the complexity of learning while allowing for individual internal forces (learning styles and genetics) as well as external forces (other people-social and globalization) that impact learning. Technology in this model is portrayed as the backdrop for learning because with the technological advances in our current society, technology has brought about a need to understand more about learning.

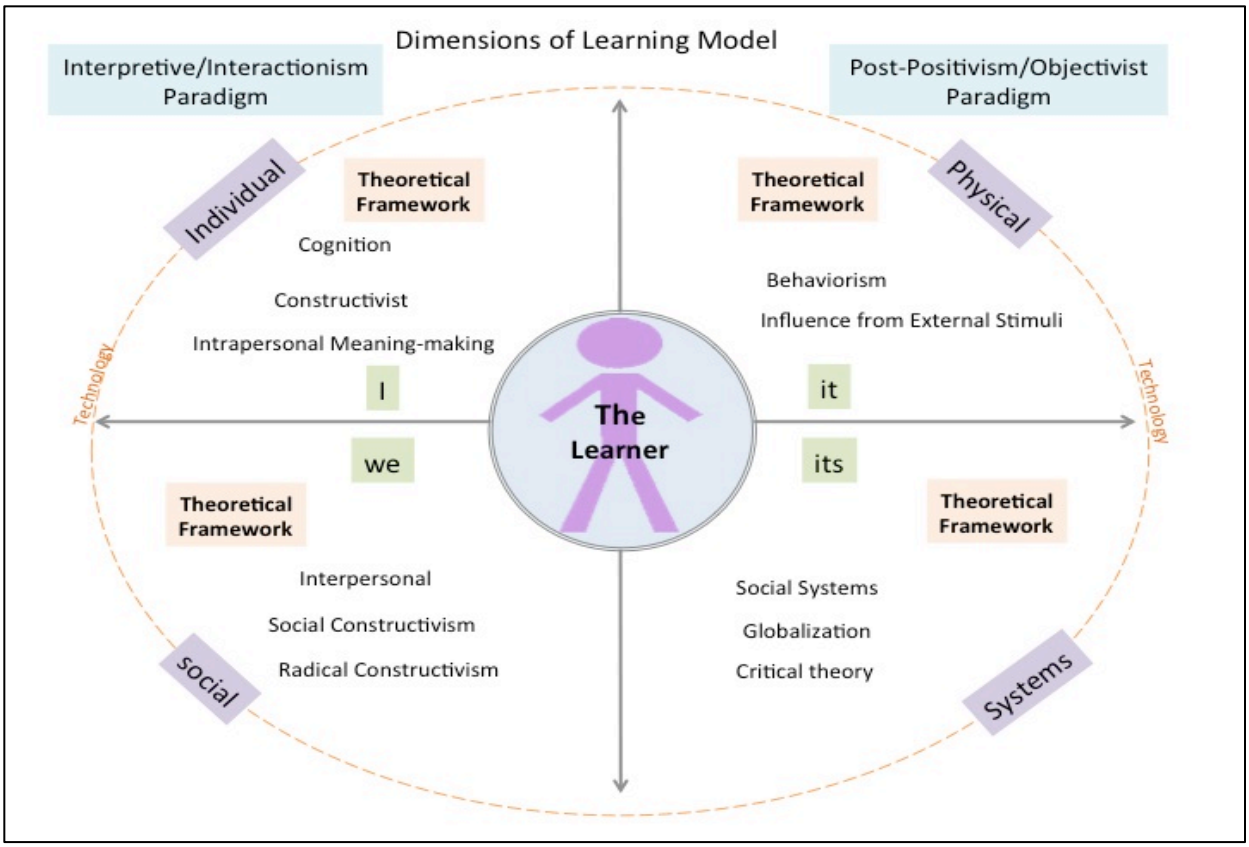

Figure 2. Dimensions of Learning Model

A paradigm can be defined as "philosophical and theoretical framework of a scientific school or discipline within which theories, laws, and generalizations and the experiments performed in support of them are formulated" (Webster, n.d.). Paradigms are formed through the philosophical assumptions that guide researchers' thoughts and actions as a way of contemplating the world (Mertens, 2010; Scotland, 2012). The fundamental epistemologies of the Post-Positivist/Objectivist and Interpretive/ Interactionism have unequivocally different views on how learning occurs. The following section will provide insight into the tenets of the Post-Positivist/Objectivist and Interpretive/ Interactionism paradigms through the lens of the Dimensions of Learning Model in the model. The function of these paradigms in the research study will also be examined.

Post-Positivist/Objectivist Paradigm

Post-positivism is a paradigm that has been "guided by early educational and psychological research based on positivism paradigm" (Mertens, 2010, p. 10). The ontological (*what is*) position of the positivism paradigm is based on realism. The purpose of realism is that beliefs are based on tested hypotheses of objectivity (Popper, 2002). Within the post-positivist paradigm, objectivist theories view learning as a reality that is outside and separate of the learner. The view in which learning and truth resides in an object and not in the experiences of the learner is exemplified through the following statement by Crotty (1998):

> A tree in the forest is a tree, regardless of whether anyone is aware of its existence or not. As an object of that kind ('objectively', therefore), it carries the intrinsic meaning of 'tree-ness'. When human beings recognize it as a tree, they are simply discovering a meaning that has been lying there in wait for them all along. (p.8)

Epistemology (*how we know what we know*) in the post-positivist paradigm focuses on objectivism. Robleyr (2006) posits, "Objectivists attend to concepts that evolved from behavioral, information-processing, and cognitive behaviorist learning theories" (p. 37). Learning as part of the objectivist theoretical philosophy is a function of cognition, mental ability, society's influences, and instructional procedures, which provide measurable outcomes for analyzing whether or not learning has occurred. The post-positivist/objectivist paradigm of learning is supported in behaviorism and critical learning theories as well as brain research.

Two learning theories discussed in this literature review stem from the right quadrant of the Post-Positivism/Objectivist Paradigm. The objectivist philosophy of learning is supported in behaviorism, while Interpretive/Interactionism philosophy of learning is espoused in cognitive, constructivist, and radical constructivist, and social constructivist theories of learning. Roblyer

(2006) contends "educators views diverge in the ways they define learning, how they identify the conditions required to make learning happen, and how they perceive the problems that interfere most with learning" (p. 37).

Within the Post-positivist/objectivist paradigm, two quadrants relate to the philosophical framework on learning. The first is the physical quadrant of learning, which is based on the theoretical position that learning is an individual process. The theory of behaviorism will be addressed for this quadrant. Behaviorism contends learning is a result of external stimuli that results in the learner having a relatively permanent change in their knowledge. The second is the systems quadrant of learning, which is based on the theoretical position that learning is constructed through society, globalization, and cultural aspects. The theory related to systems that will be discussed is critical theory.

Interpretive/Interactionism Paradigm

The Interpretive/Interactionism paradigm of learning is encompassed in the constructivist, constructionist, and social theories of learning. "Interpretivism emerged in contradistinction to positivism in attempts to understand and explain human and social reality" (Crotty, 1998, p. 66-67). The focus of Interpretive/ Interactionism paradigm results in symbolic meaning that is subjective between an individual or group of individuals. Interpretive and Interactionism learning occurs individually or socially in which meaning is derived from relationships.

The Dimensions of Learning Model identifies two quadrants within the Interpretive/Interactionism paradigm. The *Individual* quadrant embodies learning as an individualized activity in which one's own introspective awareness of learning and is identified through the pronoun '*I'*. The *Social* quadrant is characterized through a social aspect to learning

through the pronoun '*We'*. Learning in this quadrant is representative of theories that recognize learning as a social function. Both quadrants have their own identity in learning attainment; however there is overlap in theories and this will be discussed in the literature review.

The Individual quadrant represents learning as an individualization in which one's own introspective awareness of learning is identified through the pronoun 'I'. In this quadrant interpersonal, constructivist, and meaning making in learning are part of how an individual learns. Learning as an individual process identifies with an intrapersonal perspective in which meaning making in learning is a personal task. The constructivist nature of intrapersonal learning for individuals is based on how the learning episodes in which individuals are involved interconnect with their existing knowledge base. The theory discussed in this literature review with regard to the individual quadrant is the constructivist theory.

The social quadrant classifies learning based on constructionism, interpersonal, and cultural dimensions in learning attainment. Learning in the social dimension quadrant focuses on the theoretical framework of social learning theories that posit a "fundamentally social phenomenon that is acquired in the context of our lived experiences and participation in the world" (Ackermann, 2001, p.1). The social theories discussed are relevant to education in providing "tools such as better social consciousness, a critical mind, a critical language and a collaborative practice…which allow us to resolve social, cultural, and environmental problems" (Bertrand, 2003, p. 213). The theories discussed in this literature review relative to the social quadrant are based on the social and radical constructivist theory and constructionism theory.

Behaviorism

"Education has always had the modification of behavior as one of its main purposes, and behaviorist principles operate at all education levels" (Jordan, Carlile, & Stack, 2008, p. 27). Behaviorism arose during the late 19th century as a science, which sought to explain behavior using scientific means. John B. Watson (1878-1958) a theorist who coined the term behaviorism defined the purpose of behaviorism as a "purely objective view of experimental branch of natural science" by which behavior could be predicted and controlled (Watson, 1913, p. 158). According to Watson, the term behavior, is not limited to simply conduct, rather behaviorism entails human activity. In the educational setting, Watson believed he could use environmental stimuli to determine behavior and mold a learner into anything he chose through a process called conditioning.

The behaviorist perspective used in this literature review defines behaviorism as a field of psychology in which a change in behavior occurs in an individual as a result of experiences with outside stimuli (Driscoll, 2000; Jordan, et al., 2008; Hergenhan & Olson, 2001; Merriam et al., 2007). The principles guiding behaviorism as a theory of learning are based on two main assumptions. First, learning is an external observable behavior that has a measurable component. Second, learning is based on a stimulus-response system in which all learning is initiated by the environment (Grippin and Peters, 1984; Merriam, 2007). Behaviorism rejects the principles of choice, freedom, social constructs, and personality in learning because they are unobservable facets and, as such cannot be readily observed or measured (Omrod, 2008). Behaviorists' view learning as a product of content that has been mastered through the teacher-learner exchange, what Freire (2009) calls "the banking system" (p. 94). In the banking system, the teacher is the

director of knowledge and students are the vessels to which information that needs to be learned is given.

Contemporary behaviorists in educational settings focus on how the tenets of scientific behavioral perspectives can be related to education. Behaviorism as a learning theory has been embedded into education, teaching, and learning for several years (Jordan, Carlile, & Stack, 2008). For example, Omrod (2008) identified students with learning disabilities, low self-esteem, behavior issues, or learners who have difficulty in academic skills finding success in learning through behaviorist methodologies based on B.F. Skinner's (1904-1990) theory of Operant Conditioning.

Similar to Watson, Skinner believed reinforcement, either positive or negative, could change behavior. His belief on shaping behavior is based on the analogy of how a "sculptor shapes a lump of clay" (Skinner, 1965, p. 91). Teachers who have learners with difficulties as described above can simply smile (positive reinforcement) or frown (negative reinforcement) to "control to some extent the behavior" (p. 109). The stimulus (smile or frown) reinforces the desired behavioral response from the learner, and in time automates the learner to the desired behavior. Omrod (2008) suggested teachers using a behavioristic approach should never "assume students are learning anything unless they actually observe student behaviors changing as a result of instruction" and the changed should be permanent and easily identifiable by the teacher (p. 47). The behaviorist principles view the student as a vessel in which knowledge is attained through the expertise of the teacher.

Skinner's behaviorist theory asserts three principles of learning within the educational process. The first principle for effective learning is the need for the teacher to present the information to be learned in small portions or steps. The second principle for effective learning

identifies the need for teachers to provide instant feedback regarding the correctness of the behavior being displayed. The third principle for effective learning is for teachers to understand that learners learn at their own pace and the teacher's role is to provide continuous reinforcements to encourage correct responses (Hegenhahn & Olson, 2001, p. 104). In essence the environment (*the teacher*) uses a stimulus reinforcement to elicit the desired learning outcomes from students through a series of learning steps and within a learner's cognitive ability. These principles of learning are based on precise observable learning events.

Benjamin Bloom developed *Taxonomy of Learning* in the mid-1950s, which can be used to develop instructional objectives that describe observable and measurable outcomes (Bloom, 1982; Omrod, 2008). Bloom's taxonomy is generally presented in a visual pyramid [See Figure 3]. Bloom postulated the existence of three domains of learning including cognitive (thinking); affective (feelings); and psychomotor (physical). These domains and the taxonomy of learning created a bridge between cognition and behaviorism that could assist learners in progressing from basic to complex cognitive functioning levels (Surgenor, 2010; Bloom, 1982; Jordan et al., 2008).

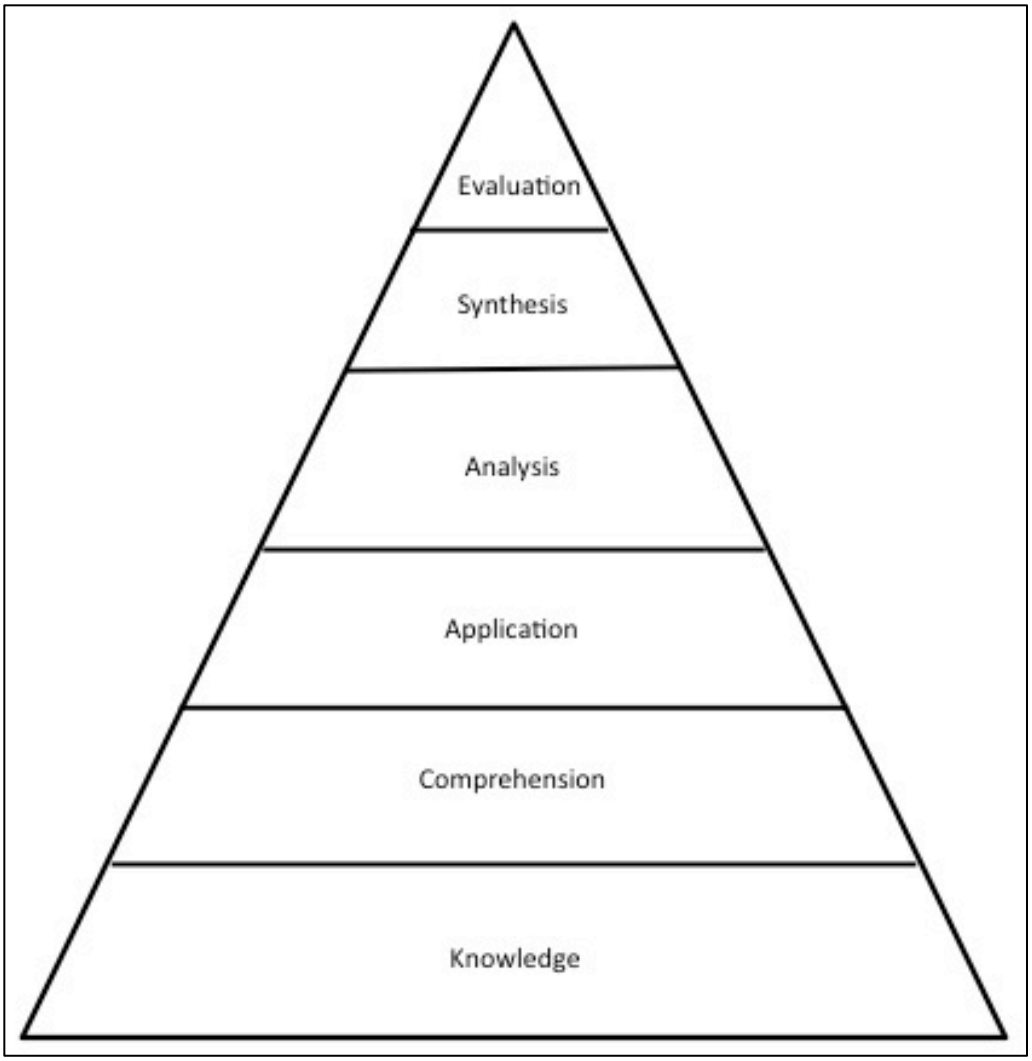

Figure 3. Original Bloom's Taxonomy

Lorin Anderson, a student of Bloom's updated the taxonomy in 2001 [See Figure 4] to reflect the "emergence and integration of information and communication technologies into the classroom and lives of students" (Churches, 2013). The revised taxonomy of learning is still a hierarchy of learning, but uses verbs in place of the nouns that Bloom used in the original taxonomy. The updated taxonomy attempts to include a means for teachers to focus on the skills needed for a more technology-based environment and provides a means to offer students an opportunity to use the technology to demonstrate observable and measurable outcomes.

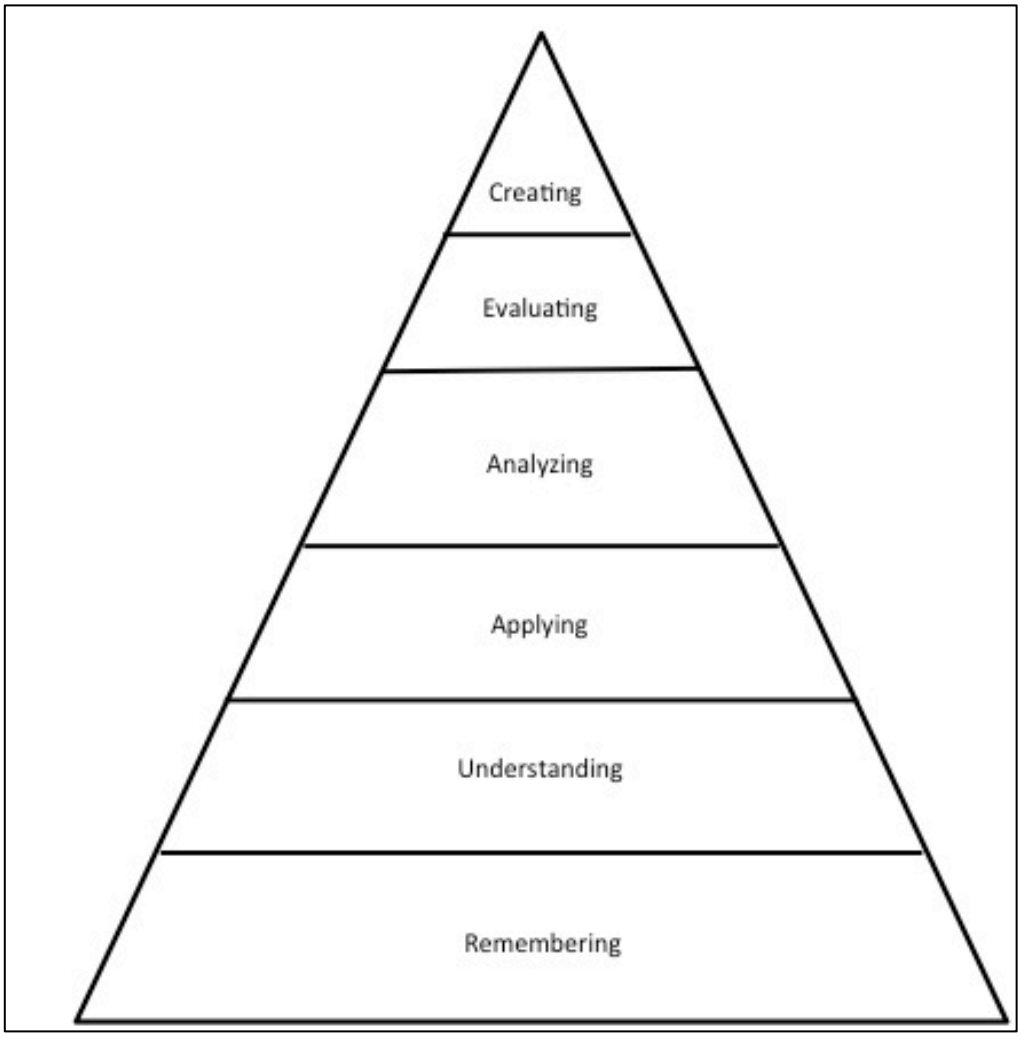

Figure 4. Updated Bloom's Taxonomy

Instructional objectives developed and based on Bloom's taxonomy have provided educators a useful measure in choosing teaching methods that support learner needs and instructional content for teachers (Omrod, 2008). Andrew Churches' research on Bloom's taxonomy for his dissertation provided the following statement as a building block for understanding how the six traditional taxonomy terms are used in teaching and learning: "(a) Before you can understand a concept or fact you must remember it, (b) to apply a concept, you must understand it first, (c) to evaluate a process you must have analyzed it" (2013, n.p.). Bloom's taxonomy is prevalent in educational institutions as teachers are the main users of the

taxonomy in planning curriculum and lessons that assist in activities dealing with "explicit cognitive development and behavior" in learning (Jordan, et al., 2008, p. 29).

Technology and Behaviorism

Behaviorist learning theory has components in educational technology and 21st century learning. Skinner developed programmed instruction during the 1960's. This system has been described as a technological component in learning through the use of what has been coined a "teaching machine" (Omrod, 2008; Hergenhan, 2001). Educators see the impact in behaviorist principles and instructional technology through the development of curriculum, the use of computer software for repetition in learning, and behavioral incentives and/or reinforcement.

Curriculum development stems from behaviorist principles and research conducted by Tyler (1949). His four-step guidelines are still in practice today. The steps include: (a) identification of the objectives; (b) selection of learning experiences; (c) organization of the learning experiences; and (d) assessment of the learning. According to Vrasidas (2000), if instruction is to be effective, all four steps in Tyler's theory should be in alignment for each lesson designed (p. 4). Distance learning courses often are based on Tyler's steps and the use of behaviorist learning theory.

Many computer systems and software that are used in education are based on Skinner's reinforcement theory. Programs such as computer assisted instruction (CAI), drill-practice software, and assessment programs assist students in an increase in achievement through extended practice to reinforced desired behaviors (Jonassen, 2000; Omrod, 2008). Research on behaviorism has been found to be a positive attribute in "rapid learning because of its precise specification of actions and learning outcomes" (Jordan, et al., 2008, p. 34). This rapid learning

can be attributed to drill-practice computer programs that are widely used for learning basic facts or multiplication tables in elementary classrooms.

Teachers' understanding of instructional technology for learning is often achieved through coursework or workshops in which the foundation is on how to use software or programs for instructional purposes and based on behaviorist principles (Mishra, Dirkin, & Cavanaugh, 2007). In a study on the use of technology in elementary classrooms, Ertmer, Addison, Lane, Ross, and Woods (1999) found that technology was often used as reinforcement for positive behavior or as an incentive for students and not as an instructional tool.

Behaviorism's emphasis in education focuses on standardized systems of learning, environmental factors, and individual behavior. On a global scale society has embraced behaviorism for several years because of its components of accountability. Merriam et al., (2007) contended that outside entities responsible for providing funding in public education are looking for "scientifically based or evidence –based practices" that evaluate the effectiveness of programs (p. 281). These scientifically based practices include criterion-referenced tests, and example of which includes a technology-based program to assess student learning called Measures of Academic Progress (MAP) testing. These computerized tests purport an ability to identify student growth and achievement in learning through documented student responses to questions they should be able to answer. The test ends when students are no longer able to answer questions correctly. Test results are designed to provide teachers the data they need to ensure students are provided the necessary learning tools towards mastery learning of content. . Ideally, this information can then be used to individualize instruction.

Behaviorist theory has paved the path for future theories that explore how individuals learn. Watson, Skinner, Bloom, as well as many other notable theorists who studied behaviorism

have made significant contributions to the psychology of learning. Many teaching and learning practices that are still used in our current 21st century are based on behaviorist thought. Curriculum developers and teachers continue to use behaviorist principles in writing curriculum and courses. The next learning theory describes a transformation in learning theory towards cognition. This move to cognitive theories of learning began in the 1960's. However, behaviorism served as the "foundational element" for cognitive learning theories (Jordan, et al., 2008, p. 34).

Cognitive Theory

Behaviorism learning theory purported learning as a result of the physical environment in which a stimulus is introduced and reinforced for learning attainment. The learner in the behaviorist perspective is a passive recipient while the teacher is seen as the expert who actively transfers knowledge to learners. The learning transaction in the behaviorist view between teacher and student is not to understand how learners think, understand, or know as they process information from the environment; the outcome is what is important. The lack of thinking, understanding, and knowing in the learning process led prominent researchers and theorist such as Piaget, Ausubel, Vygotsky, Bruner, and many others to research what happens inside the mind as stimuli is introduced during learning (Bertrand, 2003; Omrod, 2008; Harasim, 2012; Merriam et al., 2007; AIU, 2009). Although cognitive learning proposes its own theoretical underpinnings of mental processing during learning, it shares the behaviorist view that "learning must be objective and based on empirical research" (Omrod, 2008, p. 193).

The principles of cognitive learning are centered on understanding the role that mental processes play during leaning episodes. Cognitive researchers seek to understand how internal functions within individuals occur through experiences, environmental factors, and information

processing systems within the mind. Understanding learning processes operating in cognitive theory principles are based on intellectual structure and development (Berkley, 2012). For educators understanding cognitive processes can assist in designing experiences and activities that build on a learner's development (Jordan et al., 2008, p. 36). Several cognitive learning principles such as memory, information processing, schemata, and attention are applicable to teaching and learning in this literature review

Overview of Cognitive Learning Theory

Cognitive learning theory seeks to understand how internal functions within individuals occur through experiences, environmental factors, and information processing systems within the mind (Merriam et al., 2007). Major components to cognitive theory perspectives focus on underlying learning processes, including: (a) learning is unique for each person; (b) learning involved making internal connections; (c) individuals are active participants in learning; (d) individuals are personal beliefs, attitudes, and emotions are associated with learning; and (e) research can draw inferences about mental events that cause behavior changes (Omrod, 2008, p. 162). It is through assumptions regarding cognition and how individuals learn that has resulted in a theoretical position in understanding and explaining the learning process (Merriam et al., 2007; Ormod, 2008; Bertrand, 2003).

Discontent arose between theorists regarding how individuals process information during learning episodes that were not evident in the behaviorist theory. Researchers in the fields of psychology, anthropology, and linguistics began to explore what mental processes were occurring between the stimuli and behavior change (Winn & Snyder, 1996). One of the first research groups to study cognition and challenge behaviorist's principles of learning as "individual parts, which are not interconnected" were Gestalt psychologists (Omrod 2007, p.

153). Their belief regarding learning was based on acquiring experiences which focus on active participation, individual perception, self-directedness, and problem solving skills that were connected to one another (Merriam, 2007; Omrod, 2008; Brown, 2004). Teachers using a Gestalt approach to instruction help students first think holistically about an item, for example, a plant as a part of a whole. The students may break the plant into sections such as, roots, stems, leaves, and petals and identify that in the end, it is the sum of a whole plant. Brown (2004) identified ways teacher educators can take a Gestalt approach in instruction with preservice teachers. For example, having preservice teachers "devise methods of developing intuitive understanding of a concept or complex procedure before teaching it formally" (p. 22) can assist in student understanding of the sum of the parts to the concept being explored.

Three main contributors to cognitive learning theory were Jean Piaget (1896-1980) and Albert Bandura (1925-), and David Ausubel (1918-2008). Both Piaget and Bandura used principles from behaviorism as they developed their cognitive learning theories. However, Piaget and Bandura differed in how they viewed cognitive development. Piaget focused on cognition from an individual perspective, while Bandura's focus was on social aspects involved with cognitive development. Ausubel is connected to cognitivist theory through Cognitive Information Processing theory. Ausubel built on Piaget's schema theory through Cognitive Information Processing theory and the use of advanced organizers to assist in learning.

Piaget used principles of both behaviorism and Gestalt in his research with his own children and proposed that children progress through a series of phases he called, *stages of cognitive development*. Piaget concluded children go through a series of four stages in cognitive development at different years of age. The first stage, children move from an innate interaction with their environment *sensory-motor, birth to two years*, to understanding symbolic

representations and reasoning skills *preoperational stage, two to seven years*, to cognitive functioning in understanding relationships and concrete reasoning *concrete operations stage, seven to twelve years*, to the ability to abstractly understand hypothetical and abstract representations *formal operations stage, twelve to adulthood* (Omrod, 2000; Merriam et al., 2007). This movement through the stages occurs when children's prior knowledge on past experiences are assimilated and/or accommodated into existing schema (Omrod, 2000). In Piaget's view, children are in a constant state of reconstructing the object in learning through active reflection. Piaget's theory is useful to teachers as it provides a framework explaining how, why, and when new concepts are developed and learned (Gillani, 2003).

Bandura purported cognitive learning theory was a social learning theory that combines elements of both behaviorist and cognitive principles in learning episodes. This theory combines elements from both behaviorist and cognitivist theory. Four highlights of social cognitive theory according to Omrod (2007) include: (a) Learning is a mental acquisition, (b) Learners require essential processes in order to learning to occur, (c) Learners have beliefs about their own self-efficacy in learning, and (d) Learners have an awareness and expectation of responses and consequences (p. 122). Bandura's view of learning was based on individuals learning through observation, imitation, and self-efficacy (Edwards & Helvie-Mason, 2010; Omrod, 2008). For Bandura, an individual's own belief regarding their ability to learn actually affects their learning.

Educational Implications

There are several perspectives of cognitive learning theory that influence teaching and learning in education. Darling-Hammond, Austin, Orcutt, and Rosso (2001) contended "the work of cognitive psychology, neuroscience, and educational researchers provide education with

an understanding about how people learn that have practical implications for teaching" (p. 10). For example, a teacher's knowledge of cognitive perspectives can assist in the design and implementation of learning that "encourages learners to make mental connections" (Jordan et al., 2008, p. 36).

Piaget's term *schema* consists of a "cognitive structure of facts, ideas, and associations organized into meaningful system of relationships" (Cross, 1999, p. 8). Schema is all of the information that is stored in our brain and its function is to help learners make meaning and understand what they are learning. Schema does not remain consistent; instead schema changes as learners' cognitive development increases. Pearson and Sapiro (2004) as cited in (Hovenga & Mantas, 2004) provide an unsurpassed explanation on the theory of schema in educational terms:

> What is a schema? It's the little picture or associations you conjure up in your mind when you hear or read a word or a sentence. You can have a schema for objects (chair, boat, and fan), an abstract idea of feeling (love, hate, hope), an action (dancing and buying), or an event (election, garage sale, and concert). It is like a concept but broader. For example, you see the word tree and you conjure up the concept of a tree trunk, branches, leaves, and so on. Your schema for a tree includes all this, plus anything else you associate with trees -- walks down country lanes, Christmas trees, birds' nests, and so on. A schema includes behavioral sequences, too. For example, your schema for the word party could include not only food, friends, and music, but also what you will wear, how you will get there, how long you plan to stay, and so on. And, of course, your schema for party is based on your experience at party, which may differ substantially from some one else's. Schema is an abstraction of experience that you are constantly fine-tuning and

> restructuring according to new information you receive. In other words, the more parties you attend the more schema adjustment you'll make. (p. 144)

For teachers, building their students schema consists of assisting learners to activate what they know about a learning topic and helping them associate prior knowledge on the topic at hand with the new knowledge to be learned.

Another cognitive theory is the *Cognitive Information Processing* theory (CIP), which maintains that the brain uses an input – process – output function in learning that is similar to how a computer processes information. The idea of the mind as a computer relates to schema theory which postulates learning is easier when prior knowledge is structured through symbolic learning maps such as graphic organizers or concept maps (Harasim, 2012). For instance, a teacher only has to type in graphic organizers or concept maps in Google or another search engine and they are inundated with examples, and online software programs. David Ausubel (1918-2008) noted for cognitive theories in education stated, "The most important single factor influencing learning is what the learner already knows" (1968, p. 130). For learners, there is a need to activate prior knowledge in order for new information to connect to previous information. Ausubel proposed that advanced organizers assisted students in a deductive approach to learning. Teachers using Ausubel's approach have suggested the uses of advanced organizers in learning environments are providing "cognitive structures for learning experiences" (Perry, 1999, p. 54).

Modeling as an approach in teaching is based on Bandura's social cognition theory. The use of modeling in teaching can help students through observation of experts and understanding the processes involved to accomplish tasks (Collins, 2006, p. 50). Experts, teachers, symbolic media representation, and cognitive modeling are common methodologies used in modeling a

task or desired behavior. Teacher's cognitive modeling is useful when they want to demonstrate and talk through the process of how to accomplish a learning task, often referred to as *teacher talk* in educational literature. The teacher using cognitive modeling orally talks through the steps he/she would take to accomplish the task or desired behavior aloud. Using this strategy, students are given the cognitive steps that the teacher uses to accomplish a task. Computer technology availability in schools has led to symbolic representation in which modeling can be achieved through media that demonstrates the desired behavior. For example, Nikopoulos & Keenan's (2004) research found the use of symbolic modeling through videos increased the social initiation and play behaviors in children with autism. Developing teaching strategies to help students focus on content being taught and identifying effective methods for gaining student attention can help students' process and store information in their long term memory.

In summary, cognitive learning theory stems from discontent with the behaviorist views of how individuals learn. Researchers believed that behaviorism was missing a key function of what happens within an individual's mind once a stimulus was introduced. Cognitivist theories view learning from the perspective of internal processing and what teachers do in the classroom as well as a student's individual cognitive processing ability impacts learning (Omrod, 2008). According to Jordan et al., (2008) what cognitive learning does not take into account are the social processes that can impact what and how an individual learns. While, Bandura's social learning theory has a component of learning through others, his theory posits social as a function of imitation and modeling and does not identify the interactive component in learning between individuals. These social processes identify cognition as a key component to learning, but also value the impact of others in learning through what researchers have identified as constructivist theories of learning.

Constructivism

Constructivism is a leading theory of learning in the United States (Cross, 1999). Contrary to the objectivist paradigm, where the learner takes a passive role in their learning, the learner in the constructivist paradigm takes an active role in the learning process through individual interaction with the environment (Merriam et al., 2007; Fosnot, 1996). An abundance of literature on constructivism as a *theory of learning*, a *philosophical position*, and a *theory of instruction* can be located in scholarly journals, books, and research studies. The array of information on constructivism stems from psychologists', researchers', and educators' philosophical views on how learning occurs for individuals (Gijbels, Loyens, 2009; Raskin, 2002). The importance of understanding constructivist theory as a lens into learning is grounded in the assumption that knowledge is dynamic and socially negotiated (Illeris, 2007; Rogers, 1969; Jarvis, 2006).

Constructivism originates in several fields including, philosophy, sociology, and psychology, as it attempts to explain how individuals understand their world (von Glaserfeld, 1989; Thanasoulas, 2002). The essence of the constructivist paradigm is based on subjectivism and relativism, which Enobun (2010) contended, "can only be known through experience, resulting in a personally unique reality" (p. 19). Teacher education programs use the principles of constructivist theory as a main learning theory taught to preservice teachers. Constructivist pedagogical instruction "firmly places educational priorities on students' learning…because they seem to be the most conducive to integrations into current educational practices" (Jones & Brader-Araje, 2002, para. 1). For example, when students enter educational institutions they bring with them personal schema and in order for learning to occur in the constructivist view, the

learner must create meaning from the episode of learning. Constructivism in this literature review will focus on an educational philosophical viewpoint.

Defining Constructivism

Several definitions of constructivism can be found within the current scope of the literature, depending on the philosophical perspective an individual holds on learning (Jones & Brader-Araje, 2002). The definitions for constructivism tend to be dependent upon the ontological perspective of constructivism to which one subscribes. Harasim's (2012) definition of constructivism provides a distinction between theory and epistemology: "constructivism refers both to a learning theory *how people learn* and to an epistemology of learning *what is the nature of knowledge*" (p. 60). The philosophical underpinning that most psychologists will agree on is constructivism is based upon a "notion that individuals live in the world of their own personal and subjective experiences" (Karagiorgi & Symeou, 2005, p. 19). In the following paragraphs, constructivism will be defined as a theory and an epistemology as they relate to this research study.

Constructivism as a theory examines how individuals "create systems for meaningfully understanding their worlds and experiences"(Raskin, 2002, para. 1). As a philosophical theory, it moves away from the viewpoint of passive learning found in objectivist theories toward a subjective theory on learning (Merriam et al., 2007; Fosnot, 1996). Constructivism as a pedagogical tool or lens examines the roles and practices used by educators to understand learning episodes. As an epistemology, constructivism is viewed as a process, in which learning experiences are dynamic and socially negotiated practice (Illeris, 2007; Rogers, 1969; Jarvis, 2006).

The three types of constructivism described in this literature review stem from the cognitive, social, and radical perspectives of constructivist learning theory. Several notable theorists have had an impact on the fundamental perspectives surrounding the constructivist theory. The most prominent theorists within the literature will be the focus here. Cognitive constructivism is based on the work of Jean Piaget (1896-1980) in which learning is viewed as an individual process where the learner takes an active role in incorporating new information into existing personal schemata. Social constructivism is based on the work of L.S. Vygotsky (1896-1934). Vygotsky's belief was that learners need complex social interaction with others for successful learning to occur. Vygotsky's belief in language as an integral part of the learning process also serves as an important component to his view on social constructivism. Radical constructivism developed by von Glaserfeld (1917-2010) is based on learning as a process of interpretation of personal reality.

Cognitive Constructivism

Cognitive constructivism is based on the tenets of how a learner independently interprets experiences and information through a process of self-construction into their mental scheme (Ormrod, 2000). Jean Piaget (1896-1980), originally a cognitive theorist, conducted qualitative research with his own children. This led him to identify cognitive constructivism as a theory of learning. He believed learning is an internal cognitive activity involving a continual modification of cognitive schemes according to the physical environment. The meaning that an individual creates is based on the individual's previous and current knowledge structure (Merriam, et al., 2007).

Cognitive constructivism according to Piaget's theory is an individual process in which "knowledge is constructed based on the learners existing cognitive structures" (Berkley, para. 1, n.d.). However, Piaget also contended individuals cannot immediately understand and use the information they have been given. There is a period of time in which the individual needs to cognitively construct the information into meaning (Piaget and Inhelder, 1969). Piaget proposed the idea that individuals have a state of equilibrium. When individuals encounter learning episodes in which their skills are inadequate, they enter a state of disequilibrium. In this state, the individual seeks to understand and make sense of the new information through a process of assimilation and accommodation in order for the new information to fit within their existing scheme so they may return to a state of equilibrium (Omrod, 2000). Von Glaserfeld (1984) contended a scheme could be defined as a process in which there are three components: a trigger, an action or reaction, and a consequence of the action or reaction (Bodner, 1986). This process of equilibrium to disequilibrium to equilibrium is a continuous process in which learners are creating meaning from new information and expanding their knowledge of objects, events, and people.

While social experiences are important for the construction of learning, cognitive constructivism belief system is based on the knowledge of how an individual perceives what they have experienced, with the key term being "individual." John Dewey (1859-1952), like Piaget contended that individual's progress through the stages of equilibrium to disequilibrium, however, the stage in which an individual reaches disequilibrium "represents a need" (Glassman, 2001, p. 6). This need is met through inquiry. In the process of inquiry the disequilibrium results in the person responding to the locus of the problem (Dewey, 2007, p. 107). An individual's intrinsic interests and goals are the most important aspect to learning and

experiences, which can be seen as "synonymous with education" (Glassman, p. 8) plays the role of helping to shape one's view. Dewey contended that two major principles must be exhibited in learning. The first is continuity. Information is assimilated into prior schemes and modified through connecting the new knowledge in a meaningful way to prior knowledge. The second is interaction. In order for learning to happen, the individual and the environment must have an aspect of interaction. All learning is based on experiences (Dewey, p. 162).

Social Constructivism

The belief among social constructivists is that knowledge is socially constructed and we learn through a process of interaction with others. According to Ismat (1998), social constructivism "reflects a theory of human development that situates within individual within a sociocultural context" (p. 3). The function of social constructivism resides within the interaction of the individual, culture, and others.

Lev Vygotsky is considered the father of social constructivism. Vygotsky's position on knowledge being socially constructed is the belief that "human inquiry is embedded within culture, which is embedded within social history" (Glassman, 2001, p. 3). Social constructivism involves active participation through culture, symbols, and language (Merrian, et al., 2007). The creation of knowledge is therefore shared with others and becomes public knowledge base.

The Zone of Proximal Development (ZPD) is a central theory of Vygotsky, in which learning occurs through social interactions. He explains ZPD's role in learning in the following statement: "It is the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (p. 86).

The learner in ZPD has a more knowledgeable other (teacher or peer) to assist them socially through learning episodes. Cooperative learning is an example of how ZPD is used in education.

Dewey was not only a cognitive constructivist theorist; he also contributed to social constructivism. He believed in the importance of social interaction in the learning process. Both Dewey and Vygotsky agreed that there exists a relationship between learning and activity in the development of the student. Where they differed was on relationships between learning processes and educational goals (Glassman, 2001, p. 3). For example, one difference is the social-cultural perspective in learning. Dewey's belief was learners needed to question their experiences as they relate to current social structures. Conversely, Vygotsky placed importance of educational and pedagogical practices relating to cultural and social goals as a necessary component of teaching and learning. Another difference is that Dewey believed learners should have free control in learning episodes, while Vygotsky believed learners require a *more knowledgeable other* if mastery of the learning content was to be achieved (Glassman, 2001).

Radical Constructivism

Ernst von Glaserfeld (1917-2010) envisioned learning as a radical constructivist process. His radical constructivist theory builds on Piaget's cognitive developmental theory (Raskin, 2002). Glaserfeld's perspective on radical constructivism is based on the learner's interpretation of their experiences in which they make an interpretations of external realities based on their cognitive needs (Chu & Crissa, 2010; Jones, 2010; Raskin, 2002). In this view, radical constructivists believe all knowledge is completely invented by the learner.

Von Glaserfeld placed emphasis on the individual as the constructor of knowledge (Chu & Crissa, 2010, p. 63), therefore social contributions to learning are unnecessary. He contended that learning requires "self-regulation" by the learner rather than being a "stimulus-response

phenomenon" and learners continually build on their own conceptual structures though "reflection and abstraction" (von Glaserfeld, 1995, p. 14).

Constructivism in Learning

Constructivism is the leading theory or philosophy of learning in current educational systems in the United States (Jones and Brader-Araje, 2002; Enonbun, 2010). One reason constructivist theory continues to be a mainstay in education is because of the importance constructivism places on the teaching-learning process (Jones and Brader-Araje, 2002; Powell & Kalina, 2009; Ackermann, 2001). Constructivist principles in learning hold a fundamental purposefulness of a learner-centered approach in knowledge transactions. The constructivist teacher must understand the learning characteristics of their students and create opportunities within the learning environment for cognitive schemes to be formed.

Learning episodes are part of an individual's cognitive structure. As such, teaching uses methods in which teachers set up the environment so learners can construct their own understanding through interaction. For example, a teacher will create the conditions to promote a cognitive conflict so students enter into a state of disequilibrium. Once this state is achieved, concrete activities supported through discussion are provided in order to help students reorganize and assimilate and accommodate the new information into individual meaning.

In social constructivist pedagogy, learning is a social and cultural action in which the teacher provides activities that engage students with others for learning development (Powell & Kalina, 2009). It is important that a more knowledgeable other is responsible for engaging students with others. This means that students who have a lesser knowledge on a topic are place in a social group with students who have greater knowledge on the object to be learned. The teacher is in charge of designing this type of collaborative learning activities. This helps

students to achieve a shared knowledge of the concept. Then, group presentations are given to showcase the learning that has happened. Vygotsky also proposed the Activity Theory, sometimes referred to as Situated Learning Theory. This theory focuses on the teacher involving the learner in the object (learning episode) and integrating mediating artifacts such as culture within the learning episode for learning to happen (Merriam et al., 2007).

Dewey's view of learning in education is based on the child as a beginning, middle, and end point of intellectuality. The child is in control of their own learning processes based on their interest and ability to make connections. In Dewey's view of teacher-learner exchange, the teacher acts as a facilitator and the episodes of learning concepts are taught through an integration of student interest in a methodology of hands-on experiences. There are challenges for education and teachers who subscribe to the constructivist theory in teaching practices:

> The constructivist approach is not appropriate to all school learning. Some knowledge, if it is of the factual kind, or defined by convention, may need to be transmitted directly; for in such cases, creativity or personal imagination are not required, and any alternation would not be beneficial. (Pass, 2004, p. 5)

Many teacher education programs use Piaget's constructivist approach to teaching. Instead, Powell & Kalina (2009) suggested that teachers need exposure to both Piaget and Vygotsky's principles and opportunities to learn how they may be used in educational settings. The problem arises because constructivism is a "theory of learning not a theory of teaching and translating theory to practice is both difficult and imprecise" (Wolffe & McMullen, 1996, p. 4).

The 21st century technological advances offer a new paradigm for education, teachers, and learners. "It is now not only possible for learners to access tons of information almost instantly, but it is also possible for them to be in control of the direction of their own learning"

(Enonbun, 2010, p. 19). Constructivism as a theory, philosophy, or epistemology values the individual's perspective within their personal lifeworld. Learning and knowledge in the constructivist view believes that multiple truths and realities exist and reside within the learner. "Constructivism does not reject the idea that a real world exists, but argues that the world can never become known in one single way" (Vrasida, 2000, p. 7). Learning for the constructivist is based on cognitive processes, self-reflection, and the process used to construct knowledge. These components constitute learning through meaning making for individuals.

Critical Theory

"Reforming the public schools has long been a favorite way of improving not just education, but society" (Tyack & Cuban, 1995, p. 1). Educational reform movements by political systems are based on rectifying societal problems. East (2011) posited that the educational system in the United States is based on "democratic ideals of personal freedom that involve both social and cultural practices" (p. 24). Critical theory is based on transformative philosophical assumptions of society and the ways individuals within a culture have the capacity to create change (Bertrand, 2003; East, 2011; Giroux, 2010; Freire, 2005).

Teachers in our democratic society are called upon to educate the children they serve. However, critical theorists propose the service of education is, "shaped by a plethora of often invisible forces, and can operate even in the name of democracy and justice to be totalitarian and oppressive" (Freire, 2005, p. 2). Therefore, a critical component to critical theory's main tenet is that individuals examine themselves in regards to the society in which they live (Frieire, 2005; hooks, 1994; Giroux, 2003).

Critical theory originated in the early 1900's in Germany through the formation of the Frankfurt Institute for Social Research. Based on the work of Karl Marx (1818-1883) critical

theory is situated within a theoretical framework regarding individual perceptions, which reflect and distort reality within domination, oppression, and exploitation. In other words, the ideas of the dominant society are projected to all members of society.

Jurgen Habermas (1929-), an associate of the Frankfurt school believed the problems that exist in society are a result of system problems and "learning processes that emerge in response to them provide the dynamism for social development" (Crotty, 1998, p. 145). Habermas's principles of critical theory focused on reflection and action upon situations, thus enabling individuals to change their lives. Habermas's vision saw "the evolution of society proceeding by way of processes of learning that go on within it and adaptations that occur at every level of learning to accommodate the learning process" (Crotty, 1998, p. 145). The learning processes involved with critical theory led to a framework on learning called critical pedagogy.

Critical Pedagogy

Critical pedagogy is a radical theory of education that has been "broadly defined as *the new sociology of education* or a *critical theory of education*" (McLaren, 2007, p. 189). Giroux (2010) describes critical pedagogy as an "educational movement, guided by passion and principle, to help students develop consciousness of freedom, recognize authoritarian tendencies, and connect knowledge to power and the ability to take constructive action" (p. 1). Kincheloe (2008) discussed the difficulty in defining critical pedagogy because it involves more than simply learning, it involves political structures, culture, Internet, gender, class bias, cultural bias, religious intolerance, diverse teaching styles, and often-conflicting purposes of education. The varied perspectives in critical pedagogy create a learning environment for students that could be influenced by a number of factors which Adams, Bell, & Griffin (1997) suggested it creates a

need for teachers to change their teaching process "from *what* is taught to *how* it is taught", although in making this transition teachers face five pedagogical dilemmas:

1. Balancing the emotional and cognitive components of the learning process;
2. Acknowledging and supporting the person (the individual student's experiences) while illuminating the systemic (interactions among social groups);
3. Attending to social relations within the classroom;
4. Utilizing reflection and experience as tools for student-centered learning; and
5. Valuing awareness, personal growth, and change as outcomes of the learning process (p.3).

Paulo Freire has influenced the philosophical framework surrounding critical pedagogy. In his book *Teachers as Cultural Workers* Freire (2005) discussed how teachers "talk about reality as if it were motionless, static, compartmentalized, and predictable" (p. 72). Current teaching methods, according to Frieire, are filling the brains (known as containers) with concepts that have little meaning in political systems and the more the system of teaching imparts knowledge through a depositing system, the fewer students develop a "critical consciousness towards transforming the world" (p. 73). Instead, critical pedagogy in learning should focus on enacting social change for the betterment of society. In this sense, students could be challenged to engage in cultural aspects of our society, and through critical reflection have an opportunity to change the current oppressive cultural system of education (Freire, 2005; Giroux, 2003; Giroux, 2011). Critical pedagogy emphasizes the need for teachers and students to "actively transform knowledge rather than simply consume it" (Giroux, 2011, p. 145).

Changing our system of learning using the theory of critical pedagogy requires that learning be based on identifying current political systems and breaking them down to relate to

the student's life experiences. Student learning needs to encompass the ability to think and act with knowledge of understanding the culture in which they live. Transforming critical pedagogical education can be accomplished through two methods in teacher education programs according to Bercaw and Stooksberry (2004). First, teacher education programs need to create programs of study that are based on giving preservice teachers the tools and knowledge necessary to help students achieve academic success. Second, teacher education programs need to seek to prepare preservice teachers to challenge social injustices.

In summary, "critical theory maintains that students should study the world around them in the process of learning who they are and what has shaped them" (Klincheloe, 2008, p. 11). Teaching should be examined from a perspective on how to teach. The curriculum for teachers should focus on current systemic issues surrounding our society and focus on learners as individuals who bring a uniqueness that can improve our society through reflective practices.

21st Century Learning

"The illiterate of the twenty-first century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn" (Toffler 1928, 1998 p. vii). What is most surprising about Tofler's quote is the fact that it was written in the early 20th century. Toffler would not have known the speed, in which our society would change, but he understood how learning and future advancements would impact learning and he had his own understanding of how individuals learn. The 21st century has brought about several changes in how individuals acquire and use knowledge for personal and professional use. The National Education Technology plan titled, Transforming American Education: Learning Powered by Technology, addresses learning and the use of technology as it states: "The challenging and rapidly changing demands of our global economy tell us what people need to know and who needs to learn.

Advances in learning sciences show us how people learn. Technology makes it possible for us to act on this knowledge and understanding" (U.S. Department of Education, 2010, para. 6).

Historically, cultural aspects of society have impacted the educational structure and reform movements in public schooling in the United States. "People use history (defined as an interpretation of past events) when they make choices about the present and future" (Tack & Cuba, date, p. 6). The 21st century has brought about a substantial change in functional aspects of our society such as globalization, diversity, accountability, technology, and business and industry. Identifying the term 21st Century, the literature suggests the term is based on the ubiquitous nature of how technology has been integrated into all aspects of an individual's life. Siemens (2004) contended in the past twenty years, technology has "reorganized how we live, how we communicate, and how we learn" (p. 1). The 21st century based on the literature can be seen as more of a cultural position in which rapid advances occurring in technological knowledge and the ability for learners to think beyond practical applications has become a necessity in our changing global society (Saavedra, 2012; Bowen; 2012; Darling-Hammond, 2006).

Education's role has historically been influenced by the political and social needs of society. For example, Tack and Cuba (1995) purported education is often seen as the "prescription for specific social or economic ills" (p. 2). The 19th century brought about the first public education system with the introduction of the normal school system developed by Horace Mann in 1830. The normal school was developed as a "response to a variety of economic, social and political factors" (Powell & Kalina, 2009, p. 191). During this era in history, proponents of the normal school romanticized a need for children from working class families to be educated for economic growth based on the needs of businesses that were expanding. Social

groups viewed the normal school education as a way to control crime and social unrest in lower class citizens. 20th century education was influenced through diversity, two world wars, economic issues, and the emergence of the first learning theories. Progressive educational measures began to see education as a student-centered philosophy with proponents such as John Dewey who felt that educations tenets were a means of social reform (Powell & Kalina, 2009).

The high stakes value on knowledge in the 21st century has begun to "transform and affect personal, professional, social, and the culture lives" of individuals (Harasim, 2012, p. 2). Future employment opportunities are unknown because of the rapid advances occurring in technological knowledge and the ability for learners to think beyond practical applications has become a necessity in our changing global society (Saavedra, 2012; Bowen; 2012; Darling-Hammond, 2006; Gonzalez, 2004). These changes have resulted in researchers, politician, educators, and parents vying for a change in the educational system to better prepare students for the demands of a technology based society (Weibell, 2011; Siemens, 2004; Harasim, 2012; Darling-Hammond, 2006). For example, Bransford, Brown, and Donovan (2000) proposed that learning is situated within each individual, and in our current society each individual must "recognize when they understand and when they need more information" (p. 12). Lifelong learning is no longer seen as a concept for the brightest students; it is now imperative for all human beings to be successful in our globalized society.

"The vision for 21st century learning is situated in reality: producing the results that matter in terms of student outcomes in 21st century skills requires every aspect of the educational system to be aligned" (Kay, 2010, p. xxiv). The opportunities afforded through 21st century skills using technology provide opportunities to expand the classroom beyond the historical perspective of four walls towards a more global aspect of learning environments. McLoughlin

(2007) suggested current societal trends in the use of technology have an impact on learning and therefore teachers need to expand their vision of pedagogy towards providing learners with an active role as participants in learning environments. Pflaum (2004) contended that learning using technology is not "a simple equation of *Student + Computer = Learning*, but rather *Student + Computer + Engaged Teacher = Learning*" (p. 190). The next section of this literature review will focus on identifying what the research has said regarding the implementation of technology into current pedagogical practices for teachers and preservice teachers to assist in learning.

Technology in Learning

Technology is not only changing our current practices in contemporary lifestyles, but it is altering the nature of teaching and learning according to the *National Education Technology Plan 2010*. Moreover, that authors of this document contended, "professional educators are a critical component of transforming our educational system…and it is important to attract and retain the most effective educators and achieve learning outcomes…and…technology can help us improve learning" (*U.S. Department of Education*, *2010,* p. 10). For instance, Carnevale, Gainer, Meltzer (1988) purported in *Workplace Basics: The Skills Employers Want* that organizations are seeking individuals who know how to learn. As our society continues to increase in technological skills, diverse populations, and globalization, it becomes imperative that educators identify their own assumptions and beliefs about learning. Bowen (2012) suggested, "technology presents teachers not only with more content than ever before but also more routes into that content" (p. 54). In fact, the increase in the availability of technology tools, the increase in diverse populations, and the globalization of our society has made the 21st century a time when it is imperative that educators identify their own assumptions and beliefs about

learning (Carnevale, et al., 1998; Darling-Hammond, 2006). Therefore, one question we need to ask regarding instructional use of technology is 'how do we use technology to benefit student learning?'

One consideration concerning technology and student learning is the need for teachers to understand this new generation of learners and what attributes they bring to formal learning environments. According to Smith (1997) learning should be "a dynamic, customized pursuit of new solutions rather than the acquisition of a preconceived package of facts"(p. 3). Contemporary college students in the 21st century are the first generation to have the opportunity to have some form of technology throughout their lives. In 2008, a study conducted by Cannaerts, found that nine out ten college students use instant messaging, 18.2% have a website, 40.7% maintain a blog, and 50% have an online profile. The impact of technology and how learners are using it have created a varied characteristic of this generation of learners; Pankko (2007) posited that today's learners have five descriptive characteristics that set them apart from the learners of yesteryears. First, learners are digital. They have grown up using technology to gain information. Second, learners today are constantly connected. They connect to a variety of technological tools for information and socialization. Third, learners today are experiential. They are not afraid of trying new technology. Fourth, learners expect immediacy. This is evident with learners growing up having access to large amounts of information at the touch of a button. Finally, learners today are social. Text messaging with mobile broadband allows learners to stay connected twenty-four hours a day. These characteristics of learners have the ability to positively or negatively impact the teaching methodology employed by educators as seen in the quote below:

> Change your teaching style. Make blogs, iPods, and video games part of your pedagogy. Learn to accept divided attention spans. A new generation of students has arrived -- and sorry, but they might not want to hear you lecture for an hour. (Sweeney, 2005) (cited in Carlson, 2005, p. A37)

The positive aspect regarding the quote centers on the need to use technology in instruction to engage learners, nonetheless if learning is based on the technology and not on educational goals, Sweeney's statement becomes a moot point.

Researcher Howard Gardner (1943-) developed *Multiple Intelligence theory (MI)* in which he contended there are *multiple ways of knowing* while in learning situations based on an individual's "personal intelligences" (Gardner, 1999, p. 41). Gardner's contended "technology is neither good nor bad in itself, nor can it dictate educational goals…rather before embracing any new technology, we need to declare our educational goals and demonstrate how a particular technology can help us to achieve them" (p. 33-34). Other researchers agreed with Gardner's discussion on considering cognitive changes in learning prior to the implementation of technology (Rogers, 2002; Smith, 1997; Ali, Hodson-Carlton, & Ryan, 2004; Bell, 1997; Freeman, Voignier, & Scott, 2002). Technology has the potential impact to bridge the personal intelligences of students as they develop their own identities as learners. Gardner's caution on the implementation of technology is a facet that educators need to explore, because the use of technology requires a preparation in strategies and approaches for its effectiveness in teaching and learning transactions (Honey, 2007). For example, Lorenzetti (2003) through his research found that there was a need for technology to be implemented into student learning experiences. However researchers are cautioning that implementing technology tools needs to be done with care, as Carr (2010) indicated current research studies by psychologists, neurobiologist, and

educators are identifying that the new generation of learners have "distracted thinking, and superficial learning as part of their repertoire of skills" (para. 5). To combat this generational identity issue, a need exists for helping new teachers and teachers unfamiliar with approaches and strategies in using technology as an instructional tool for learning (Smith, 2005; Dexter, Doering, & Riedel, 2006).

The students who come into the university as education majors are part of the 21st century and many may have Pankko's identified characteristics. However, while learning to become a teacher, an area of concern in the adoption of instructional technology components is regarding educating new teachers. Wang (2002) contended, "if preservice teachers are to be prepared for teaching in the information age classroom they should be exposed to approaches throughout their teacher training programs" (p. 263). The National Forum on Education Statistics (NFES), (2005) defines technology integration as "the incorporation of technology resources and technology-based practices into the daily routines, work, and management of schools" (part 8). What matters the most in the integration of technology for teaching and learning purposes according to NFES is the process of adapting to change. The reasoning for this is based on the ever-changing modality of technology. For preservice teachers and practicing teachers the ability to use technology for learning begins with becoming proficient in its use (NFES, 2005).

In a study regarding technology integration and preservice teachers, Liu (2012) found that the belief systems held by preservice teachers can "potentially influence their teaching methods" (p. 138). One participant in this study concluded that she would use technology in her future classroom because she found that it helped her learn when she was in school. Not all preservice teachers have the educational background of understanding how technology can be used for instructional purposes. "Technological proficiency is an essential characteristic of a

successful teacher" (Smith, 2005, p. 64 as cited in Benton-Borghi). Teaching preservice teachers how to successfully integrate technology into teaching practices begins in teacher education programs. The importance of preservice teachers and teachers using technology has become an integral part of the National Council for Accreditation of Teacher Education (NCATE). NCATE adopted the National Education Technology Standards (NETS) for Teachers (ISTE, 2000) as a requirement for accreditation and NETS standards are a call for teachers to effectively use technology in classroom instruction that supports learning, teaching, curriculum, and the environment (Dexter, et al., 2006). Barriers in preparing preservice teachers for integrating technology into learning were found in the "Educational Technology in Teacher Education Programs for Initial Licensure" survey (2006). While the survey identified that technology integration was a prevalent in teacher education programs, several obstacles such as faculty time, training, and interest "impeded the use of technology both within program coursework and field experiences" (Kleiner, Thomas and Lewis, 2007, p. 18). One approach to ensuring that technology integration is prevalent in teacher education programs is through partnerships between teacher education programs and school districts (NCATE, 2010). Creating a partnership, according to NCATE's blue ribbon panel discussion, allows for alignment of skills and accountability.

Integrating technology into teaching practices has the potential to provide learners with the tools they will need to be successful lifelong learners. In order to accomplish this feat, teacher education programs and preservice teachers must embrace our 21st century society's attributes in their teaching practices.

Preservice Teachers

"Teacher quality matters. In fact, it is the most important school-related factor influencing student achievement" (King & Rice, 2003, p. v). Current research contends once preservice teachers enter the teaching profession, one in five leave within the first three years (Johnson, Kardos, Kauffman, Liu, & Peske, 2002) and 50% who teach in low socio-economic schools leave within five years (Ingersoll, 2001). There is a significant need for highly qualified teachers, however the research is showing that keeping teachers in the profession has become difficult. The task of preparing teachers in the field of education is on building a "foundation for lifelong learning" through teacher preparation programs (Hammerness, Darling-Hammond, Bransford, Berliner, Cochran-Smith, McDonald, Zeichner, 2005, p. 359).

Preservice teachers need to understand their student's learning abilities and their own learning abilities through identifying their own beliefs and assumptions regarding learning (Darling-Hammond, 2005). As such, preservice teachers bring their own understanding of learning and teaching based upon their prior experiences (Kagan, 1993; Pajares, 1992; Darling-Hammond, 2005). Lortie (2002) defined these prior beliefs the "apprenticeship of observation" (p. 61). A research study conducted by Hileman and Knobloch (2005) found preservice teachers' belief regarding learning was based on past experiences, how they view learning, and the willingness of the preservice teacher to adapt or change their teaching methods. A second finding from their research was based on the learning theory view that preservice teachers held. The preservice teachers who held views of learning from a behaviorist or cognitivist perspective were less likely to adapt to new methodologies in teaching practices. Anderson and Holt-Reynolds (1995) concurred with the findings as they also contended that teaching methods

introduced by teacher educators are dependent upon the belief system that the preservice teacher holds.

The purpose of teacher education programs is to "provide teachers with the core ideas and broad understanding of teaching and learning that give them traction on their later development" (Darling-Hammond, Bransford & LePage, 2005, p. 3). However, it can be questioned whether graduating teachers are confident in their ability for later professional development. The National Survey of Student Engagement (2012) surveyed 44 freshman and 79 senior education major students. When asked how confident they were that they could continue to learn on their own, 25% of the freshman and 39% of the seniors indicated they were *very much* confident. What is more important than knowing how many felt *very confident* about learning on their own is the number of education major students who *did not* feel as confident about learning on their own, particularly in this information age. These numbers should be a concern for higher educational institutions and K-12 institutions as they prepare future educators.

The pedagogical issues surrounding learning and preservice teacher education programs is difficult because preservice teachers are also in the process of learning how to transition to the role of teacher instead of student, or put another way, they are moving to the *other side of the desk* in their education program. In recent years teacher education preparation programs have been imploded with research on educational reform movements. For example, Darling-Hammond (1993, 2006) discusses how teacher education programs have spent inordinate amount of time redesigning teacher education curriculum to prepare practioners who can teach and continue learning once in their own classrooms. Unfortunately, efforts in the redesign of curricula often do not meet the needs of the field according to Eliam and Poyas' (2008) research on preservice teacher learning. They suggested that teacher education programs fall short on

learning for preservice teachers: "(a) the construction of an integrated body of knowledge about teaching, (b) the application of theories to practice, (c) and the development of a cognitive lens for analyzing teaching-learning processes" (p. 87). Respected researchers in the field of teacher education suggest that teacher success is dependent on understanding how students learn, subject matter expertise, understanding how to present material to be learned, and teacher reflection practices (Lampert & Ball, 2005; Eliam & Poyas, 2008; Darling-Hammond et al., 2005).

Preservice teachers learn about methodology, application, and practical components to teaching. However, preservice teacher training is grounded in the individualized nature of learning, which makes teaching a difficult field of study and learning to teach highly personal (Foster, 2006). "Teaching, like any form of creative invention, is situated in person, and professional growth is an intensely private affair: (Kagan, 1993, p. 65). Preservice teachers' knowledge of how learning is accomplished is grounded on personal experiences as students in K-12 setting, higher education, and student teaching experiences (Anderson & Holt-Reynolds, 1995; Eliam & Poyas, 2008; Darling-Hammond, 2005). Teaching is a highly personal field of study, in a research study on preservice teacher learning, Anderson and Holt-Reynolds (1995) asked participants to define learning. What they found was that for a few of the participants this was a difficult task. Teacher education programs concern is providing knowledge content to preservice teachers on how children learn and many programs do not spend time connecting how preservice teachers' own learning connects to their teaching philosophy.

Another element to consider in teaching preservice teachers, according to Eliam and Poyas (2008), is the aspect that preservice teachers "rely heavily on affective components of teaching…which may be an obstacle in learning how to teach" (p. 88). Moreover, the affective component to personalized learning in teacher education programs should recognize that each

individual preservice teacher constructs different understanding of the teaching and learning transaction as they are learning how to teach. Kalra & Baveja (2010) found in their research on preservice teachers beliefs that many preservice teachers held an idealized self-conception about their ability and that they would not encounter issues that teachers have because of their ability to teach differently.

In summary, preservice teachers bring preconceived set of ideas regarding teaching into teacher education programs. Their apprenticeship of observation through their own educational experiences may limit them in new pedagogical components to educating new generations of learners as shown by the research cited in this literature review section. Many preservice teachers once in the field as practicing teachers often leave education within five years, which could be a result of not being fully prepared to move away from the affective component that preservice teachers hold to that of a facilitator of learning. Darling-Hammond (2005) contended that preservice teachers must understand their own learning and identify their beliefs and assumptions about learning to become effective in the teaching field.

Summary

Many theories of learning; moving from being taught, to learning to teach, to teaching others to learn is complicated by the environment that now is so technology rich and technology continually changes; the tenets of this research study were to understand the perspective of learning from individuals who hold two identities in the university setting, preservice teachers. Through participants' own voices their opinions, self-efficacy beliefs, and lived experiences as students and as preservice teachers were explored to gain an understanding of how they think about learning, how they define learning, and how their own experiences as students in learning will transfer, as they become professional teachers. The overall guiding research question in this

research study was: *What does it mean to learn and think about learning through the lens of 21st century senior standing elementary education majors as they transition to the other side of the desk?*

Chapter 3 describes methodology using Clark Moustakas (1994) systematic process of data analysis using transcendental phenomenology reduction of data; chapter 4 outlines and provides a sampling of how the horizonalization process was completed; chapter 5 describes the imaginative variation of themes found in the data analysis; chapter 6 explains the essence of the experience as told through participant stories and explanations regarding learning; Chapter 7 reveals a new narrative through the research findings and suggests recommendations for future research studies.

CHAPTER 3. METHODOLOGY

Individuals differ in the approaches they use to learn, process information and create meaning from their experiences (Bransford, Brown, Donovan, 2000). The 21st century has changed our societal expectations of what skill sets students should possess upon graduating from United States institutions. In the 20th century, it was important to prepare students for the acquisition of knowledge that would provide opportunities for employment in primarily manufacturing fields. The 21st century's knowledge-based society requires that students possess the ability to think critically, problem solve, synthesize and analyze information, work collaboratively, and have a knowledge of knowing how to learn, unlearn, and relearn as new technologies and new knowledge become available. Contemporary researchers tend to agree that within the skill set needed, 21st century students' main requirement will be a knowledge of learning and leaning how to learn as part of their repertoire of skills (Darling-Hammond, 2006; Trent, Cho, Rios, Mayfield, 2011; Cross, 2001, Harasim, 2012; Beatty & Koenigh, 2012).

This research study focuses on the current need in our society to understand learning from the perspectives of the student and the teacher. In a knowledge-based society and an environment that focuses on 21st century skill acquisition, understanding learning from both perspectives can create a duality that benefits our current culture. The 21st century societal demands placed on our culture have created a need for understanding individual differences in approaches to learning, styles of learning, cognitive processing, and knowledge of meaning-making. These approaches necessitate a need for exploration in learning to assist in the current societal demands placed on continuing the knowledge-based growth of our nation.

Preservice teachers are an astute resource on learning about learning for a couple of reasons. First, preservice teachers are learning about learning through the perspective of being a

student. Second, preservice teachers are also learning about learning through the perspective of becoming a teacher. The perspective of being a student and a teacher provides an opportunity to understand learning through a dual lens. This study was envisioned to initiate the work of beginning to understand how learning is defined based on the perceptions of a population who are involved with two concurrent sides to learning, that as a student and as a teacher.

Researcher's Epoche

It is important to understand the impetus of the researcher's stance on the research process that will be explained in this chapter. My role in this data collecting process is to achieve a state of Epoche (Moustakas, 1994). In arriving at a state of consciousness I would position myself to consciously see data as truth and reality as a state of pure ego, Epoche. The statements below are to assist in arriving at a state of consciousness through identifying my past experiences and how they may or may not impact this research study.

My relationship with the participants in this study is that I was their teacher, instructor, and mentor for the last year and a half of their education at the university. During the time frame of this study, the participants were no longer students of mine. The relationships that developed through courses and the research study should not have resulted in bias as I concentrated upon their responses and stories of their lifeworlds. In its place, being a past teacher for participants seemed to help them feel more comfortable in sharing information; possibly because of the time we spent in class getting to know each other.

As a professional elementary educator for 14 years, I taught a wide range of grade levels from kindergarten thru sixth grade. The positions that I held were located in a variety of cultures from Native American reservations to upper middle class school systems. The variance of cultures in which I have taught and the range of grade levels have the potential to influence the

data analysis of this study, so care was taken to reach a state of epoche prior to and during the collection and analysis of this data.

I hold a master's degree in educational technology and I teach several courses in educational technology. I have a passion for the integration of technology into the curriculum and this could influence the data analysis of this study minimally. I say minimally because this study is not a study about technology, it is a study about learning.

I have been a college instructor since 2004 in a variety of environments ranging from two-year college, technical college, and four-year liberal arts university. I have also designed and written curriculum, and trained online instructors on pedagogical aspects to teaching in the online environment. My career as an instructor in higher education had the potential to influence the data analysis process, so again, it was important for me to revisit my Epoche statements and add to the bracketing process during this research.

I did not always want to be a teacher; in fact the thought during my childhood never crossed my mind. I was married at a young age, had a daughter who was born with several birth defects, who lived to be only a year old. In the year that she lived, I learned many things about myself. I learned that individuals have the potential to accomplish many things that they never dreamed possible. In losing my daughter I realized that I needed to do something worthwhile and meaningful. I became a teacher and worked on a reservation where many students had difficult lives and school was seen as a place of safety and community. The feeling of being needed and creating a safe place for my students to learn and enjoy five days a week appealed to me and helped me realize that I was making a difference for children.

I remarried and my husband and I adopted our son Andrew in 1993. I continued to work on the reservation until our daughter Megan was adopted in 1996. Both of our children are bi-

racial, while my husband and I are Caucasian. The knowledge of cultural differences within society has impacted our lives through raising our children in a predominately white populated state. It has been our goal that our children will not see color differences and understand that everyone is created equally. The professional and personal experiences I have had in my 47 years of life have been enlightening, varied, and have provided me with several opportunities for self-reflection. These experiences had the potential to impact the results of this study. Identifying my experiences, cultural thoughts, and value systems through the epoche have provided a component of reflexivity to this research study.

Beginning this dissertation process, I assumed I would complete a study on something to do with technology and instruction, since that is what I consider my educational passion. However when I began to look at defining learning for my dissertation, I began to realize the difficulty in finding a succinct definition to which I could relate my experiences of working with a wide range of age levels. I spent three months reading definitions of learning and trying to assimilate them into one definition that I could use in my terms section of my dissertation. This was without success. I found myself highly interested and many questions would impede my thoughts regarding my own experiences as a learner and a teacher.

I realized that I had the consciousness of "*teachers teach, students learn"* perspective. During my career, if an individual did not learn, I would try something different. But in doing this, I have come to realize that it was based on a needle in the haystack methodology. As teachers, instructors, or professors, we should discern and understand our roles as learners and our students' learning attributes. We should be able to identify our learners and teach them how to learn and recognize their own learning. In doing this, the mission to create lifelong learners is actually an achievable state.

My thoughts made me wonder how individuals learn, their perception of what it means to learn, how we go through the process of learning, and how we know when we have learned. Since research, in my view, is based on curiosity or answering questions, this project seemed to be a natural fit. The population I chose to study was based partly on convenience, but also on the fact that this population held two identities. First, they are students in an undergraduate program that are actively involved with learning. Second, they are future teachers, individuals who will be responsible for another human beings learning. Their unique position made them prime study candidates to look at learning from two opposite perspectives.

Overview of Methodology

This study utilized a qualitative framework based on the social constructivist epistemology of inquiry of transcendental phenomenology. Creswell (2007) purported the social constructivist view recognizes that individuals seek an understanding of the world in which they live and work:

> They develop subjective meanings of their experiences-meanings directed toward certain objects or things. These meanings are varied and multiple, leading the researcher to look for the complexity of views...Often these meanings are negotiated socially and historically. In other words, they are not simply imprinted on individuals but are formed through interaction with others (hence social constructivism) and through historical and cultural norms that operate in individuals lives. (pgs. 21-22)

This research study was structured through a phenomenological lens that focused on participants' perspectives, experiences, meanings, and views regarding the phenomenon explored. The inductive nature of this study was constructed through the lens of learning. According to Creswell (2007), qualitative research often begins with a single concept or idea

stated in a question format, as the study progresses aspects related to the initial question begin emerge and guide the research (p. 46).

As Creswell described above, this study began with one concept to be explored: *What does it mean to learn and think about learning through the lens of 21st century senior standing elementary education preservice teachers as they transition to the other side of the desk?* As the study progressed the research questions emerged through a review of the literature on learning, the collection of data, and the focus of the initial question. The research question(s) addressed in this study lent themselves to towards an exploration of the phenomena of learning based on transcendental phenomenological methodology of qualitative research (Moustakas, 1994). In this inquiry methodology process (Merriam, et al., 2007; Kuh, 1993; Lohr, 2004) posit, participants' experiences, their interpretation of those experiences, and their personal understandings of their experiences are emphasized through the data collection process.

This chapter begins with revisiting the purpose of the study, the exploratory research questions pertaining to the study, and the research design methodology used in the study. A description of the population studied, instruments used in data collection, the process used in the collection of data, the methodological delimitations, and the ethical assurances taken by the researcher. The final component to this chapter is a summary outlining the topics discussed.

Purpose of the Study

The purpose of this transcendental phenomenological study was to develop an understanding of the pattern of meanings and/or themes related to what it means to learn in the 21st century. Through participants' own voices their opinions, self-efficacy beliefs, and lived experiences as students and as preservice teachers were explored to gain an understanding of

how they think about learning, how they define learning, and how their own experiences as students in learning will transfer, as they become professional teachers.

Exploratory Research Questions

The overall guiding research question was: *What does it mean to learn and think about learning through the lens of 21st century senior standing elementary education preservice teachers as they transition to the other side of the desk?*

The following sub-questions addressed the overall guiding research question in this study.

1. How do 21st century elementary education senior level students in postsecondary education define learning?
2. What helps 21st century elementary education senior level students in postsecondary education learn?
3. How do 21st century elementary education senior level students in postsecondary education know when learning has occurred for them?
4. What experiences influence learning for 21st century elementary education senior level students in postsecondary education?
5. How do 21st century elementary education senior level students in postsecondary education think their personal ways of learning are going to impact how they teach?

The phenomenological study strived to be "constantly oriented to the lived experience that makes it possible to ask what it is like" questions. The researcher involved with a phenomenological study should be mindful of the original question throughout the data collection process (Van Manen, 1984, p. 44).

Research Design

This study used a qualitative transcendental phenomenological approach to data gathering (Moustakas, 1994). The systematic method in exploratory research studies focuses on using data through inquisitively questioning participants as they describe their experiences with the phenomena being explored (Wolcott, 1994; Mack, McQueeen, Guest, & Namely, 2005, Creswell, 2007). The use of this approach centered on the ability to probe participants' responses regarding their personal statements and thoughts, towards a meaning of the study's phenomena. In a qualitative research approach, data gathered typically originates from the researcher working in the field with the population being studied (Patton, 1990). In this study, the researcher had previously worked with the population in a teacher-student relationship.

Phenomenology

This research study lent itself to the transcendental phenomenological school of thought in qualitative research. Moustakas (1994) contended "phenomenology is the *first* method of knowledge because it 'begins with things themselves' and all objects of knowledge must conform to experience" (p. 41). Since this study was concerned with understanding learning from the perspective of the student and of future educators as a basis for possible future studies regarding contemporary learning theory for the 21st century, transcendental phenomenology developed by Husserl (1931) and Moustakas (1994) fit within the design of the studies goals.

As a research tool, phenomenology is a component of the interpretive paradigm, also known as the naturalistic paradigm and/or post-positivism paradigm, which, according to Cohen, Manion, and Morrison (2007), is concerned with understanding and interpreting a phenomena through the participants as actors within their own 'lifeworld' (p. 26). The historical roots of phenomenology as a research method are based on the work of German mathematician Edmund

Husserl (1859-1938). Husserl believed scientific methodologies, in positivism were suitable for researching physical phenomena, but lacked in understanding the thoughts and perceptions of human participants own beliefs about the nature of reality (Bernard, 2006; Cohen, et al., 2007; Gall, Borg, & Gall, 1996). Phenomenology as a philosophical orientation according to Husserl, is based on science and philosophy as categories of experience including, thoughts, memories, imagination, and desire are explored. These experiences represent the conscious discoveries of meanings and essences in knowledge under the theoretical position of phenomenology.

Transcendental Phenomenology

Moustakas (1994) studied Husserl's work in phenomenology and developed a systematic process of research based on the philosophical foundations of Husserl (Creswell, 2007, p. 58). Moustakas (1994) defined phenomenology as "that which appears provides the impetus for experience and for generating new knowledge. Phenomena are the building blocks of human science and the basis for all knowledge" (p. 26). Moustakas' transcendental phenomenological process is a systematic methodology in which the researcher follows a series of steps towards the essence of the lived experiences of the population being studied.

Population and Sample

This study was conducted at a research one university located in the upper Midwest. The university is a land-grant institution that has a population exceeding 14,300 undergraduate and graduate students. This study was unique in that the sample population included students who would obtain dual degrees at the end of their college program of study. The university at which the study was conducted does not have an elementary education program; therefore students are dual-enrolled through a collaborative initiative with another Midwestern University that is part of the same state university system. Therefore, the sample population was pursuing a degree in

human development from the primary university and a degree in elementary education from the secondary university. The students in this study attended their courses at the primary university.

Purposeful convenience sampling was used in this research study. Purposeful sampling attempts to bring together subjects who are representative of the population being studied. Creswell (2007) contended that using a purposeful qualitative sample size helps researchers understand and develop a detailed description of the phenomenon being studied (p. 203).

The sample for this study was chosen based the criteria of the research questions: (a) undergraduate students in elementary education who had completed all coursework except student teaching and (b) participants were traditional students who primary with a target age range of 19 to 28, which identified them as a 21st century learner. In this study, the population had a possible 44 participants who met the requirement of being a senior standing elementary education major who have completed the required coursework with the exception of their student teaching experience and were traditional students with a target age range of 19 to 28 years old. However, because the researcher did not want to leave out the possible four participants who did not meet the age requirement, but all other requirements were satisfied, an invitation was sent to all participants who met the first requirement. The reason for using the population sampled was not for generalization to similar groups, but to cultivate an in-depth understanding of the essential phenomena being studied at this particular juncture in these preservice teacher/students' professional development.

An invitation to participate [Appendix A] in this research study was emailed to all individuals who met the two requirements described above. Participants who elected to be involved in the study were asked to commit to completing all three data gathering methods employed in this research. All participants interested in participating in this research were

accepted into the study. This study had twenty-five participants who ranged in the age from 19 to 39 years old with a median age of 22. Two of the participants were male. The majority of participants self identified as Caucasian. The type of K-12 schooling that participants had experienced was predominately rural public schools.

Data Collection Method/Instrument(s)

This study employed a staged design methodology. Three types of data were collected: (a) questionnaires, (b) focus groups, and (c) individual interviews. Each stage in the process of data collection provided opportunities to reflect on what was identified and further explore possibilities of views and thoughts from participants regarding the study's research questions. The time frame in collecting all data was a two-week period. The data collection phases provided a progression of understandings of learning through knowledge building and reflection after each collection method. The short time frame in collecting data allowed for participants to stay actively engaged in the research study yet provided ample opportunity for reflection and redirection in their views on learning. Focus group sessions and individual interviews were audio recorded to ensure the ability to closely analyze the data multiple times. Two different methods of recording were used in case of a malfunction with one recording device. A digital recorder and a laptop using a program called *Audacity* were used to record sessions. All recorded data were transcribed into text for the purpose of data analysis.

The first data collection method was an online questionnaire. In this stage of data collection, the participants were asked via email to complete the questionnaire in an online environment. This provided participants a quiet and individual time to begin to think about their own learning prior to stage two. The basis for the questionnaire in the first stage was to provide participants with a time to "think" about their own learning based on themselves as learners and

to formulate a basic understanding of how they learn. In setting the stage to begin with the self, participants when put into a social-cultural situation, would have their own thoughts regarding their learning to draw upon during stage two.

Stage two in the data collection process was the use of focus group sessions. The focus group sessions provided participants an avenue to explain and reformulate their thoughts regarding learning in a social-constructivist environment. The focus group stage provided a venue in which participants could question their beliefs on learning through the beliefs of others and reformulate their belief system on learning.

The third stage in the data collection process was conducting individual interviews with each participant. During this stage of the data collection process, participants were asked seven questions that delved deeper into their thoughts and opinions on learning, how they learn, what tools they use to learn, and how their learning will transfer, as they become a professional teacher. This stage drew upon the thoughts from participants uncovered in the individual surveys and focus group sessions. The individual interviews provided one-on-one time with the researcher to elaborate on their own learning.

Using a staged design methodology in the research study provided a way for the data collected to scaffold and grow into rich and thick descriptive statements from participants. A vast majority of participants stated that they had never thought about their own learning or learning in general prior to participating in this study. They also contended that they learned quite a bit about themselves as learners and as future teachers. The stage design built upon prior schema with the questionnaires, to social-cultural exchanges in the view on learning in focus groups, to new knowledge and/or reorganization of knowledge regarding learning through individual interviews.

Online Questionnaire

This study used an online introductory questionnaire [Appendix B] that identified participant demographics, the type of learning environment the participant experienced during their K-12 educational career, and questions pertaining to initiate participant thoughts regarding learning. The questionnaire was sent to participants one week prior to the focus group sessions. Participants were given a number for identification purposes that was also used in the focus group and individual interview. The online format of the questionnaire enabled participants to complete the questionnaire at their convenience.

It was believed that participants in this research study might not have thought about their own learning, how they learn, and what experiences have influenced their learning prior to participating in the study. The questionnaire provided an opportunity for participants to begin thinking and examining their own perspectives regarding learning, prior to meeting in a group where participants may be influenced by the answers and views of other participants.

The online questionnaire served as an introduction to the questions that would be asked during the focus group session. The questionnaire served two purposes. The first purpose was to provide participants with an introduction to the study. The questions were similar to the questions that would be asked during the focus group sessions. It was suggested by the researcher's committee that the participants in this study might not have thought about their learning prior to this study, therefore, the design of the questionnaire served as an impetus for participants to think about their learning history. The second purpose of the questionnaire was for the researcher to have a base line of information regarding the participants' knowledge on learning prior to the focus group sessions. Understanding what participants believed about their

own learning and how their learning would transfer to teaching served a purpose in formulating the focus group questions.

The outcome of the questionnaire responses by participants showed that knowledge on their own learning was very limited. For example, “Learning is the ability to take in new information or skills, remember it, and be able to relay that information at a later date” (Study Participant). Another example, “Knowledge acquired through studying or interacting in a new experience” (Study Participant). The statements were found to be very technical in meaning and lacked the depth in understanding that lies at the heart of learning. The questionnaire’s outcome provided an avenue for the researcher in developing questions for the focus group sessions designed to get at the heart of how an elementary education preservice teacher defines learning.

Focus Groups

The second data collection method consisted of semi-structured focus groups. Participants were presented four options on time and date to choose from, allowing them flexibility based on their schedules. The first focus group conducted had ten participants, the second focus group conducted had six participants, the third focus group had seven participants, and the fourth focus group had two participants. Two researchers were present at all of the focus groups except for the last session, at which only one researcher was present. The second researcher took notes and intervened in order to elicit further exploration or questions regarding the topic being discussed. In qualitative research focus groups according to Krueger (2009) lend themselves to finding a range of opinions of people across several groups which presents a more natural environment because participants are influencing and influenced by others-just as they are in real life” (p. 7).

The purpose of the focus group methodology was to better understand the phenomena being examined. Krueger & Casey (2009) identified five characteristics of focus group interviews. "(1) People, who (2) possess certain characteristics, (3) provide qualitative data (4) in a focused discussion (5) help to understand the topic of interest" (p. 6). The purpose of a focus group is to listen and gather information from a homogeneous population without the need for consensus in a nonthreatening environment. Focus groups often provide the foundation for future studies (Krueger & Casey, 2009).

A single-category focus group design was utilized for this research study. The single-category focus group method is used in collecting data until a "point of theoretical saturation – the points where you are not gaining new insights" is reached (Krueger& Casey, 2009, p. 25). To reach theoretical saturation, Krueger & Casey suggested that the researcher plan for three to four focus group sessions with a homogeneous population. If saturation were not achieved, the researcher would need to make a determination regarding whether to continue with more focus group sessions or report that saturation was not achieved in the final report. In qualitative research focus groups lend themselves to finding a range of opinions of people across several groups which presents a more natural environment because participants are influencing and influenced by others-just as they are in real life" (Krueger& Casey, 2009, p. 7).

A focus group manual was designed and used in conducting all sessions [Appendix C]. The purpose of a manual in conducting the focus groups was to help keep the conversation flowing during the focus group session instead of relying on short or closed questioning techniques (Creswell, 2005; Van Manen, 1990; and Bernard, 2006). Questions developed for the focus group followed a sequence of an introductory question to help participants relax and become familiar with the structure of the focus group session to more in-depth and open-ended

questions as the conversation flowed. The methodology for this structure was based on Krueger‘s (as cited in Moustakas, 1994) model in developing focus group sessions.

Individual Interviews

The third method of data collection in this research study was in-person semi-structured interviews with each participant. Rubin and Rubin (2005) described qualitative interviewing as a process in which the researcher attempts to understand experiences, processes, and important issues based on the thoughts of participants.

To identify and describe participant's experiences with learning this study used Patton's (1990) interviewing approach to design the interview protocol. The basis for the interview protocol was the use of a "list of questions or issues that are to be explored in the course of the interview…making interviewing across a number of different people systematic and comprehensive" (Patton, p. 283). The protocol for the interview questions [Appendix D] in this study were created prior to the first interview and each question was posed to participants to ensure consistency throughout the individual interviews. The purpose of the interview questions was to further understand learning from the perspective of a student and a future teacher. Seven focused questions were part of the interview process, however the interviews were semi-structured to allow a natural conversation to flow as the participants talked about their experiences and thoughts.

Two formats for participation in the interview sessions were presented to participants for the final phase of the research study. First, face-to-face interview session at the participant's choice of locations was an option for those students who were still located in the central area of the researcher. Second, Skype, an online video platform, was an option that allowed those students who wished to participate in the final phase of the research but were unavailable

because of location due to student teaching to have the opportunity to complete their participation in the study. The benefit to using an online environment for interviews, according to Woodke (2006) is that "no participant is ineligible to participate because of geographic, temporal or other logistical obstacles" (p. 68). Twenty-four participants chose to meet with the researcher in a face-to-face session and one participant met with the researcher through Skype.

The first question pertained to how participants identified themselves within the dimensions of learning Model. Participants were shown the model and asked to describe where they saw themselves as learners within the model and why they felt they were in that located quadrant. Figure 5 identifies the location of the quadrant that participants felt best matched how they learn. The purpose of this question pertained to personal perceptions of learning and learning theory.

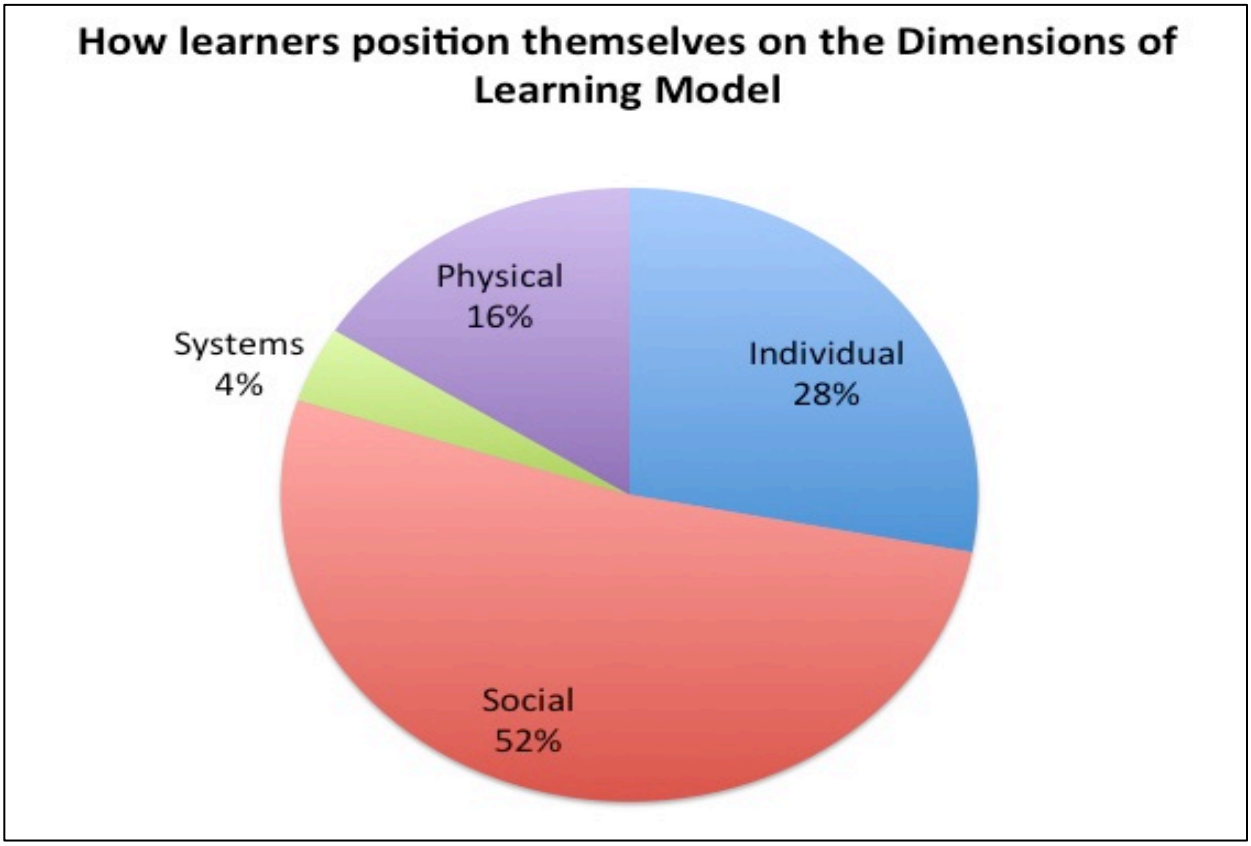

Figure 5. Participant Position on Learning Model

The majority of participants stated that they when they needed to learn something, they preferred to begin by gathering views from other learners. Yet, many of the participants stated that once they had gathered views from others, they felt the need to be alone in order to process information. For example,

- It really helps me figure out what other people thing about the subject or topic or whatever and comparing it to what I feel and then after I figure out what they think I go to myself and how I can relate to it, I think that's what I would say (Study Participant)
- Being able to build off of ideas from peers and just getting ideas on how to improve my learning from how they learn, but I also was very individual trying to make those initial connections for myself (Study Participant)

It is important to note that not one of the participants chose only one quadrant in which they identified themselves with. All of the participants had a combination of quadrants they used in identifying how they learn.

The second and third questions asked participants to imagine that I was going to teach them a lesson in a manner that would be most and least effective in their learning. As the researcher in this study, it became apparent during the questionnaire and focus groups that participants did not have a thorough understanding of how they learn and how their learning will affect their teaching methodology. Based on reflective journal notes written after each focus group, the researcher decided to bring learning to a more concrete level to see if participants were able to better grasp how they learn at a deeper level. Two sets of cards were created. The first set of cards helped participants describe how they would want an instructor to teach them a

lesson. The second set of cards, which was very similar, helped participants describe how they would design a lesson for students.

Participants were given the set of cards and were asked to choose two to five cards and rank the cards according to methodologies they would want used in order for them to learn and then again in the order that is least effective in their learning. Participants were then asked to talk about each card they used and what their perceptions regarding each methodology were according to their own experiences in learning. The purpose of the questions was for participants to think about how they learn and do not learn, and then explain the way they process information in order for learning to occur or not occur. As one participant stated after using the learning cards to plan out the process used in learning and the process in designing a lesson, "I did not realize that I was planning this lesson the way that I wanted to learn it…maybe once in a while I would have to change it so that I make sure that they know it" (Study Participant). The participant's statement aligns with what Cross' (2005) contended, "What one knows about a given subject has substantial impact on the learning process" (p.10). The participants in this study did not realize how their own learning styles impacted them as future teachers. The surprise on many of their faces reflected acknowledgement and panic as many confessed that when they planned lessons it was based on their own needs and not their students' needs, based on their responses when using the learning cards to plan a learning event and a lesson to teach. Figure 6 below identifies the types of teaching that this group of participants chose.

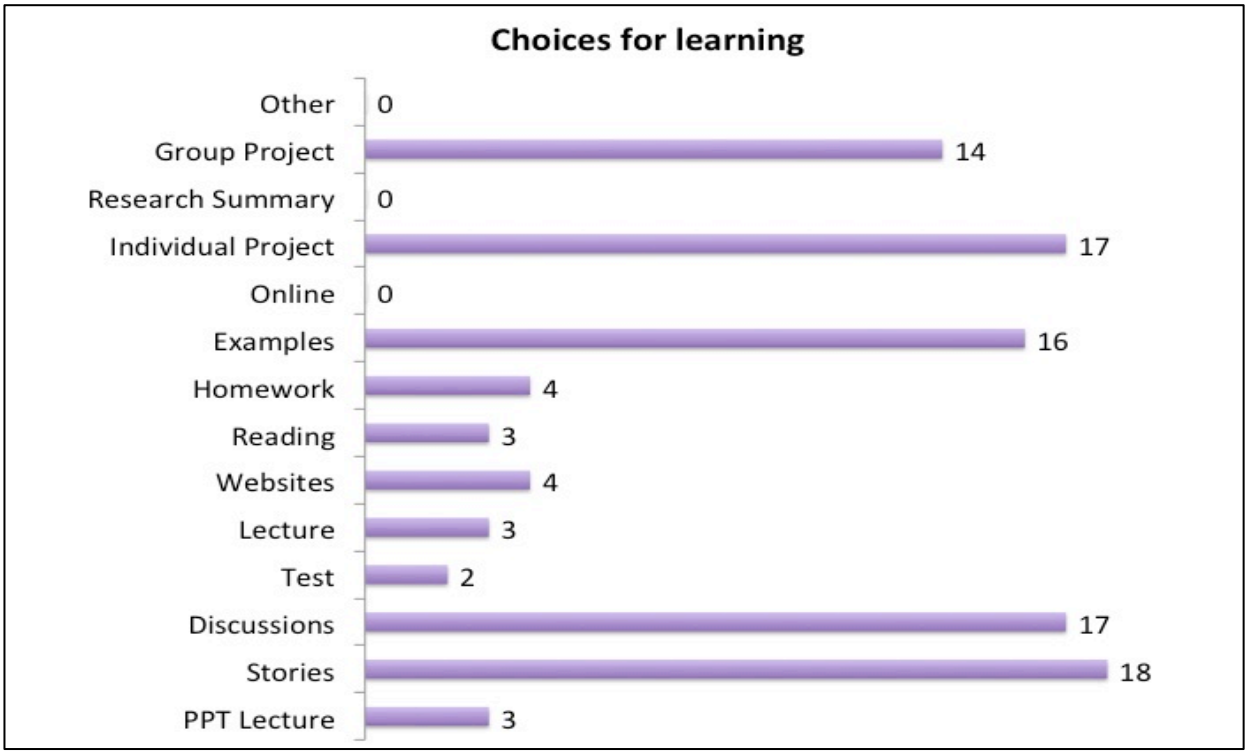

Figure 6. Participant Choices for Learning

The fourth question asked participants how important the Internet and/or mobile technology was in their own learning for them and for their future students. The purpose for this question was to follow up on the discussion regarding 21st century learning from the focus groups, where participants discussed how technology has become an access point to anywhere/anytime learning. During this individual interview, this question was responded to more on the personal perspectives of how participants used technology for their own formal and informal learning. The interesting aspect to the use of technology was during coursework; participants used their computers to look up words or concepts that the instructor was discussing in order to understand. 100% of the participants felt that technology was an important component to their own learning. Their concerns regarding technology were based on credibility of websites.

The fifth question asked participants to choose from a list of terms that could possibly hinder their learning and discuss how the terms chosen hindered their learning. The purpose for this question was to understand how learning could be inhibited for individuals. Figure 7 identifies the choices given and the responses from the participants. Disinterest and Anxiety/Fear topped the list of hindering factors when learning. Participants gave several reasons for picking these two topics and they will be explained in the intuitive integration chapter of this research study.

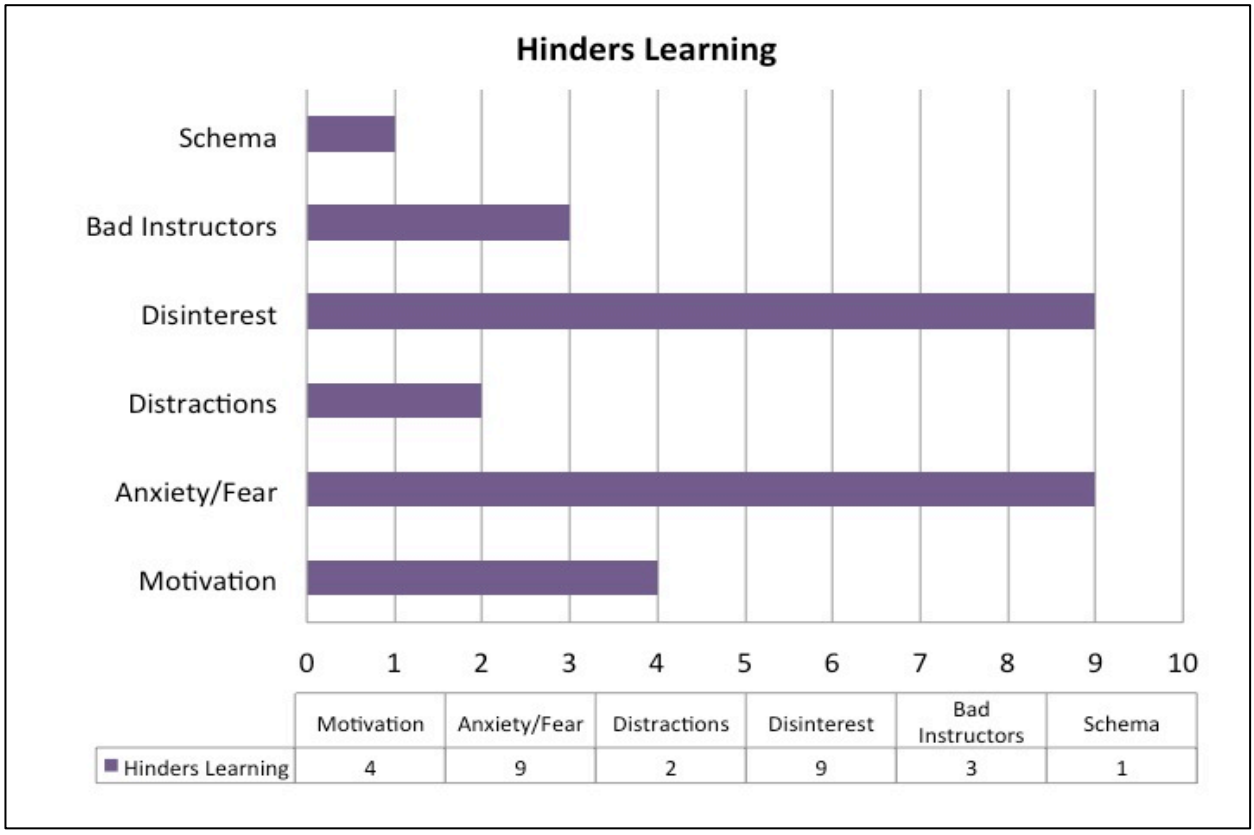

Figure 7. What Hinders Learning?

The sixth question asked participants to imagine they were teaching a lesson to their future students. The purpose of this activity was to identify how these students perceived teaching lessons based on student learning. They were given a new set of cards to design a lesson in reading/math in the sequence in which they would teach the lesson. Participants were

then asked to describe why they chose the sequence they did. Participants were then asked to compare their own learning to the way they sequenced the lesson they would teach. What occurred during this process was unexpected. Several of the participants realized that the way they wanted to be taught to optimize learning was the same methodology they would use to teach a lesson to their future students.

The seventh question asked participants if they had thought about how they learned before becoming involved with this research. Again, what occurred during this question surprised both the participants and the researcher. Several of the participant's eyes widened as they answered the question. The responses from participants were consistent as they indicated they found it surprising that, in their coursework, they had studied types of learning, but had not transferred this knowledge of types of learning to themselves as learners. The majority of participants who answered *a bit* or *yes* to having thought about their learning contended that while they had thought about how they learn, they had never thought in-depth regarding how they learn; rather they knew they were auditory, visual, or kinesthetic learners. But the steps or process they took to learning was not something they had considered. Figure 8 identifies participant's answers to question seven. A more thorough investigation is available in chapter five.

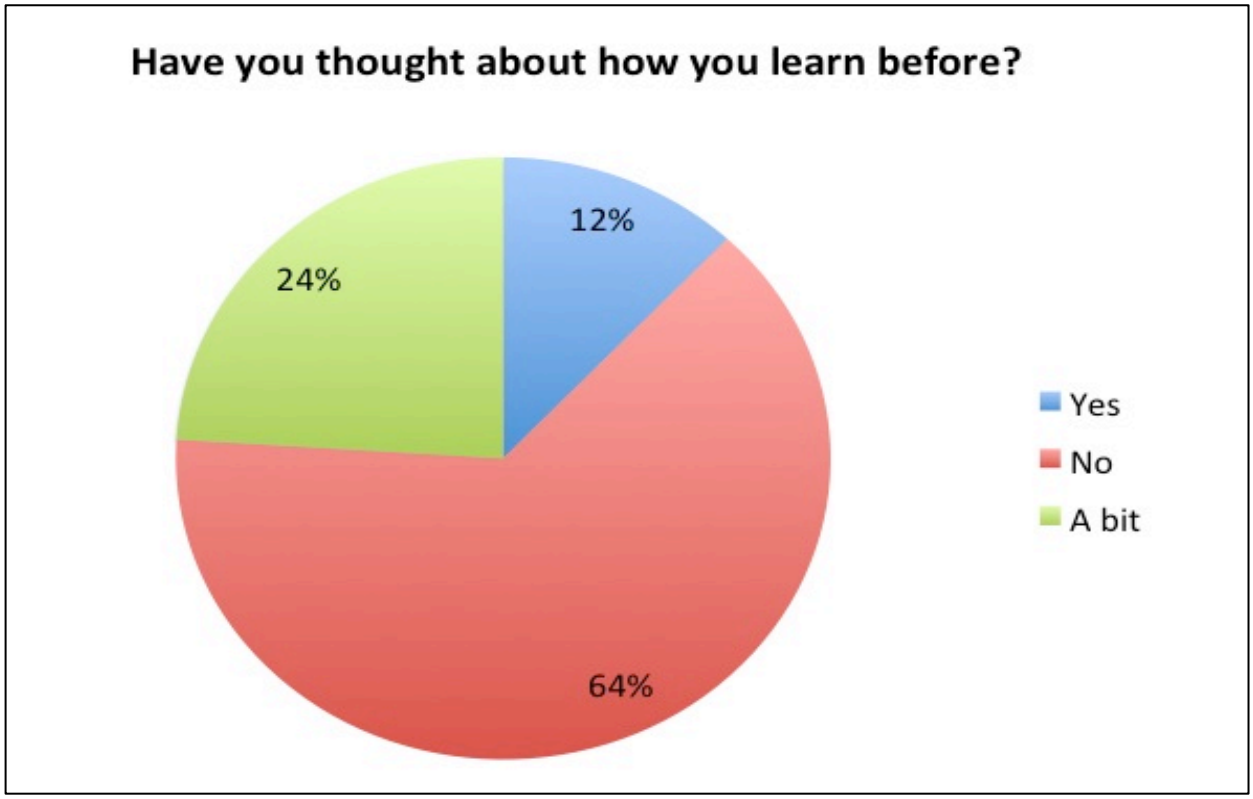

Figure 8. Have You Thought about How You Learn?

Data Analysis and Interpretation

This study employed a transcendental phenomenology research approach based on principals developed by Husserl (1931) and transformed into a systematic qualitative research method by Moustakas (1994). The analysis and interpretation of this study used a systematic method of transcendental-phenomenological reduction process in analyzing the data to capture the essence of the phenomenon. The series of steps in transcendental phenomenology method by Moustakas' include: (a) Epoche, (b) Framing, (c) Transcendental Phenomenological Reduction process, (d) Imaginative Variation, and (e) Essence of the experience. It is important to note that within the five steps above there are sub-steps within the reduction process and imaginative Variation. Moustakas also introduced two variations of the systematic process of transcendental phenomenological methodology (see p. 120 in Moustakas, 1994).

The Epoche Process

Epoche comes from the Greek word meaning to *refrain from judgment* (Moustakas, 1994). Moustakas' identified the use of epoche in the research process is an important component to perceiving "what stands before our eyes" so that we can distinguish and describe the phenomena (p. 33). In order to see what stands before us, the researcher must go through a process of bracketing their own understanding of the phenomena and the possible judgments that they may have regarding the phenomena. This process according to Husserl and Moustakas is to achieve a 'pure ego' in which judgments on the phenomenon investigated are set aside to "launch the study as far as possible, free of preconceptions, beliefs, and knowledge of the phenomenon from prior experiences" (p. 33). During the Epoche process the research writes intermittently through a bracketing of the experiences they have encountered with the research being studied. In doing this step, the researcher identifies their own preconceived notions regarding the research topic so that they may avoid making any judgments during the data collection process.

Framing

In framing a basic review of the literature on the object of research is started as a means to frame the research question and set the stage for inquiry (Moerer-Urdahl & Creswell, 2004). Often in qualitative research a literature review is done until after the data collection process has been completed. Moustakas (1994) contends that conducting a literature review prior to the collection of data allows the researcher to "assess prior studies; distinguish the designs, methodologies, and findings" to assist in understanding what new knowledge the researcher anticipates he/she will acquire (p. 111).

Transcendental-Phenomenological Reduction

Moustakas defined *transcendental* as a "move beyond the everyday to the pure ego in which everything is perceived freshly, as if for the first time". The second term in this phase is *Phenomenological*, in which the "phenomenon transforms the world into mere phenomena". The third term *Reduction* leads back to the "source of the meaning and existence of the experienced world" (p. 33). Within the Transcendental-Phenomenological Reduction phase of data analysis there are four processes.

Horizonalization

The systematic procedures of transcendental phenomenological use a process called *horizonalization*. During horizonalization, the first initial step in the data analysis phase is to analyze transcribed data for significant statements located in participants' responses. The responses are then organized in a table format for readers to see the range of perspectives regarding the phenomenon (Moustakas, 1994). Table 1 provides an example of the table format. This format provided an opportunity for the researcher to identify and classify all of the statements made by participants regarding the data collected.

Table 1

Examples of Significant Statements-Individual Interviews

Significant Statement
I think when I first started out in the general education courses it was definitely more individual, you were always by yourself, but then as I progressed into education it became more social, and that's whom I am. I think that my first two years I did ok, but then my last two years I did so much better because that's who I am. I learn more with others.
I like discussing things with others. I feel like it helps me learn more about whatever I am learning. When I talk about it and then stories from instructors because I feel like I hold onto the information better, I can retain it more and I always come back to that example the instructor gave. I like classroom based projects also.

Second Step – Meaning Units

The second process used in the horizonalization of the data included analyzing *significant statements* for meaning. This step was a modification of Moustakas' procedure in horizonalization, however Moustakas' did discuss Colaizzi (1978) attributes of formulated meaning statements in his book *Phenomenological Research Methods* as an acceptable procedural step in conducting transcendental phenomenology study. The intent for adding this additional step was to increase the rigor of the reduction phase of the research study. In this additional step, the significant statements are evaluated for significance toward the object being explored. If a statement is found to not have significant value, the statement is removed from the table. If the statement was found to have significant value, a formulated meaning of the statement was identified in the data. In this data reduction step, the researcher chose to cross out those statements that did not appear to have significant value as Table 2 shows.

Table 2

Examples of Significant Statement Reduction-Individual Interviews

Significant Statement	Formulated Meaning
~~I think when I first started out in the general education courses it was definitely more individual, you were always by yourself, but then as I progressed into education it became more social, and that's whom I am.~~	
I like discussing things with others. I feel like it helps me learn more about whatever I am learning. When I talk about it and then stories from instructors because I feel like I hold onto the information better, I can retain it more and I always come back to that example the instructor gave. I like classroom based projects also.	Examples, stories, and discussions help in retaining information for learning.

**Text is struck through to demonstrate the reduction process.*

Third Step – Meaning Units Identified

The third step in horizonalization was a further reduction of the data towards *meaning units*. Statements from the horizonalization of the data are examined, deleted, reorganized and grouped into meaning unit clusters with corresponding participant statements in a tabular format. A table was used to identify the themes (Moustakas, 1994). An example of the format of the table in identifying meaning units is provided in Table 3 below.

Table 3

Formulated Meaning Units identified, Reorganized and Grouped

Formulated Meaning Units	Evidence in Statements
Learning is experience through experimentation with content, other persons, and through communication methods	Learning is experimental, you have to experience things in order to actually have had learned something. You learned about it, you have experienced it, you are sharing it, you have confidence knowing that it works and…how to explain.

Step Four – Themes Derived from Meaning Units

The final step used to get at the themes of the research study was an additional step the researcher felt necessary in order to further reduce data towards the essence of the study. The meaning units and evidence statements were analyzed and regrouped into the themes of the study and presented in a tabular format. An example of the format used in this research study is provided below in Table 4.

Table 4

Themes Derived from Meaning Units

Meaning Units Identified	Participant Statements	Literature Connection
Theme 1: The power of learning through self-efficacy beliefs		
Learning provides a feeling of confidence.	Because you learned about it you have experienced it, now you are sharing it, you have confidence knowing.	Bandura (1997) and self-efficacy beliefs

Imaginative Variation

The final process in transcendental phenomenological study is through *textual and structural descriptions*. Theme descriptions were considered and additional meanings are sought from different perspectives, roles, and functions, while the "process of imaginative variation leads to essential structures of the phenomenon" (Moustakas, 1994, p. 97). This stage focuses on discussions regarding "what" was experienced in textural context and "how" the phenomenon was experienced in structural narrative descriptions using the participants' voice. A second review of the literature is used to elicit and illustrate the structural themes of the phenomenon towards a synthesized description that pertains to the 'essence' of the phenomenon. The imaginative variation procedure will be used in chapter five of this research study.

Qualitative research is an approach that accepts that knowledge is gained through individual constructions of reality through rich descriptions of the phenomena being studied (Merriam, et al., 2007). Qualitative research historically does not address internal and external validity. Rather, qualitative research attempts to report trustworthiness, credibility, dependability, and transferability. Guion, Diehl, & McDonald (2002) asserted that "validity in qualitative research refers to whether the findings of a study are true and certain" (p. 1).

Trustworthiness

Every effort was made to ensure the credibility, dependability, and transferability of this research study. The trustworthiness of this research study was enhanced through the use of triangulation of three types of data collection including: questionnaires, focus group sessions, and individual interviews to obtain a complete and comprehensive understanding of the topic being explored.

Credibility

The credibility of this research was achieved through the use of direct quotes from the participant's statements during the data analysis phase of this research study. Trochim & Donnelly (2008) contends that credibility in qualitative research is through the descriptions of a participant's experiences of the phenomenon being studied and the participants are the only ones who can "legitimately judge the credibility of the results" (p. 149).

Dependability

The data gathered in this study was checked for verification from audio recordings and transcribed data to ensure that the transcribed data was accurate. The data was analyzed and recounted meticulously to ascertain dependability in the study. The data reduction process through the use of table formats provided a means of analysis that was systematic and allowed for a thorough description of significant statements provided by the participants. The process also left an audit trail for how the information was interpreted through the progression of data reduction.

Transferability

Comprehensive and thorough descriptions of data collection and analysis were included in the research study's methodology, analysis, and findings chapters. The use of sample tables in the horizonalization of the data and the textural and structural descriptions of participant statements assisted in the transferability of this research study. The 25 participants in this study provided a fairly large sample for a qualitative study that lends itself to the potential for transferability to future studies. The systematic steps in data collection, data processing and the provision of identifying how each step was done in this study provide a methodology to replicating the study by future researchers.

Ethical Assurances

There are several steps that a researcher can take to maintain an ethical environment while researching. The first ethical assurance for this research project was accomplished through approval of the research methodology used in the study by the Internal Review Board (IRB) at the university where the study was conducted prior to any data being collected please see IRB approval letter in [Appendix E].

The second ethical assurance of protecting the population being studied was to provide participants with an informed consent [Appendix F]. Mack, et al., (2005) suggested that the purposefulness of obtaining an informed consent is to provide participants with the knowledge of their obligations and rights as participants in a study.

The consent form used in this study provided two purposeful avenues to ensure participants understand their role in the research study. First, participants were given the informed consent to read and ask questions prior to signing and participating in online questionnaire. Second, participants were orally provided a detailed description of their role in

the study and how their participation in the study will be used prior to participation in the focus group sessions. Providing both a written and oral discussion on the study, along with an opportunity to ask questions provided participants the opportunity to accept or decline based on their own perceptions and choice.

This study began with an online questionnaire. Participants who wished to participate in the study were sent the informed consent prior to taking completing the online questionnaire. The researcher also read the informed consent orally at the beginning of each focus group session to ensure that participants understood their role in the research process.

The third ethical assurance is the privacy of data collection. Data collected throughout the study was protected through an encrypted online back-up system and a password protected external hard drive. Another safeguard for participant's identity was based on a suggestion from Mack, et al. (2005) in using a "name substitution system" (p. 53) to protect participant identities. Participant names were not used in any of the data collection methods; instead each participant was given an identification number to increase the protection of their identity. The identification number was not used in the recording of the data to further protect participant's identities.

Summary

The research methodology used in this study was based on the combined work of Husserl and Moustakas. This study engaged in systematic procedures for qualitative research using a phenomenological perspective based on Moustakas transcendental phenomenological process. The qualitative approach assisted in the development of rich and deep descriptions of participant experiences and thoughts regarding learning. Chapter four will discuss the process of horizonalization of the data. Chapter five will discuss the themes found within the horizonalization process. Chapter five will also engage in a discussion of themes and

relationships to current literature. Chapter six will identify the essence of the study and how it relates to teaching elementary education preservice teachers. Chapter seven will discuss a new narrative that will summarize and discuss the study's findings and implications, provide suggestions for further research and a conclusion to the study.

CHAPTER 4. HORIZONALIZATION OF DATA

The purpose of this study was an inductive inquiry of the lived experiences of 21st century senior standing elementary education majors student's perceptions and experiences regarding what it means to learn and how 21st century senior standing elementary education majors think about learning personally and as a future teachers.

The methodology employed in this research used the systematic process of *Transcendental-Phenomenology Reduction* based on the work of Moustakas (1994). One additional step was included in the reduction of the data processing to increase the rigor of the reduction and assist the research in formulating meaning units and then themes. Themes were analyzed and divided into two sections; (a) Elementary Education Preservice teachers' own learning and (b) Elementary Education Preservice teachers' teaching. Moustakas provided two modification procedures that were acceptable in the transcendental-phenomenological reduction process. The modification used in this study was based on Colaizzi (1978) data analysis modification of formulated meaning statements. The systematic process of transcendental-phenomenological reduction is a useful methodology for new researchers as the systematic and rigorous procedures are outlined in a specific sequence that combines both the subjective and objective approach in the analysis phase (Conklin, 2007).

Data were collected from 25 participants. All participants were involved in the three data collection methods. The first data collection method was an initial questionnaire. The questionnaire data collected demographic information, and asked preliminary focus group questions to help prepare participants for the focus group session. The second data collection method was focus group sessions, in which groups ranging in size from two to eight participants were asked questions regarding their experiences with learning. The third data collection method

used was in-person interviews with the researcher. All of the focus group sessions and in-person interviews were audio recorded and transcribed. The transcripts were read several times by the researcher to gain an understanding of the meanings from participants' thoughts.

This chapter focuses on the horizonalization methodology of data analysis. The chapter begins with revisiting the purpose of the study and the research questions. The systematic process of data analysis using the horizonalization process is described and discussed in detail. The first step completed prior to analyzing the data was bracketing the researcher's epoche statements, so that the data could be viewed through consciousness without judgment. Then, a statement framing the past review of literature on the phenomenon was given.

The following steps were used in horizonalization of the data reduction process. First, data were analyzed for significant statements found within the transcripts and put into tables. Tables of significant statements were sorted according to questions asked in questionnaires, focus groups, and in-person interviews. The significant statements were then identified for meaning and placed in tables according to research question. The next step in analyzing data was the evaluation of significant statements as they related to the research questions. If a statement was identified as not having meaning to the research, it was removed from the table. If the significant statements were found to have value, a formulated meaning of the statement was written and placed in a third column within the data. The final step in the horizonalization of the data was to examine, delete, and group formulated meanings into meaning units or themes. A table was used to identify the meaning units (themes) and formulated meanings. This chapter will conclude with a summary discussion of the data analysis procedures that were used.

Purpose of the Study

The purpose of this transcendental phenomenological study was to develop an understanding of the pattern of meanings and/or themes related to what it means to learn in the 21st century. Through participants' own voices, their opinions, self-efficacy beliefs, and lived experiences as students and as elementary education preservice teachers were explored to gain an understanding of how they think about learning, how they define learning, and how their own experiences as students in learning will transfer, as they become professional teachers.

Research Questions

The overall guiding research question was: *What does it mean to learn and think about learning through the lens of 21st century senior standing elementary education majors as they transition to the other side of the desk?*

The following sub questions address the overall guiding research question in this study:

1. How do 21st century elementary education senior level students in postsecondary education define learning?
2. What helps 21st century elementary education senior level students in postsecondary education learn?
3. How do 21st century elementary education senior level students in postsecondary education know when learning has occurred for them?
4. What experiences influence learning for 21st century elementary education senior level students in postsecondary education?
5. How do 21st century elementary education senior level students in postsecondary education think their personal ways of learning are going to impact how they teach?

Epoche

Epoche comes from the Greek word meaning to *refrain from judgment* (Moustakas, 1994). The process of refraining from judgment through the researcher's personal Epoche is based on the work of Husserl (1977). His belief was that the 'pure ego' is the driving force in creating a paradigm where research can be viewed through a consciousness "as if for the first time" (Moustaka, 1994, p.85). Both Moustaka's and Husserl contended that a researcher should bracket their experiences that relate to the research through a personal epoche. In doing this, the researcher's consciousness is free from prior experiences and the research is seen with fresh eyes.

Researcher Epoche Revisited

I am a university instructor of preservice elementary education students. I was an elementary teacher for 15 years prior to becoming an instructor at the college level. As a teacher and instructor it is my job to ensure that my students learn the content necessary for them to be successful as they progress through their learning endeavors. During this study, to ensure that my consciousness is aware of the values, biases, and experiences that reside within my ego, I spent time bracketing out my thoughts as I progressed through this research study. A sample of the brackets for the Epoche are listed below:

- [The need to set aside my previous experiences as a prior teacher of the participants]
- [My own personal thoughts and opinions on how individuals learn]
- [Judgments regarding the answers and opinions of the participants]

In all consciousness, I did not have many instances where bracketing was needed. As a new researcher, my inexperience and naiveté of how the research study would progress lent itself to a 'pure ego' of Epoche than future research endeavors upon which I may embark.

Framing the Study within the Literature

The review of the literature for this research study was framed within the *Dimensions of Learning Model*. The model's basis was to classify the major theories of learning into "dimensions" for the purpose of addressing the complexity of learning from theoretical perspectives that are a focus in teacher education programs. The model also focused on the internal forces (learning styles and genetics) as well as external forces (relationships and globalization) that impact learning for students and teachers, including how technology has impacted each dimension.

Significant Statements

Identification of significant statements is the first step in the horizonalization reduction of data. In this step, the data were analyzed for significant statements about the experiences from participants. These significant statements are recorded in a table format (Moustakas, 1994).

Significant statements and phrases from questionnaires, focus group sessions, and individual interviews were identified and analyzed. Statements that related to the lived experiences and thoughts of 21st century elementary education senior level students were identified in the transcripts and listed in a tabular format. From 54 transcript files, 212 significant statements were found. The significant statements were analyzed again and put into categories according to each research sub question. The significant statements were then printed out and reread to cross reference and increase dependability in research methodology with the original transcripts to ensure that no significant statement was overlooked.

The repetitive process in identifying the significant statements was based on the following claim by Moustakas (1994) who asserted that horizonalization is a process in which "looking and noticing, and looking again is complete a more definitely reflective process occurs,

aimed at grasping the full nature of a phenomenon. To some extent each reflection modifies conscious experience and offers a different perspective of the object" (p. 93). In following the suggestions by Moustakas, the data were analyzed on several occasions to ensure that no significant statements were omitted from the horizonalization process.

The lists below represent a sampling of the significant statements found in the horizonalization data reduction process. Each list is presented with a research sub question. However, it is important to note that while the statements were identified based on sub questions, the overarching research question was always kept in consideration: *What does it mean to learn and think about learning through the lens of 21st century senior standing elementary education majors as they transition to the other side of the desk?*

Research Sub-Question 1: *How do 21st century elementary education senior level students in postsecondary education* define learning*?*

- Learning is experimental, you have to experience things in order to actually have had learned.
- To me learning is just being able to retain information and also having an open mind and being open to new experiences to keep learning.
- Because you learned about it you've experienced it now you're sharing it, you have confidence knowing that it works and you have confidence knowing how to explain.
- Because you learned about it you've experienced it now you're sharing it, you have confidence knowing that it works and you have confidence knowing how to explain.
- It was kind of neat because I figured out real quickly that I do not learn just one way I learn the way everybody else learns, but in a different order.

- Three words that keep coming up to me are "sharing, exploring and experiencing" sharing can be sharing a question that you have with someone or the instructor sharing a new idea with the class, and then there's the exploring that you do to look further into whatever that was shared before.
- To me learning is just being able to retain information and also having an open mind and being open to new experiences to keep learning.
- I think when a lot of us think of learning we're in such college mode that we think of quiet and studying but I think learning is not so quiet, I think when kids are really learning they're very engaged and active…noisy.
- Being able to build off of ideas from peers and just getting ideas on how to improve my learning from how they learn, but I also was very individual trying to make those initial connections for myself, and then using those global systems as well, seeing you it's applied outside of just my classes.

Research Sub-Question 2: *What helps 21st century elementary education senior level students in postsecondary education learn?*

- Learning doesn't stop, you do not know as much as you think you know about one certain thing, there's always more to learn about it and so it's more of just a process rather than you know something or do not.
- I also think it makes you more optimistic about what you can learn and going further and learning more about it.
- Excitement, you know when you feel like you've learned something you just instantly have a smile on your face and you're so excited and excited to share it with others.

- Connect it somehow to yourself, to apply it somehow that it makes me excited about it …hearing something or can even memorize it that doesn't really excite me.
- I've learned something because I can communicate it to other people and talk about.
- You know you have learned something and you actually could say "I'm going to tell you about this" or carry on a conversation.

Research Sub-Question 3: *How do 21st century elementary education senior level students in postsecondary education know when learning has occurred for them?*

- In class that when we talk about things and compare to what other people have learned or heard or thought about, I just pick up new ideas and learn more about it that way.
- It really helps me figure out what other people think about the subject or topic or whatever and comparing it to what I feel and then after I figure out what they think before I go to myself and see how I can relate to it.
- I usually have to do something and hear it and then do it and keep repeating those steps.
- I text classmates a bunch like "so, how did you interpret this question, what does it mean to you?" And I understand it better and so I think it's huge.
- Stories about the topic from instructors, I really like it when instructors tell us stories because then I feel like I hold on to the information better, I can retain it more.
- I think it's kind of sad how dependent people have become on their phones, but I do think it enhances how I can grasp something, if I do not know something right in a second, I can just look it up real quick on a phone or with technology, so I think that it does play a big effect on how everybody learns, not just myself but just because it's easy access and it's always there.

- I can depend on other people to help me learn information rather than just myself trying to figure it out or me misinterpreting something
- I like to write down things, like read and take notes because it is another way for me to remember and somehow keep it in my brain, and re-reading.
- I'll make rhymes in my head for meanings for something in order to remember it so then it's like I can repeat that rhyme in my head whether it's acronyms or whatever, it has more meaning for me, I guess I learn more usually.

Research Sub-Question 4: *What experiences influence learning for 21st century elementary education senior level students in post secondary education?*

- In my Educational Psychology class he's been very encouraging and he always is like motivating us and just giving.
- She even put a nice note on the bottom which she had never done before saying something really nice about the speech and I think that's the point when I realized that a lot of instructors when tell you something they come off as being strict or this or that, but they're not doing it to give you work so that you can fail, they want you to do better.
- Disinterest just because there's sometimes you'll hear like teachers say that something's like very difficult to do and I feel like it discourages sometimes you're feeling of "I can do it" it makes you second think how you would do it if you hear that it's very difficult to teach this way or teaching.
- I learned how important feedback is and how it affects my learning because if I get feedback on what I'm doing right and what I'm doing wrong I can change what I'm doing and if I do not get any feedback I just kind of lose interest and just keep doing what

I'm doing not knowing if I'm doing it right, and I could be doing it wrong the whole time and I would never know.

- Disinterest is my biggest one, if I do not care about it you probably can't change that and I'll just sit there and, I'll learn it for a test and then forget it and not care about it.
- I would probably say anxiety or fear of learning a topic, if you do not feel comfortable or if you do not know a lot, I guess it goes back to lack of background knowledge too, but if you do not know a lot about the topic before you're kind of, you do not really know what to expect, so I would say those two.
- I definitely think relationships form is of growing importance, I look back at my teachers that formed that relationship with me and I remember things that they did, I remember topics they went over and stuff and then I think of teachers that didn't and I do not remember that kind of stuff.

Research Sub-Question 5: *How do 21st century elementary education senior level students in postsecondary education think their personal ways of learning are going to impact how they teach?*

- I guess since I learn hands-on, that's probably the way that I'm going to be teaching the most, I will try to teach other ways, but that's probably what's going to come.
- How you like to learn is how you teach your students, because it works for you and you know how you like it and you know the little things that help you the most so you try them out on the students and if it doesn't work then you adjust it, but if it does…great.
- Even looking at this I'm like "that is how I learn" it's how I would set up my lesson and just thinking about that, even though I think that would be a good way to teach, I might

need to change the order of things, so being able to reflect that the way you teach is kind of showing how you learn and it's good to know and think about.

- I remember the awful teachers the most and I remember the specific things that I did not like about their teaching style and if I struggled and what I struggled with and those are the things I try to avoid. It's a lot easier for me to remember a bad teacher and remember points that I struggle with, so I will try and avoid those and how it made me feel.
- If you do not know how you learn, how, you have to be able to relate to them, you have to be able to say well, if I do not learn like that maybe they will not learn like that or vice versa.

Formulated Meaning Units

The second step in the horizonalization of data reduction for this research study was formulating meaning statements. The intent for adding this additional step was to increase the rigor of the reduction phase of the research study (Moustakas, 1994). The process used in analyzing the data for formulated meaning statements was through two procedures: First, the significant statements were reread and if the statement was found not to have significant meaning, the statement was crossed out. Second, if the statement was found to have meaning, a formulated statement was written. In this step, 156 formulated meanings were identified in the data.

The tables below illustrate the significant statements along with formulating meaning units. The tables represent a sampling of the significant statements found in the data reduction process. For additional formulated meaning data, see Appendix F. Each table is listed with the research sub-questions.

Research Sub-Question 1: *How do 21st century elementary education senior level students in post secondary education define learning?*

Table 5

Selected Examples of Formulated Meanings for Defining Learning

Significant Statement	Formulated Meaning Unit
Learning is experimental, you have to experience things in order to actually have had learned.	Learning is an experiential process.
Being able to retain information and also having an open mind and being open to new experiences to keep learning.	Learning is allowing for new experiences in order to connect to prior knowledge.
Because you learned about it you've experienced it now you're sharing it, you have confidence knowing that it works and you have confidence knowing how to explain.	Experiencing learning creates a confidence for social interaction.
Three words that keep coming up to me are "sharing, exploring and experiencing" sharing can be sharing a question that you have with someone or the instructor sharing a new idea with the class, and then there's the exploring that you do to look further into whatever that was shared before.	Learning constitutes a number of processes
~~I think learning is not so quiet, I think when kids are really learning they're very engaged and active…noisy.~~	
Just being able to retain information and also having an open mind and being open to new experiences.	Open mindedness allows for retention.

**Text is struck through to demonstrate the reduction process.*

Research Sub-Question 2: *How do 21st century elementary education senior level students in post secondary education know when learning has occurred for them?*

Table 6

Examples of Formulated Meanings for Knowing Learning has Occurred

Significant Statement	Formulated Meaning Unit
~~Just remembering that~~ learning doesn't stop, you do not know as much as you think you know about one certain thing, there's always more to learn about it and so it's more of just a process rather than you know something or do not. ~~I also think a lot more~~ about experiences and connections when learning, because I think I learn better if I can make connections with it.	Learning is a process that grows and builds upon other knowledge through connections.
~~When I was in 2nd grade I was reading at a 7th grade level and so my teacher, my favorite teacher, she had me teach half of my grade how to read, and so that, I think ever since that point I was like "oh, I'm kind of good at this~~	
Excitement, you know when you feel like you've learned something you just instantly have a smile on your face and you're so excited and excited to share it with others.	Learning builds confidence and allows for positive social interactions
Connect it somehow to yourself, to apply it somehow that it makes me excited about it …hearing something or can even memorize it that doesn't really excite me.	Learning is more productive in connecting than cognitive memory.
You know you have learned something and you actually could say "I'm going to tell you about this" or carry on a conversation.	Learning is a socially accepted communication process.

**Text is struck through to demonstrate the reduction process.*

Research Sub-Question 3: *What helps 21st century elementary education senior level students in postsecondary education learn?*

Table 7

Selected Examples of Formulated Meanings for what helps Students Learn

Significant Statement	Formulated Meaning Unit
It really helps me figure out what other people think about the subject or topic or whatever and comparing it to what I feel and then after I figure out what they think before I go to myself and see how I can relate to it.	Learning is social process for creating an individual personal connection.
In class when we talk about things and compare to what other people have learned or heard or thought about, I just pick up new ideas and learn more about it that way.	Discussions with others helps form new ideas and thoughts
I usually have to do something and hear it and then do it and keep repeating those steps.	Learning involves a multi-step process, which includes talking about the concept and doing something related to the concept repeatedly.
I text classmates a bunch like "so, how did you interpret this question, what does it mean to you?" And I understand it better and so I think it's huge.	Learning is talking and having the instant availability to others for questions.
I think it's kind of sad how dependent people have become on their phones, but I do think it enhances how I can grasp something, if I do not know something right in a second, I can just look it up real quick on a phone or with technology, so I think that it does play a big effect on how everybody learns, not just myself but just because it's easy access and it's always there.	Technology enhances learning because it is instant knowledge. Technology affects how learning occurs and results in many self-directed learning opportunities.

Research Sub-Question 4: *What experiences influence learning for 21st century elementary education senior level students in postsecondary education?*

Table 8

Selected Examples of Formulated Meanings for Influences on Learning

Significant Statement	Formulated Meaning Unit
In my Educational Psychology class he's been very encouraging and he always is like motivating us and just giving.	Connections are important to motivating learners.
Teacher was known to be hard and strict and not very personable… gave me licorice and just, the licorice I remember, and you know it just made me see the true side of her.	Connections are vital in teaching and learning. Getting to know a teacher personally, can make a lot of difference in learning
Disinterest is my biggest one, if I do not care about it you probably can't change that and I'll just sit there and, I'll learn it for a test and then forget it and not care about it.	Disinterest and distractions can hinder learning. Poor instructors require individual motivation in order to learn.
High anxiety or fear about not necessarily learning the topic but being successful at learning the topic or learning it incorrectly.	Anxiety and fear about a learning topic can impede learning and cause a block in knowledge that may have otherwise been known.
She even put a nice note on the bottom which she had never done before saying something really nice about the speech and I think that's the point when I realized that a lot of instructors when tell you something they come off as being strict or this or that, but they're not doing it to give you work so that you can fail, they want you to do better.	Connections and small things make learning easier.
~~if I'm not interested in it, if the instructor, if I like them or if they make it seem more appealing I'll really try at it, but if I do not feel like they have any interest in it.~~	~~Bad instructors who are uninterested in concepts being taught can hinder the learning environment, but if they have a good personality, learning will still occur.~~

**Text is struck through to demonstrate the reduction process.*

Research Sub-Question 5: *How do 21st century elementary education senior level students in postsecondary education think their personal ways of learning are going to impact how they teach?*

Table 9

Selected Examples of Formulated Meanings for Learning to Teach

Significant Statement	Formulated Meaning Unit
I learn hands-on, that's probably the way that I'm going to be teaching the most	Teaching ability is based on a teacher's own personal preferences in learning and other methods will be explored, but not in-depth.
How you like to learn is how you teach your students, because it works for you and you know how you like it and you know the little things that help you the most so you try them out on the students and if it doesn't work then you adjust.	Teachers teach to their own personal preferences for learning to see if students learning style is similar to theirs.
Even looking at this I'm like "that is how I learn" it's how I would set up my lesson and …I think that would be a good way to teach.	Teaching ability is based on a teacher's own personal preferences in learning and other methods will be explored, but not in-depth.
I remember the awful teachers the most and I remember the specific things that I did not like about their teaching style and if I struggled and what I struggled with and those are the things I try to avoid. It's a lot easier for me to remember a bad teacher and remember points that I struggle with, so I will try and avoid those and how it made me feel.	Negative teachers affected me more than positive teachers. Teaching is about NOT doing what negative teachers do.
If you do not know how you learn, how, you have to be able to relate to them	There is a need for teachers to identify how they learn so they are better able to handle student-learning differences.

Meaning Unit Identification

The next step in horizonalization of data was to re-examine statements and formulated meanings as they related to the phenomenon being studied. Significant statements were examined, deleted, reorganized and grouped into meaning units. A tabular format is used to identify the meaning units and statements that showcase the unit and the phenomenon. The table below contains the complete listing of meaning units and a sample of clustered statements. Eleven meaning units were found in the analysis of the data.

The process used in identifying the meaning units for this research study was through rereading all significant statements and formulated meaning statements prior to clustering. Once the data were reread, a table was created that clustered participants' statements in the search for the emergence of meaning units. Clustered statements were reread and analyzed for meaning units, which were then written. The significant statements and formulated meanings were not organized according to research question; instead the data were put into one table for the emergence of meaning units.

Table 10

Formulated Meaning Units identified, Reorganized and Grouped

Formulated Meaning Units	Evidence in Participant Statements
Learning is experience through experimentation with content, other persons through communication	Learning is experimental, you have to experience things in order to actually have had learned something. …you learned about it you've experienced it, you're sharing it, you have confidence knowing that it works and…how to explain. …sharing, exploring and experiencing. …learning is just being able to retain information and also having an open mind and being open to new experiences. …I also think of excitement, you know when you feel like you've learned something you just instantly have a smile on your face and you're so excited and excited to share it with others. I've learned something because I can communicate it to other people. …you can communicate and carry on a conversation then you know that you've learned it and internalized it. …involved with the content. When you can actually do it, read it, write it, make it, talk about it. …experiences to know something…if you can relay it to others…if you can repeat…if you…remember it…where you can tell somebody or you can do it…that's how I think of learning is… it's not just in and out, it somehow stays with you.
Learning is confidence building	When you…learn something you can kind of put that anxiety away and feel confident…in the fact that you have knowledge now. …it's a feeling, confidence, like I can use that for the rest of my life, it wasn't just that I learned it and I took the test. I would have agree with confidence…you feel like you've learned something…you're so excited to share it with others. …sense of accomplishment especially if it is something that you have been struggling with.

Table 10

Formulated Meaning Units identified, Reorganized and Grouped

Formulated Meaning Units	Evidence in Participant Statements
Peers help students learn	…it really helps me figure out what other people thing about the subject or topic or whatever and comparing it to what I feel. …the first thing I usually do is find someone that knows about it. …I can depend on other people to help me learn information rather than just myself trying to figure it out or me misinterpreting.
Learning is the availability of information instantaneously	I text classmates a bunch like "so, how did you interpret this question, what does it mean to you?" And I understand it better and so I think it's huge. I always have my iPad right there and so I always look stuff up. …it's so much more accessible when you can make your learning more mobile, you do not have to be at a library. …in class that when we talk about things and compare to what other people have learned or heard or thought about. …if I do not know something right in a second, I can just look it up real quick on a phone or with technology, so I think that it does play a big effect on how everybody learns.
Making connections through multiple methods helps learning occur	…if you can relate to it, you can memorize it or whatever, and that's when you tell them the stories, and then you talk about it. …I'll make rhymes in my head for meanings for something in order to remember. …stories about the topic from instructors, I really like it when instructors tell us stories because then I feel like I hold on to the information better, I can retain it more.
Making connections with students is important.	…you can explain that and make it more personal so students can relate to you more, have that connection with you, they're more willing to learn. …more personal so students can relate to you more, have that connection with you, they're more willing to learn.

Table 10

Formulated Meaning Units identified, Reorganized and Grouped

Formulated Meaning Units	Evidence in Participant Statements
Teaching is based on personal preferences for learning	I learn hands-on, that's probably the way that I'm going to be teaching the most. …how you like to learn is how you teach your students, because it works for you… and if it doesn't work then you adjust. That is how I learn …it's how I would set up my lesson … even though I think that would be a good way to teach, I might need to change the order of things. …obviously how I would teach it is how I would like learning it. I do what makes sense to me, if I'm not going to be able to understand it, like, I'm going to teach it the way that I would understand it. …because now I see that I explain it the way that I would learn it. …since I am a hands-on and visual learner, I'm afraid of teaching that way too much. …just kind of making accommodations for them and it's not directly a lesson for them and so I think that's something that makes me nervous is knowing how I step back. …how I would teach it is how I would like learn it. …now I see that I explain it the way that I would learn it.
Learning gives a feeling of confidence Learning is a connection: To self To others	Learning doesn't stop, you do not know as much as you think you know about one certain thing, there's always more to learn about it and so it's more of just a process rather than you know something or do not. …the "aha" Yeah, the "aha" moment. …feeling, confidence, like I can use that for the rest of my life. …sense of accomplishment especially if it is something that you have been struggling with.

Table 10

Formulated Meaning Units identified, Reorganized and Grouped

Formulated Meaning Units	Evidence in Participant Statements
Knowing how a teacher learns is important	…should have a starting point in how you learn. Knowing how you learn can help you realize that people learn differently and if you know how you learn you can help the students learn through activities or homework. If I understand how I learn best than I can look at the kids that learn. …teacher can understand how they learn I think it's a lot easier for them to figure out different ways to help students to learn… If they do not know how they learn maybe it's just, they might just pull random things out and not help anyone. …you need to understand learning if you want to teach kids how to learn. If you do not know how you learn, how, you have to be able to relate to them.
Learning gives a feeling of confidence Learning is a connection: To self To others	Learning doesn't stop, you do not know as much as you think you know about one certain thing, there's always more to learn about it and so it's more of just a process rather than you know something or do not. …the "aha" Yeah, the "aha" moment. …feeling, confidence, like I can use that for the rest of my life. …sense of accomplishment especially if it is something that you have been struggling with.
Learning is having the ability to communicate.	You know you have learned something and you actually could say "I'm going to tell you about this" or carry on a conversation. …you can actually have conversations about it. …a lot of learning that takes place where you can repeat it or it gets repeated by somebody else…can actually have conversations about it. …I can communicate it to other people and talk about.

The final procedure used in the horizonalization of the data was an additional step that the researcher felt necessary in order to identify and separate the themes within the study's data. To identify the themes, the meaning unit data and significant statements were analyzed and regrouped into the themes of this study. The meaning units and participant statements were analyzed and regrouped into themes. It should be noted that theme one has four meaning units within the theme. Table 11 provides a snippet of how the themes, meaning units, participant statements, and literature connections were analyzed and portrayed in tabular format. In using this table format, a structure occurs that forms the basis for the imaginative variation phase of transcendental phenomenology reduction process.

Table 11

Themes derived from Meaning Units

Meaning Units Identified	Participant Statements	Literature Connection
Theme 1: The power of learning through self-efficacy beliefs		
Learning provides a feeling of confidence.	Because you learned about it you have experienced it, now you are sharing it, you have confidence knowing that it works and you have confidence knowing how to explain it.	Bandura (1997) and Self-efficacy beliefs
Learning provides the ability to communicate	I am going to tell you about this" or carry on a conversation.	Bandura (1997)
Learning provides a feeling of elation	I have such an anxiety about learning new things and being successful in them or confident in learning them or doing them that it just holds me back from really digging in.	Neuroscience
Learning is transformative	Sometimes learning is an accident.	Bandura (1997)

The meaning units identified in the analysis of the data were reanalyzed and put into themes. To view the complete data analysis tables containing the theme, meaning units identified, and participant statements see [Appendix G and H]. Based on the responses from the participants, the duality of participant's learning and learning to teach this researcher felt that the analysis of the meaning units into themes revealed that two categories of themes were necessary. The first category identified was based on how elementary education preservice teachers learn. This category was titled, Elementary Education Preservice teachers' own learning. The second category identified was based on how elementary education preservice teachers view their future professional teaching. This category was titled, Elementary Education Preservice teachers' teaching. The categories with the themes identified through the horizonalization process are listed below. The first category of themes pertains to preservice teachers as learners. The second category of themes pertains to preservice teachers as future educators.

Elementary Education Preservice teachers' own Learning:

- Theme 1: The Power of Learning through Self-Efficacy Beliefs;
- Theme 2: Learning begins with a Social Connection;
- Theme 3: Learning is an Individual Connection to Self;
- Theme 4: Affective Domain Influences Cognitive Functions;
- Theme 5: Learning is having the Big Picture

Elementary Education Preservice Teachers' Teaching*:*

- Theme 1: Preservice Teachers Idealize Future Teaching Ability;
- Theme 2: Emotions Guide Preservice Teachers Thinking about Teaching;
- Theme 3: Natural Learning Method is also Teaching Method;
- Theme 4: Experiences Influence Preservice Teachers Teaching;

- Theme 5: Technology is a Double Standard for Preservice Teachers;
- Theme 6: Preservice Teachers Lack in Understanding Systems of Practice

Summary

Moustakas (1994) defined the phenomenological reduction process as "not only a way of seeing, but a way of listening with a conscious and deliberate intention of opening ourselves to phenomena as phenomena, in their own right, with their own textures and meanings" (p. 92). The process used in this research study stemmed from the purpose of the research, which was to conduct inductive inquiry into the essence of the lived experiences of 21st century senior level elementary education students regarding how they think about learning, how they define learning, and how their own experiences in learning will transfer, as they become professional teachers. The overarching research question for this study was: *What does it mean to learn and think about learning through the lens of 21st century senior standing elementary education preservice teachers as they transition to the other side of the desk?* This research question guided the decision to use Transcendental Phenomenological Reduction process in analyzing data.

The process of horizonalization provided a systematic process for analyzing the data collected through a questionnaire, focus group sessions, and individual interviews. The use of bracketing through Epoche before, during, and after each data collection, provided numerous opportunities to reflect, check bias, and think about my own experiences in teaching and learning. The methodology used in this research study was rigorous and informative for this new researcher.

In chapter 5, the Imaginative Variation through the textural *"what"* learning was experienced and the structural *"how"* learning was experienced through the voices of the research study's participants. In Chapter 5, a synthesis of the themes identified in the research will be discussed and connected to current literature.

CHAPTER 5. IMAGINATIVE VARIATION

Introduction

The horizonalization of data using a transcendental phenomenological approach has brought us to the phase of telling participants' stories about learning in their lifeworld. The imaginative variation chapter strives to enlighten how 21st century elementary education preservice teachers' own learning will transfer as they move to the other side of the desk. Inductive reasoning was used in this study; my personal experiences lead me in determining which statements appeared essential in recounting the lifeworld of the elementary education preservice teachers through the themes and essence of the experience.

The researcher in this study sought to listen and analyze the stories of a population of students (preservice elementary teachers) who are in their final semester before becoming professional educators. Their stories center on their personal belief systems (*Epistemology*), knowing how they know (*Metacognition*), and cognitive processes used to learn (*Learning Strategies*). The stories and experiences shared provided an opportunity to understand learning based on the perceptions of the participants involved in the study. The stories in this chapter tell us their hopes and aspirations for choosing a career in the field of service. Additionally, their stories have the potential to guide teacher education programs in providing learning opportunities that will assist elementary education preservice teachers in their own learning and in learning to teach.

Learner Lifeworlds

Our human nature of being is such that learning is continuous. Individuals learn new things every day and their philosophies about knowledge and learning are "ideas that are collectively known as epistemological beliefs" (Omrod, date, p. 376). Moreover, the

epistemological beliefs that an individual holds have the potential to impact how an individual learns (Omrod, 2008; Kuhn, 2000, 2001; Novak & Gowin, 1984; Illeris, 1999). The question to consider in understanding learning from a dual perspective that was raised in this study was also raised by Cross (2005) when she inquired:

> The epistemological question regarding learning is do learners discover knowledge exists "out there" in reality, or do they construct it for themselves through a process of language, thought, and social interaction? And how the role of teachers and students is different in these two epistemologies? (p. 4)

The questions asked to students were designed to help participants with metacognitive thinking. Metacognition literally means thinking about thinking. For example, the process involved in metacognition is to examine and assist in how cognition functions within an individual's brain processes. The tools in helping learners use metacognitive strategies are through questioning, visualizing, and synthesizing thinking (McCarrier, Fountas and Pinnell, 2000). For instance, a learner needs knowledge and skills for (a) planning how to accomplish a learning task, (b) knowing how to activate prior schema, (c) understanding what learning strategies to use for learning, and (d) understanding whether learning has occurred or not (Omrod, 2008).

The participants' understanding of learning is told through the lived experiences in K-16 academic settings. It is their story of the learning process that will be told for the remainder of this chapter. The themes and meaning units in this chapter provide a glimpse into the lifeworlds of a group of students who are preparing to become elementary teachers. This chapter in a sense is a monograph, which sought to culminate the experiences, stories, and lifeworlds of the participants studied in this research. The elementary education elementary education teacher

stories along with the researcher's stories sought to help the reader of this study understand the perspective of the lived experiences held by the participants in regards to how they learn, how they know they have learned, and what learning means to them. Van Manen (1984) contended,

> It is not enough to simply recall experiences with a particular phenomena, instead I must recall the experience in such a way that the essential aspects, the meaning structures of this experience as lived through are brought back in such a way that we recognize this description as a possible human experience, which means as a possible interpretation of that experience (p. 44).

Van Manen's statement purports that every individual who reads this study will recognize the uniqueness of learning as a human experience. The reader of this chapter may agree or disagree with my interpretation. This chapter was designed and written so that the reader may connect and interpret the meaning held by this population of preservice teachers. This chapter is divided into two sections; (a) Elementary Education Preservice teachers' own learning and (b) Elementary Education Preservice teachers' teaching. Each section contains the themes of the study pertaining to the section.

Unlike most stories that individuals read, this story begins with the end. I begin at the end because the 'Big Picture' is represented by the overarching research question: *What does it mean to learn and think about learning through the lens of 21st century senior standing elementary education preservice teachers as they transition to the other side of the desk*? To understand what this means the story begins with what the participants believed learning was and how they defined learning. To understand the Big Picture prior to the parts allows the reader to form their own opinions, thoughts, and possibly their own stories. It allows the reader to connect

the dots to learning through the lens of 21st century elementary education preservice teachers voices. Following is a discussion of the themes derived from the study.

Theme 1: The Power of Learning through Self-Efficacy Beliefs

Learning is a powerful word. It is a word with many definitions, a word that means something different to each individual. Learning is juxtaposed between two classifications. We may know when we learn and when we do not learn. We may know intrinsically what to do to achieve a learned state, but we may have difficulty expressing how we learn. When we are asked to define learning, we have difficulty. Why? "I think learning is such a broad thing, it comes in so many different forms and ways, it is hard to specifically define it" (Study Participant). It feels like an "aha moment" in time (Study Participant) or it is "when you finally get something, you now know what to do" to achieve a learned state (Study participant). The beliefs we hold regarding learning are personal epistemological beliefs. According to Bandura (1995) the notion of self-efficacy is defined as, "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations" (p. 2). It is through our self-efficacy belief system that our knowledge of learning is formed. What we believe about learning is our truth. What we believe about learning is within our own lifeworld.

The participants in this study were asked to define learning, to discus how they know they have learned, and to describe learning from their perspective. The overall theme of Power in Learning was based on four meaning units that spoke to defining, knowing, and identifying learning: (1) learning provided a feeling of confidence, (2) learning provided them with the ability to communicate with confidence what they had learned, (3) learning provided a personal feeling of elation and personal satisfaction as individuals, and (4) learning was transformative in nature; they understood they learned. Bandura proposed that the beliefs we hold regarding our

skills is dependent upon the pursuits we take, therefore the four meaning units in this theme are not to be separated; instead they are intertwined, connected, and come together as a messy yet wondrous human ability.

Meaning Unit: Learning Provides a Feeling of Confidence. What does knowing you have learned feel like? For these elementary education preservice teachers, knowing they had learned was seen as a victory, an accomplishment, a realization, and a fulfillment of their being. They expressed learning as, "a feeling, confidence, like I can use that for the rest of my life," (Study participant) and "because you learned about it you have experienced it, now you are sharing it, you have confidence knowing that it works and you have confidence knowing how to explain it" (Study Participant). The research on confidence in learning suggested that confidence and knowledge are correlated in which both are critical determinants in learning (Adams & Evans, 2009, p. 2). The confidence in knowing learning has occurred resides within the individual. It will be different for each individual, but the elementary education preservice teachers unanimously agreed that "feeling of confidence in yourself " (Study participant) is one of the best feelings.

Meaning Unit: Learning Provides the Ability to Communicate. When you have confidence, the human spirit can be enlightened. Webster's Dictionary (n.d.) defines confidence as "a state of feeling certain about the truth in something" (n.p.). The confidence in learning held by these elementary education preservice teachers provided them a measure of self-efficacy (*how we think, feel, and behave*) in knowing they had learned. It allowed them to have their voices heard and to participate in scholarly conversations with an authority of knowing posture. Bandura's (1997) conviction

regarding efficacy operated on the consideration that what one believes about themselves and their skills is dependent upon their internal belief system. For instance,

> You know you have learned something when you actually could say, "I am going to tell you about this" or carry on a conversation. When you do not really know you might say, "I'm not quite sure." I feel if you can really relate information you know you have learned something (Study Participant).

For elementary education preservice teachers in this study the confidence obtained through knowledge of learning afforded them the ability to discuss with greater depth their knowledge on various topics with other teacher professionals.

Meaning Unit: Learning Provides a Feeling of Elation. Learning was understood to contain an emotional element with elementary education preservice teachers learning attainment. Statements such as, "Wow, I nailed it" and "It is a refreshing, aha moment" were collective comments from this population of elementary education elementary education teachers. Learning made them feel differently, and it provided moments of elation when they knew learning had occurred. It is "exciting when you know you have learned" (Study Participant) and "you know when you feel like you've learned something, you just instantly have a smile on your face and you are so excited and you are excited to share it with others" (Study Participant). Learning experiences are often "given meaning through emotional connections and the response to them" (Powell, 2012, p. 63). An individual's interrelationships are often bound to past, present, and future understandings of their own lives. The elementary education preservice teachers in this study used emotions as a guide in understanding their ability to learn, "when you learn, you use it somehow and you are just excited that you know" (Study Participant). These feelings of elation return to Bandura's (1997) thoughts on self-efficacy in which he contended

the purposefulness of "self-efficacy is concerned not with the number of skills you have, but with what you believe you can do with what you have under a variety of experiences" (p.37).

Fear and disinterest can be a contributing emotion that impedes learning. Behavioral neuroscience research has found that fear experiences can affect brain activity and have consequences for learning, behavior, and health for children (National Scientific Council on the Developing Child, 2010, p. 1). As one participant contended, "I have such an anxiety about learning new things and being successful in them or confident in learning them or doing them that it just holds me back from really digging in." Another participant discussed how disinterest in topics leads to non-learning, "The number one thing would be disinterest, if it is something that I do not really connect to my life." The elementary education preservice teachers' emotions regarding learning have the potential to help or hinder learning attainment.

Meaning Unit: Learning is Transformative. Learning changes individuals. It transforms us through knowledge of knowing more about a topic. We grow cognitively when we learn and what we learn increases many abilities to knowing. "When you can actually do it, read it, write it, make it, talk about it, when you take a test and you see the question and it's like 'I know this one' and you can go on and on about it" (Study Participant). When we learn, it is private and personal part of our being. "When people are talking and all of a sudden you are like 'oh, yeah, ok' and you can communicate and carry on a conversation then you know that you have learned it and internalized it" (Study Participant). Knowing you have made a transformation to a learned state also comes as a surprise. "Sometimes learning is an accident" (Study Participant) or, "sometimes you do not mean to actually learn something but it affects you and it has meaning and then you use it again and you just know that you have learned because you are able to see how it's relational to yourself" (Study Participant).

Learning in many ways is powerful. Knowing one has learned can be even more powerful. When participants knew they had learned, a transformative aspect to themselves as learners took the stance as a "regulation of thought processes, motivation, and affective and physiological states" (Bandura, 1994, p. 36). This transformation of self in learning propelled this group of elementary education elementary education teachers the affordance of confidence in knowing they had learned. Learning for them became confirmation of personal self-efficacy beliefs. It provided them with a transformation of self through the knowledge that they could talk, use, feel, and share their knowledge from learning.

In summary, the importance of learning cannot be debated. Our very nature of being human depends on learning. Our culture and our society depend on the capacity of humans to learn. However, a somewhat alarming realization through this research study was identified, "I never really went this in-depth with learning before" and I had not thought much about how I learn before this study" (Study Participants). The previous participant statement brought about questions during the research on how learning occurs for them as individuals. Through understanding how the elementary education preservice teachers in this study learn four additional themes were identified.

Theme 2: Learning Begins with a Social Connection

The act of planning how to learn, knowing how to activate prior schema, knowing what strategies to use for learning for these elementary education preservice teachers was understood to be based on the social construction of knowledge. The use of social methodologies in learning provided them with engagement with topics and the ability to connect schema to topics. The elementary education preservice teachers in this study dialogue throughout identified how learning begins and what tools are used to learn in the academic setting. This theme identifies

how learning begins for these participants: (a) They want examples about the concepts teachers are teaching, (b) they want stories about the topic to be told by their teachers, (c) they want to hear what others think about the learning concept (peers mainly), (d) they want to work together to solve problems, to create solutions, and to have a shared meaning of the learning concept on the first learning sessions, and (e) they want immediacy in learning and they use technology to gain that immediacy.

During the course of this study, I realized that participants were having difficulty getting to the heart of the processes they used to learn. As discussed in chapter three, I developed 'learning cards' to help participants identify what they would want me to do to help them learn if I was their teacher. I asked them to pick 2-5 cards of the strategies they would want me to use to help them learn and tell why they choose those cards. Figure 9 is a graph of their choices.

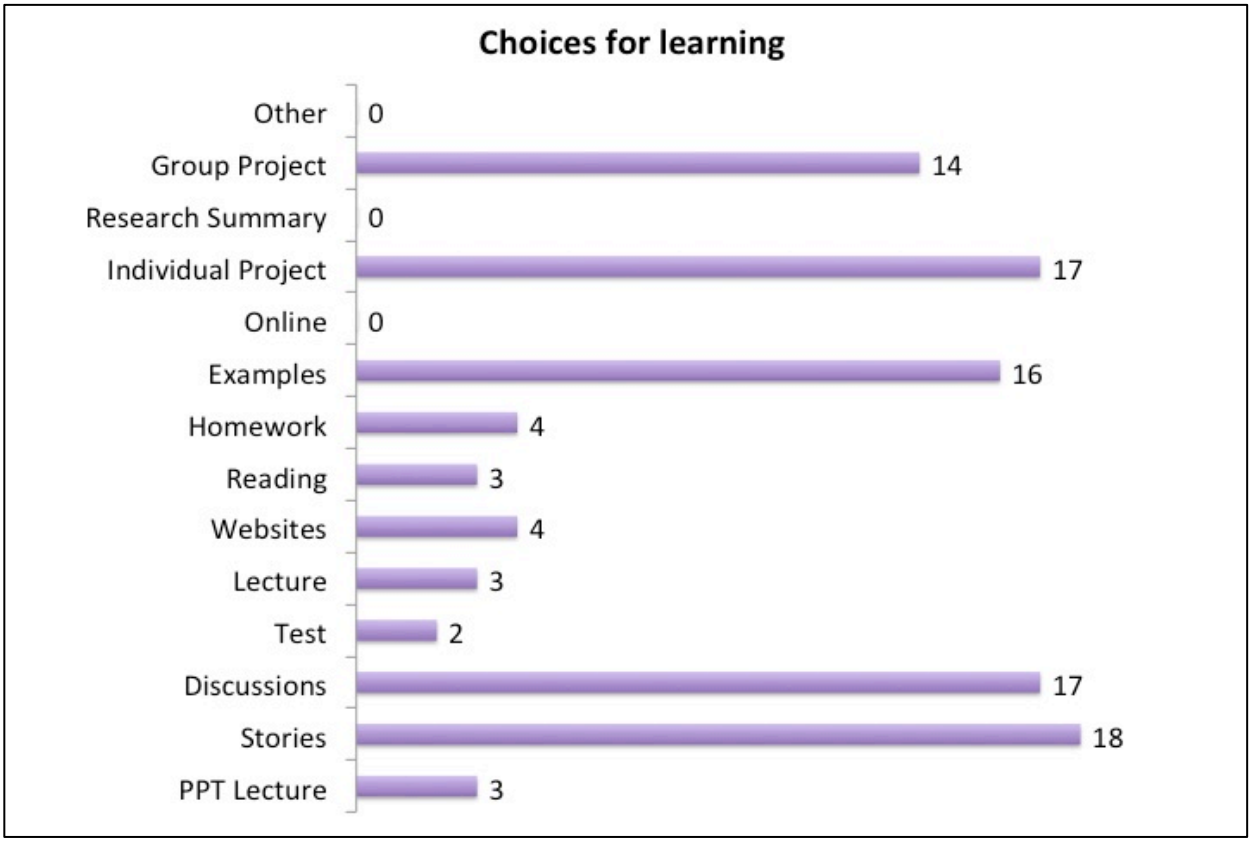

Figure 9. Participant Choices in Learning

The following participant provides a sample of how she wants to be taught,

> I guess this like a learning pattern for me, and then tell me stories so that I can make more connections to what you are teaching. Let me discuss it with other students in class, and together we could do a classroom-based project.

The elementary education preservice teachers' preferences in this study are that instructors begin a lesson or concept to be learned through an explanation of why the lesson/concept is important. This group has a desire for understanding why they should pay attention, why they should engage, and how your words are going to affect them in their lifeworlds. Several participants responded similarly to the following example:

> I remember in high school everyone asking "why are we learning this, when are we ever going to use it?" So I think it's really important for students to know how they are going to use certain things or where they might use them, because I think they will make more of a connection with it and you and will have more desire to learn (Study Participant).

For instructors teaching this population, there is a method to providing learners with information. First, do not make assumptions that students should already understand why they are learning what is being taught. Often, they need to know in order for real learning to happen and or the following could happen, "well it must be like this and I fought against learning something and then by the time I realize no, I really should be looking at it like this, and I am far behind" (Study Participant). Second, do not give them too much of the global picture because it has the potential to lose them as they concentrate on the whole prior to the parts. For instance, "if I try to focus on the big picture first, then I get overwhelmed and then I do not feel like I learn as well" (Study Participant). There needs to be a middle ground in presenting the concept to be learned.

Participants suggested stories and examples were two ways instructors could assist them in making personal connections to the content. For instance, "examples on the topic can help relate it more to life" (Study Participant). Another example of how important it is to make stories and examples personal is through the following participant's statement regarding the need for learning to be a person connection in order to relate it to the content. "I really relate when people call up personal experiences especially in college classes when instructors talk about things that have happened in their classroom and how they related it to our lesson, really sticks with me so much more" (Study Participant). So, instructors should tell those stories that have meaning to the content, because they are needed to assist in the learning process.

The participants in this study also suggested that instructors provide learners' opportunities to make social connections between the material to be learned and other individuals, including the instructor. These participants are social and when they want to learn something, they begin by asking questions, as one participant lamented when learning on her own, "the first thing I usually do is find someone that knows about it." The principles identified in constructivist theory supported a learner's ability to decode new learning episodes using prior knowledge. This process results in a "construction and transformation of information instead of an acquisition or accumulation" of knowledge (Loyens & Gijbels, 2008, p. 352). They do not want to learn on their own; they are a group of individuals who have always had the ability to be connected to someone else through technological means and they use these tools to assist in making learning connections. "I can depend on other people to help me learn information rather than just myself trying to figure it out and me misinterpreting the information"(Study Participant). In many respects the participants studied were perfectionists. They understood there are right and wrong answers. They understood that success is dependent on the answers

they provide orally, written, or other testing measures. They have come up through an educational system that has been structured to assess everything they do. To illustrate,

> Just through taking the methods courses I learned how important feedback is and how it affects my learning because if I get feedback on what I'm doing right and what I'm doing wrong I can change what I'm doing. If I do not get any feedback I just kind of lose interest and just keep doing what I'm doing not knowing if I'm doing it right, and I could be doing it wrong the whole time and I would never know (Study Participant).

Bruner (1977) purported, "learning should not only take us somewhere; it should allow us to go further more easily" (p. 17). While many educators may agree with Bruner's statement, learning does not always follow a progressive path as the following participant explained how her prior schema affected the learning process:

> It can be some of them and it can be a combination, it just depends…a lot of times it can be the lack of background knowledge, if you're not given enough to build up on and it's just thrown at you, it can be a problem to learning because you're expected to have prior knowledge and then really you didn't have any...so being able to move forward is hard.

The above statement aligns with Cross' (2005) as she contended, "What one knows about a given subject has substantial impact on the learning process" (p.10). These elementary education preservice teachers are also adept at surface learning, for which they used the term 'brain dump learning'. They have figured out that if they cannot connect to the material being taught, they can learn content for a very short amount of time and then forget it. They understood and commented, that while this is not a good way to learn, there are times when it is necessary, especially if they are unable to connect the content to themselves, they will use the brain dump strategy.

> I can learn either way but I'm one of those people who brain dump I learn something and a week later it's out the window. After I test for it I do not need it anymore, and unfortunately that does affect me now because it's like, "oh man I really wish I could remember that information that we learned in this content area," and it's just gone. (Study Participant)

The participant's statements relate to an approach referred to as surface level learning. Marton and Saljo, (1984) contended that, in surface level learning, the learner fails to remember the content learned simply "because the less meaning something has for us the harder it is to remember it" (p.44) and surface level learning has an "extrinsic motivation and the learner focuses on the 'texts' or tasks in themselves and not on what they are about" (p.55). An opposite approach to surface level learning is referred to as deep level learning. In this approach the learner is intrinsically motivated to learn out of interest. If teachers want students to learn at a deep learning level, they need to identify student interests in the subjects and eliminate "irrelevance, threat, and anxiety" (p. 54). Participants had an understanding of surface and deep level learning approaches. The terms surface and deep level learning never were used explicitly, but their statements reveal that they understood the differences between approaches. The following participant's thoughts showcase an example of surface level learning and deep level learning experiences:

> You can learn something and then you can just know it for a really short period of time and then just completely forget it. Like a lot of things that I've learned, I learn it for something and then I just forget it. But it seems like there's also a lot of learning that takes place where you can repeat it or it gets repeated by somebody else you know so you can actually have conversations about it may be like in classes and then you feel like

> you've learned it and it's just like in your head and you can't forget about it or if anybody asks you about it you can actually talk about it.

In the statement below the participant explains how deep learning can reside within an individual for an extended period of time.

> Having the experiences to know something of whatever it is, if it's a skill, if it's a fact or if it's how to do something, if you can relay that to others, or if you can repeat it later on, if you somehow remember it in a way where you can tell somebody or you can do it or you can just remember it, that's how I think of learning is, it's not just in and out, it somehow stays with you.

Peers were understood to be an important part of learning. In fact, the structure in school environments is "such that students spend more time with their peer groups than in personal contact with adults…and this is referred to as peer culture" (Hollins, 2008, p. 126). Peers have the ability to put concepts in relation to each other. "I do learn from the peers" (Study Participant). The literature on social constructivism contends that knowledge is socially constructed and that we learn through a process of interaction with others. The interaction and cultural influences, according to Cross (1999), is not through objective reality, but through the "social process of constructing knowledge through negotiation and agreement among knowledgeable" peers (p. 16). Peers can explain concepts in different ways than teachers. For instance,

> I think learning helps with peers because there is less stress and it is not all on me…I can be like, oh that's not what I heard and my peers can say, "well, this is actually what it means." Then, I'm learning it. (Study Participant)

This statement reflects the thought that these elementary education preservice teachers are in the same courses and basically in the same boat, so to speak. For example, "I think the students in our classes like to talk about situations, I think that helps a lot because we can think about it and apply our own experience or what we are learning to something that could be real" (Study Participant).

The participants in this study commented on group projects being helpful in learning content. They contended that in class group projects, even small ones, where they are working with their peers, provide opportunities to connect the topic to them through a shared knowledge acquisition. As an illustration, the following participant responded, "In-class projects, I think it connects, like a hands-on activity would connect what we are learning about in the project to help us base our learning foundation." These elementary education preservice teachers would prefer to work together to solve problems, create solutions, and have shared meanings in their learning. However, when questions arise beyond the scope of their shared understanding they are adept at finding answers without asking their instructors.

The elementary education preservice teachers in this study contended they have many questions, like other learners in their courses. However, instructors often do not hear their questions and the reason for this will be explained later in this chapter. What is important to these elementary education preservice teachers is that their questions are answered immediately and many use technology to answer the questions. Technology provides immediacy in learning. "If I do not know something right in a second, I can just look it up real quick on a phone or with technology, so I think technology has a big effect on how everybody learns" (Study Participant). There was a consensus on the importance of using technology for assisting in learning. For instance, "I could not imagine life without it" (Study Participant) and "I'm the Google queen"

(Study Participant). The elementary education preservice teachers in this study use technology for many learning tasks. The favorite was using technology to watch others accomplishing a similar task online. For example,

> I really enjoy seeing how other people work and so it really helps me to connect with the other people. I can go to YouTube and see how did they work through a topic. That is what got me through Math in high school… YouTube would have a teacher explaining things differently. (Study Participant)

Another participant talked about how she uses technology for her own personal learning, "I use technology to learn, I taught myself how to knit using YouTube videos, and so it's just, there are many different things in technology for all different learners." They use technology to connect and ask questions of others (usually peers) through their mobile devices or social media.

> Earlier today my teacher and I had a question and I just looked it up on my phone quick. Compared to having to go to the library, find a book to read through who knows how many pages to find the answer, it is so much more accessible when you can make your learning more mobile, you do not have to be at a library or a classroom you can be at home or wherever. (Study Participant)

A surprising tidbit about using technology in courses may come as a surprise to some instructors. The participants discussed that when they are in class and do not understand something that the instructor is saying, instead of raising their hand, they use their mobile device or laptop to Google. They said that they are always Googling terms or words they do not understand when they are in classes. For example, "it is usually words that I do not understand the meaning of that I look up, so that I kind of get a basic idea of what we are talking about" (Study Participant).

Participants in this study use technology to find concrete examples on what they are learning to help them make connections to themselves in learning. Participants discussed how sometimes it is difficult to grasp how concepts look in real-life. One participant stated, "I get a lot more from videos than I do from listening or reading, I want to see what they are doing and how it works and if it's something I can change." Another participant talked about how the ability to stop and pause videos allowed her the needed think time to process her learning. Overall, the consensus regarding the use of technology was that these elementary education preservice teachers felt technology played a huge role in their learning. The following participant illustrated the reliance that these elementary education preservice teachers have regarding technology.

> Technology is vital. We have learned to rely on it through being able to look up answers and help whenever we need it. If I am studying for a test or working on a project and I forget something, my first step is Google it. Then, if I cannot find the answer on Google, I go to the textbook. But, I've learned to rely on it, and it gives you so many different ways of looking at it, where a textbook is only one point of view (Study Participant).

However, they did voice concerns regarding using technology for their own learning.

The main fear that elementary education preservice teachers had regarding the use of technology was whether the website they were using for their learning was a credible site. One participant commented that when she was using the Internet for learning, she would only use .org, or .edu websites, because she believed they were safe. So, does this mean that we should be giving students websites for every lecture to further their learning? These participants said, no, they would not use them. They felt they were adept at locating information and the only problem they faced was knowing whether the information was credible. Therefore, it may be

prudent for instructors to provide a short synopsis of credibility. The participants did contend that if they were provided a list of websites at the beginning of a course and were reminded during the semester or during the lecture to use the website, they may use it. The lesson to be learned from these participants is that they are immediacy learners. They will use the information when they need it and not a moment before.

In summary, this theme focused on what this group of learners wants from their instructors to make learning meaningful. In their eyes, the act of learning is through the construction of socially acquired knowledge. The participants in this study support Axelson and Flick (2011) definition of student engagement, "how involved or interested students appear to be in their learning and how connected they are to their classes, the institutions, and each other" (p. 38). For example, one participant stated, "I was fortunate to have pretty good teachers and instructors throughout my education. I believe this has encouraged me to continue to learn and enjoy learning." In fact, a study conducted on student engagement and learning by Carini, Kuh, and Klein (2006) found a positive link between students who were engaged in the learning environment and learning outcomes. Further, they found that students in higher educational institutions who had the "lowest-abilities benefited more from engagement with learning content than those students who possessed higher cognitive functioning" (p. 1).

The participants studied want instructors to give them real life examples on topics. They want instructors to tell them stories, especially personal stories that have meaning and that they can use to connect the material to be learned individually. They want to listen to what others think about the topic, and sorry instructors, but they want to talk to their peers. They want to work in groups together in class to solve problems, create solutions, and have a shared meaning. But, they want their instructors close by, so that if they dare, they can ask questions as a group.

They also want immediacy in learning and if an instructor is right there or does not answer their email, they will find the answer on the Internet or through text messaging. Instructors cannot use just a story or an example or a discussion or a class project. They need it all and they need it for every new topic. However, this was only a vignette of how these participants learn. There is more, so we continue to theme three.

Theme 3: Learning is an Individual Connection to Self

The social aspect in learning for these elementary education preservice teachers is not an end to how they learn. They need to make the concept personal. Learning constitutes a process that requires engagement with material, instructor, and self. In understanding this group's epistemological beliefs and metacognitive knowledge regarding learning as a process of making a conscious decision, to learn required that individuals call upon their own set of learning strategies, defined as "the intentional use of one or more cognitive processes to accomplish a particular learning task" (Omrod, 2008, p. 357). Learning strategies provide individuals with the tools that best meets their needs to learn.

The elementary education preservice teachers in this study assert learning content has to make sense to their personal lifeworld. As an illustration I will use a course that I teach, Children's Literature. In my course, after learning the basics of quality children's literature, students are sent out on a literature quest. The task involves going to a thrift store and purchasing one children's book that they feel has the components of quality literature based on what they have learned during the course sessions. This activity assesses their ability to choose children's books based on their knowledge of quality children's literature. The choices they make in their purchase are personal and a reflection of themselves as future teachers. The book they purchase is then used for creating lesson plans and literature units. I often get texts during

the summer with pictures of books that they have bought at garage sales or other thrift stores that show how proud they are in their ability to feel comfortable selecting books they can use in their future classrooms. The following texts portray how two of my former students feel when they have made personal connections to their learning. "Hey Sheri! See the great books that I got at a garage sale today" (Personal Correspondence) and "I just bought eleven awesome books at Boys Ranch for $3.75. Woohoo!" (Personal Correspondence). As an instructor, I have found that the more I can assist students in personally connecting course content to themselves the better they perform on traditional assessment and the better they feel about themselves as future teachers. As an instructor, I can ask myself; did they use what I have taught them in choosing quality literature? What do I need to go back and revisit in the course content?

A favorite consensus on how to connect learning to self was on the use of individual projects. Participants described the use of project based learning activities assisting them in making connections, involving them with the content, and showcasing their knowledge through application. For instance, the following participant statement showcases her thoughts regarding the use of projects to assist in learning:

> Project based assignments, something you do at home where you can be creative with it and interpret it in your own way without the outside influences. Make your own idea of what it is without somebody telling you what they think. (Study Participant)

The elementary education preservice teachers suggested over and over during this study that in order to learn, they wanted and needed "time to think and process things" (Study Participant), and they believed that individual projects offered an opportunity to showcase their knowledge through a creative outlet to "make it more personal" (Study Participant), and "having

a project that I could work on my own and figure out on my own, I really like that" (Study Participant).

A fairly new theory associated with project-based learning is constructionism. Constructionism's roots are embedded in constructivist principles and the framework surrounding constructionism draws from Piaget and Vygotsky (Crotty, 2003). The constructionist theory's founder was Seymour Papert (1928-Present). Papert developed the constructionism learning theory while he was a student of Piaget. Constructionism is a learning theory that posits that knowledge is constructed by the learning and not simple transmitted from teacher to learner" (Boyer, 2010, p. 27). The difference with constructionist theory is that "meaning is not discovered but constructed" (Crotty, 2003, p. 42). For a clearer picture of constructionist theory, Paper describes below the fundamental differences between constructivism and constructionism:

> *Constructionism—the N word as opposed to the V word— shares constructivism's view of learning as "building knowledge structures" through progressive internalization of actions… It then adds the idea that this happens especially felicitously in a context where the learner is consciously engaged in constructing a public entity, whether it's a sand castle on the beach or a theory of the universe. (Papert, 1991, p.1)*

Crotty (2003) defined constructionism as the "view that all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context" (p. 42). The constructionism theory builds on the principles of constructivism, where meaning making resides within the individual.

Constructionism is a physical element in which learners physically construct their knowledge as they are interpreting their lifeworld. Learning using a constructionist approach is process in which knowledge structures are built through experience and artifacts. The participants in this study had a need to construct their own meaning after identifying socially shared meanings. The process they preferred was based on the principles surrounding the constructionist theory.

Theme 4: Affective Domain Influences Cognitive Functions

We have discussed how this group defined learning, knows when they have learned, and their preferred methods in learning. The examples and stories from participants informed us what tools and methodologies they want and need in order to learn. However, this is not the end of their story of learning; I have told only part of their story. Instructors could implement the learning tools and methodologies that I have discussed in themes one through three. Instructors could assume that they are meeting the participant's learning needs. However, they would be wrong and the outcome could result in non-learning for these participants. You may be asking why? Let me explain.

During the course of the data collection, it became apparent that the participants in this study had an internal need for emotional connections to their instructors and the learning content. "I need that personal relationship" (Study Participant). The affective domain was understood to influence their cognitive ability in learning. If emotional components were not met, learning was detrimentally affected. Learning, in the words of this group, may begin in socially constructed knowledge, but needs to be a transformation towards the individual, and that included relationships.

> I definitely think forming relationships is of growing importance. I look back at my teachers that formed a relationship with me and I remember things that they did, I remember topics they went over. Then I think of teachers that didn't and I do not remember that kind of stuff. (Study Participant)

First and foremost, learning was seen as part of an emotionally driven task. The literature on learning based on emotions, stems from the Humanist Theory. Humanism emphasizes individual perceptions that are based on experiences, choices, self-realization of potential, and motivation for learning (Merriam, et al., 2007). Humanism as a theory uses self-direction and personal commitment to understand the concepts that need to be learned. As an illustration, the following participant identified how her learning has to be connected to herself and her life. "

> Connect it somehow to yourself, to apply it somehow that it makes me excited about learning… if it's not something that I can see, like applicable to my life it is done. I'm going to use this somehow.

The participants in this study were guided by their emotions of self as described in theme one and the meaning unit; *learning provides a feeling of elation*. While learning provided a feeling of elation and emotion, the relationships that the participants in this study had with instructors were understood to be influential in how much or how little they learn. Relationships also were understood to put pressure on the individual and their learning attainment. For instance, the following participant statement outlines how the relationship with her teacher was positive, but also created an element of fear:

> In middle school, there was a professor…he taught upper level math class, which I was not an upper level student (laughter)…I didn't know what was going on…I was so nervous just to go in there, but my relationship with my professor was great, just having

> that, I guess that bond, that relationship with him made it a little easier, but then at the same time it's kind of hard because you do not want to disappoint him because you have that relationship.

This fear of disappointing a respected teacher put pressure on the participant to do things well, which caused a sense of not wanting to try new things for fear of failure. Negative relationships created moments of fear, anxiety, and a disinterest in learning. For instance, the following example shows the impact that a teacher's practice can have on the relationship between student and cognition:

> We did time math tests in 6th grade. I can't remember how many problems it was but it was within three minutes and you had to get the whole thing done. If you did not finish, you had to write out the times tables that night for homework. I couldn't do it in three minutes; I just could not get them done. So she was just like "you're just going to have to keep writing them out until you get it" and she said, "I would have to do more and more, so that was when my math anxiety started.

This by no means suggests that an instructor should be laissez-faire in dealing with students. The participants in this study were appreciative of that teacher who was considered 'tough' but fair.

> I remember when I was a senior I was in AP Physics. The only reason I took AP was the teacher was my favorite teacher in the whole school. He made everything so simple that I thought it was way better because I had the other teacher for Chemistry the year before and I did not do very well in his class because if you had a question, he would say "it's in the book" and I'd just go "I couldn't find it, can you give me a little more direction than that?" I didn't like that as much, but being able to apply it; like we had the Physics

Olympics I thought that was really cool, but I thought that was really fun and at the time I think I learned a lot.

This group of participants wants to know that their teacher cares about them. One participant talked about how even if a teacher is a bad teacher, they can still help one learn if they take time for their students. Another participant realized that her 'tough' teacher later helped her in preparation for college courses. So, while they may not appreciate their teachers during the process of learning, later, they may come back and thank them. To make my point clear, when asked what hinders learning, the top three answers were, disinterest, anxiety or fear, and motivation [See Figure 7].

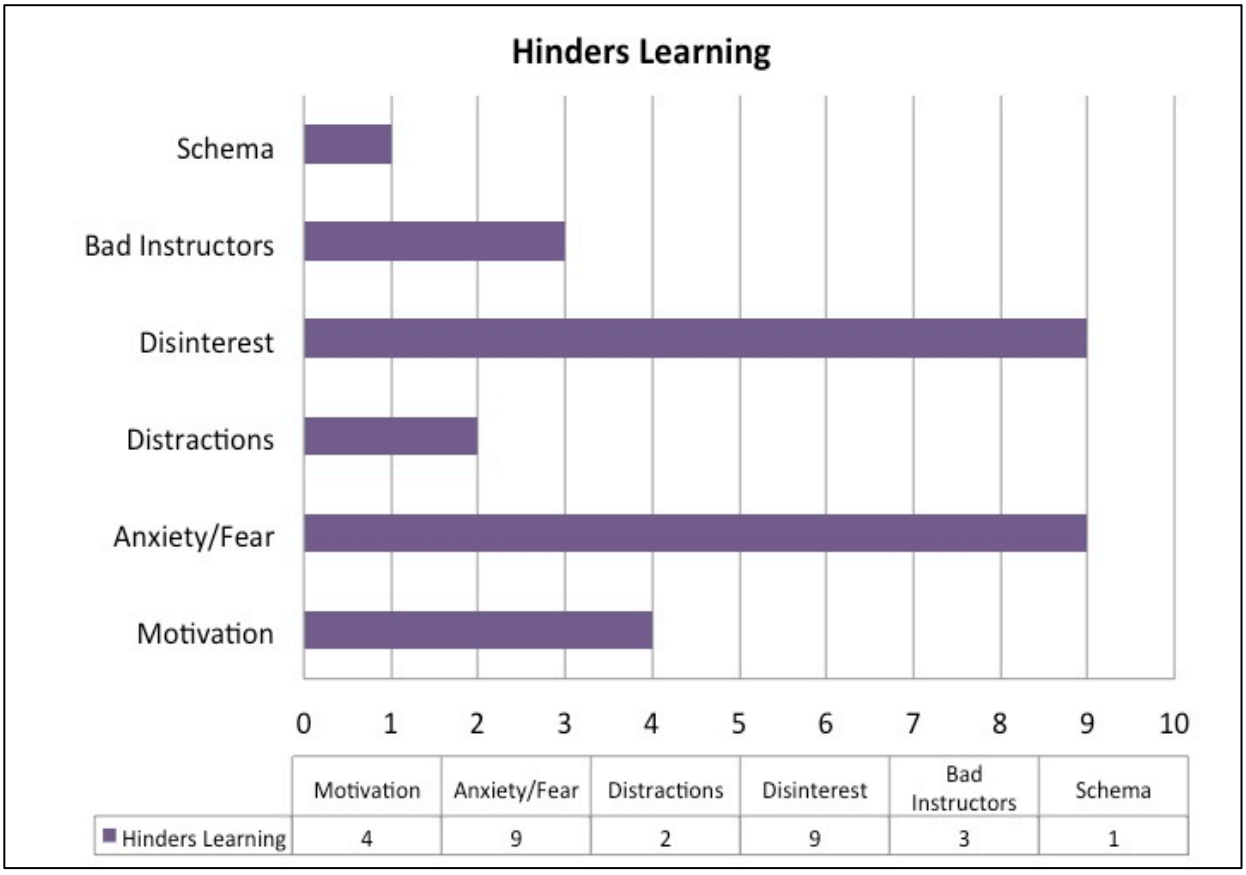

Figure 10. What Hinders Learning?

All three of the top terms have emotions tied to them. The participants explained that they could get past the background knowledge by using technology. They can ignore the bad instructors, although they do not want to and they can control the distractions individually. However, the emotional component in learning has the potential to create stress and influence learning. Everything the elementary education preservice teachers in this study learn must connect to them individually and it must be relevant to their current needs. "I need to be directly involved with my learning" (Study Participant), and "I compare my learning to what I feel, then I go to myself and think how I can relate to it" (Study Participant), and "I need those connections" (Study Participant). The elementary education preservice teachers in this study are driven by their emotions in learning environments. They must make an association between new content and themselves in order for learning to occur, and the association is regulated and induced by emotions. In making these associations students internalize the new content in a way that fits with their previously developed schema.

Theme 5: Learning is having the Big Picture

Much of what we learn revolves around society and cultural expectations. Our current society is an acquisition knowledge-based society and accountability for learning rests on the shoulders of the teacher/instructor/professor. "One of the most important questions in education is how to be assured that students really understand what they need to know in order to apply the learning and perform quickly, confidently, and reliably" (Adams & Ewen, 2009, p. 1). Possibly, the response to this statement is simply a conversation with learners.

To understand the 'Big Picture' in learning, it is necessary to review the themes of the story of learning for the elementary education preservice teachers in this study. First, we learned that they want to begin learning through the social construction of knowledge. Second, they

want to showcase their learning through individual creative projects. Third, there is a need to internalize learning; what they learn needs to be personally connected to them as individuals. Fourth, learning for these participants is an emotional endeavor that through their instructors and/or peers has the potential to impact whether learning occurs or not and to what extent. The final and fifth component in understanding how they learn is based on their *inexperience* in our current society.

As we experience our learning, it is assumed that we come to understand our lifeworld. The traditional student (*20 something*) has been guided and in some cases shielded their entire life by their parents or a knowledgeable other. Traditional students are still experiencing learning, friends, cultural and system influences. They are adept at being students, because they have been in this position non-stop for twelve or more years. They have not had as many factors influencing their experiential decision making in the outside world. In some sense, I would contend that they have not experienced the 'real world' because education has provided an umbrella to shade them from the realities of societal expectations. For example,

> I've been frustrated with how I learn and my sister and I were talking about it last night, we just can't remember things, (*History for example*), or I struggle learning, remembering things that I need to use again, and it's been a struggle for classes. Having that prior knowledge, experience and reapplying it would be useful. (Study Participant)

Education, parents, society, and our culture have provided an understanding that learning is ultimately the only method in which to find success. An education is mandatory if one seeks to find stability in employment. The participants in this study understood that getting a good grade is an expectation. For example the following participant's story is about her grades, "I

have a horrible fear of disappointing people…my biggest fear in the world is disappointing my father, if I ever disappoint my dad it's the end of the world" (Study Participant).

The participants talked about their difficulty in seeing the big picture when learning, "Learning is experimental, you have to experience things in order to actually have had learned something" (Study Participant). While they may have parts of the big picture and when learning new concepts have a relatively good idea on what it all means, the reality is that until they experience and connect the big picture to themselves, they truly do not understand what it means. As on participant illustrated,

> I guess the most influential right now is my Education Psychology class because before I've always learned and not really applied. Now, as a teacher it is like "oh, this is going to be my job I'm going to be doing this" and now I am really applying it to my life. (Study Participant)

Darling-Hammond and Sykes (1999) purported, beginning teachers may study "learning theories, communities of learners, and authentic tasks" in teaching, but without "adequate images of the meaning of the ideas," they have little to draw from in practical application of teaching (p. 39). So, what do we do as instructors to help our students see the big picture? For instance,

> I really struggle with Daily 5 and visualizing it. I haven't really seen it in the classroom yet, and so I have gone and watched some videos on it to just kind of get a better grasp on how it takes place. I have the book on Daily 5 and it is great, but just reading about it does not quite put exactly in perspective how it is going to work, so I watched some videos on it that have helped make connections and make it more understandable.

A methodology that is gaining attention in the research on preservice teacher education is on the use of case writings (case studies). There are several types of case studies. One type is

through the teacher educator designing a situation in which preservice teachers use theory and practical teaching knowledge to solve a problem or situation. Another type of case study involves the preservice teacher using his/her own lesson taught during a field experience and then analyzing the lesson based on teacher education program content. The use of case studies is an effort by teacher educators to bridge theory to practical application. In using case writings, preservice teachers are "analyzing teaching and approaches that influence learning in the context of their own practice" (Bransford, Derry, Berliner, Hammerness, Beckett, 2005, p. 83; Darling-Hammond & Shulman, 2002). The use of case studies based on authentic learning applications constitute an experience of learning about teaching; student's learning attainment can provide a transformative experience in which the preservice teacher can draw from when they become a professional educator. As one participant contended regarding her own learning:

> Three words that keep coming to me are sharing, exploring and experiencing… experiencing it out in the real world. It might not be the way you originally explored it, but then you see how it can take different angles and shapes and different directions out in the real world.

The participant's statement highlights the transformative nature that sometimes what we expect to learn from our experiences and exploration is not always what we intended the outcome to be. In their research on the use of case studies in teacher education programs, Bransford, Derry, et al., (2005) found that many of their students had "aha moments" while working through case studies and connecting information from the field practicums to theory regarding learning. For this group of elementary education preservice teachers, field practicums were their favorite part of their education program. Why? Field practicums afforded the opportunity to use what they had learned in courses and transpose it to the expectations of

society and culture within a school system. Field practicums in learning provided these elementary education preservice teachers a snippet of what the expectations are in the real world, yet they were still shielded under education's umbrella.

Theme five identified that the participants in this study lack the ability to connect their learning to the big picture of society and culture. In many respects they know what they need in order to function in society, but at the same time they lack the experiential schema to draw from and connect to self. Education, parents, and society all have played a part in protecting K-16 students from the full force of society's expectations. The umbrella of the educational system provides them glimpses into expectations, but not experienced learning.

The five themes discussed in this half of the imaginative variation section of 21st century learners focused on the participants as learners. The 25 elementary education preservice teachers told their story with thoughtfulness and reflectiveness. They defined learning, discussed how they learn, the steps they take to learn, and the influences associated with learning. Their story of learning moves from social construction to individualization. They use technology for immediacy in learning naturally, yet they desire more instruction in identifying credibility of Internet information. As learners, they need to be afforded opportunities to experience their learning in authentic situations in order to see society's expectations. We often think of learning moving from the individual to the group rather than the group constructing meaning for individuals. An important component to learning is the ability to make learning relevant to their needs and to their emotional state of being.

Elementary Education Preservice Teachers

Preservice teachers come into teacher education programs with preconceived beliefs and experiences, what Lortie (1975) coined, *Apprenticeship of Observation*. As Kennedy (1999) purported, "one reason teachers are able to learn to teach almost exclusively through their own teaching experiences is that they know what is supposed to happen" (p. 55). In other words, preservice teachers have spent years as students -- learning, watching teachers teach, learning students' and teachers' roles in educational settings, and judging success based on a standard of expectation that has become mainstream in education (Kennedy, 1999; Lortie, 1975; Darling-Hammond & Sykes, 1999). For instance, "my school experiences have obviously affected my experiences in learning, because I wouldn't know how to teach if it weren't for my teachers to help me learn" (Study Participant).

Teacher educators are endowed with the mission of teaching preservice teachers how to teach, which can be a difficult undertaking if preservice teachers epistemological belief system is strongly tied to Apprenticeship of Observation framework. Therefore, the job of assisting preservice teachers in thinking and understanding teaching from a perspective that is different from prior experiences as students can be a difficult undertaking at best (Hammerness, Darling-Hammond, Bransford, Berliner, Cochran-Smith, McDonald, & Zeichner, 2005).

Through the Imaginative Variation stage in this research study, the first section centralized on understanding how the participants in this study learned. The next section will provide further knowledge in understanding how the participants in this study envisioned themselves as teachers. The following themes are their story.

Theme 1: Preservice Teachers Idealize Future Teaching Ability

I have taught elementary education preservice teachers for about five years. I have learned in my fall semester courses to have a plan in place after they have completed the first day in their field practicum. They are not interested in my lesson on instructional technology. They come back from their experience jubilant that they were finally on the other side of the desk. Each was the teacher, the leader, and the one who would make a difference. I have learned it is better to listen and have a dialogue regarding the first day than forge forward with a lesson that will ultimately have to be repeated. The participants in this study have had three field experiences and three embedded experiences. From my own perspective the journey from the first practicum experience to the final practicum experience does not drastically change their views on teaching, even after the completion of coursework. In fact, I contend that the original views of themselves as teachers have instead become more solidly grounded.

The elementary education preservice teachers in this study are judgmental in their observations of other teachers. They have the notion that when they are in charge, they will transform the classroom environment into a place where each and every child will love their teacher and do what their teacher asks without question.

> I am most excited just to actually have my own classroom and do things the way that I want to, not have to think, "oh, this could maybe work better" but it's not my classroom and as a preservice teacher I do not want to step on any toes and so just to be able to do things my way and be able to learn from and modify things to fit the needs of my students.

They know what they like and what they do not like as they observe other teachers in the field. For example, the following participant described her viewpoint on teaching from a field experience she was participating.

> I know in my 80 hour practicum I was in a 2nd grade class and she always wanted it really quiet and I remember thinking all the time that if I were a 2nd grade classroom teacher my class would not be quiet, I remember thinking "my classroom would drive her nuts" because it would not be quiet, the kids would work in groups or pairs and they would talk about things (Study Participant).

Elementary preservice teachers were found to be ideological about their own ability as a professional educator. "I am excited to have my own classroom and make my own rules and just have my own ways" (Study Participant). They have grandiose ideas about who they think they are or will be as teachers.

They believe they are ready to teach and ready to make their own decisions. But are they really ready? I spoke earlier about the imaginary umbrella that shields the traditional student from the full force of society's expectations. Their idealized view of teaching is providing engaging lessons where they will become the leaders in their classrooms, the ones who matter, and the ones who make a difference.

> I'm most excited about seeing kids get excited about learning something, even if I'm just reading something to them. They are staring at you because they are so into the lesson. It may not seem that important, but for some reason they want to know about it and I'm teaching it. (Study Participant)

This group of elementary education preservice teachers was guided by ideologies throughout the discussion on teaching ability in this research study. Their teaching philosophy is

built on themselves as learners and teachers, "I do what makes sense to me, if I'm not going to be able to understand it, like, I'm going to teach it the way that I would understand it" (Study Participant).

Theme 2: Emotions Guide Preservice Teachers' Thinking about Teaching

An individual's emotions are often bound to past, present, and future understandings of their own lives. Through the participant stories it was understood that in their eyes, teachers must have an emotional connection to students in order for learning to happen. Hargreaves (1998) noted, "emotions are at the heart of teaching" (p. 835).

> My own experiences will impact me when I begin to teach, because I know how important that student-teacher relationship is. My desire is for my students to know they can come to me with anything. I also know that if I can demonstrate passion towards what I teach, my students will show the same passion (Study Participant).

Statements made by participants provided numerous accounts of the need for connecting with their students on a personal level in order to provide students with a successful learning experience. "Make it more personal so students can relate to you more, have that connection with you, then they are more willing to learn" (Study Participant).

The accounts of the importance of relationships were consistent with a review of the literature on teacher-student relationship factors involving with professional and personal self-esteem of teachers was concluded. For example, Spilt, Mishra, and Thijs (2011) found (a) teacher-student relationships contributed to a basic need for relatedness and (b) teacher relationship experiences with students contribute to teacher identity (p. 473). For example,

> I think the thing I'm most excited about is getting to share things that I enjoy with my students, especially books, like introducing them to books that I liked when I was

younger and that maybe they'll like, I'm really excited about doing that (Study Participant).

The participant above identified that she has a desire and a need to make learning an emotional construct for students to learn. The caring relationship the participants described highlights Nodding's (2005) contention that a caring relationship between teacher-students results in the belief that although the academic task at hand is important, "you still matter more" (p. 176).

Is this important? Should preservice teachers have such a strong need to connect with their students? Freire (2005) said yes. He opposed a separation between cognitive and affective domains; he advocated, "An educator's practice is not limited to relationships between facts, data, and objects of reality. We should deal with "feelings, emotions, desires with the same respect that we devote ourselves to a cognitive practices" (p. 90). Furthermore, in a study conducted by Deker and Rimmkaufman (2008) on 357 preservice teachers regarding teacher beliefs towards students, they found teachers who create a sense of community and help students feel that the teacher cares about them perform better academically. Yet, another study on student relationships to school conducted by Libbey (2004) found that students who "felt a connection to their school and had a feeling of belonging did better in academics" (p. 282). Further review of the literature was consistent with Libbey's finding regarding the connection between academics and students' feeling of belonging to the school.

Emotions are part of our being, our culture, our schools, and our professional lives as teachers. "I am going to get to know them so that they feel that they are important to me" (Study Participant). Good teaching is based on passionate teachers who can connect with students (Hargreaves, 1998). The participants in this study believed that as teachers, in order for students to learn, they must first forge a relationship with the student first.

Theme 3: Natural Learning Method is also Teaching Method

The Apprenticeship of Observation preservice teachers bring to their education courses is not the only construct to consider. Preservice teachers also bring a preferred teaching methodology. Riding (2002) proposed that a "teacher's natural teaching style will be a reflection of their own cognitive style" (p. 103). The participants in this study seemed to support Riding's contention through their thoughts on personal learning and teaching. "I learn hands-on, that's probably the way that I'm going to be teaching the most, I will try to teach other ways, but that's probably what's going to come" (Study Participant).

These elementary education preservice teachers' own learning was very individualized. They had to connect their learning to themselves in order to fully learn the content. As elementary education preservice teachers, when talking about their own teaching methodology they, again, indicated on an individual basis, that how they learn is how they will teach. For example,

> Most teachers, how you like to learn is how you teach your students, because it works for you and you know how you like it and you know the little things that help you the most so you try them out on the students and if it doesn't work then you adjust it, but if it does…great (Study Participant).

Preservice teachers spend an insurmountable majority of their time learning about differentiation and how to design lesson plans that meet a variety of learning styles. Yet, a study conducted by Rosenfeld and Rosenfeld (2004) highlighted preservice teachers' limited knowledge of implementing learning styles. They found that preservice teachers, while able to identify differences in learning styles, were unable to articulate how these differences affected

learners. The preservice teachers in this study illuminate the findings by Rosenfeld and Rosenfeld.

> I've seen with the teachers that I've had a chance to observe, how they change, they'll do that, but then they'll be really interactive with the kids and they'll have all the kids getting up and doing different things, and it's a little overwhelming to think about that (Study Participant).

As human beings we are so in tuned to how we learn, that we often do not even think about how we learn best, we just learn. For a teacher, identifying student learning styles and then modifying teaching without practice and experience can be an overwhelming and foreign task. This group of elementary education preservice teachers could identify the teachers changing their teaching style and methodology, but became overwhelmed with thinking about how a teacher actually goes about the task of switching styles during lessons. For example,

> The one thing that I'm most scared about is addressing all the learning styles, and there's so many. But when you plan your lesson, you're not thinking about that, you're planning what you're doing, everything that you have to, and then it's like after you have everything, whatever. Then you start thinking about it, so it's not really geared toward those other people, you're just kind of making accommodations for them and it's not directly a lesson for them (Study Participant).

In a review of the literature, several researchers found that teachers do often teach according to how they learn and their own personal learning style (Entwistle, 1998; Hall, 2005; Hall & Moseley, 2005; Riding, 2002; James & Maher, 2004; Evans, 2004). The reason preservice teachers may teach according to their own personal learning is that preservice teachers

need to have knowledge of student learning patterns in order to understand how students learn (James & Maher, 2004).

Theme 4: Experiences Influence Preservice Teachers Teaching

If you, the reader, were to pause to reflect on your own lifeworld through K-16, what would you remember the most? What would stand out the most? Would it be the tests, the teacher, how you learned, or possibly the influences that affected your learning? The participants in this study want to emulate the teachers with whom they had positive experiences. They contended the positive learning relationships they encountered through their own learning impacted them to cognitively learn more efficiently and effectively. For example, the following participant described how her own struggles in learning were overcome through a teacher who served as a positive role model:

> I want to be more strongly influenced by my 4th grade teacher, I'll always want to be like her because the whole experience was positive, so I'm hoping that's what motivates me.

What guided this group of elementary education preservice teachers' dialogue in this study were the negative experiences they had encountered as students. "I think my negative experiences affected me more" (Study Participant). The negative experiences in their own learning were understood to be transformative towards impacting them to do better as a teacher. "I think I'll be able to connect with them more and hopefully be there for them through those experiences of their own" (Study Participant). Their comments were often related to making sure they would not make the same mistakes they experienced when they were a teacher. For example, the following participant's statement discussed the impact of negative experiences and the transfer to her own teaching ability:

> I think the negative experiences are definitely more powerful to me. They are going to help me to be a different kind of teacher than some of the teachers I had. I want my kids to have a different kind of experience than the negatives that I had (Study Participant).

In fact, many of the preservice teachers were almost fearful that they would be like the teacher they most despised. Freire (2005) discussed the fear that nascent teachers experience. He contended that teachers should admit their fears and in doing this they will gain an acceptance of "themselves as a person …in their desire to learn with learners" (p. 88). One participant discussed past negative learning experiences as an unfavorable methodology of teaching:

> I also had some undesirable learning experiences that I will make sure to not repeat when I begin my teaching profession. For example, I had an elementary teacher who seemed rude and unkind. I feel like the majority of her lessons didn't involve doing much beyond the textbooks. I will make sure to NOT recreate my unfavorable learning experiences in my own classroom.

Preservice teachers may have an *Apprenticeship of Observation* to draw from with their own experiences, yet they are fully aware that teaching is different. They understood that what they do influences learning for their students. For this group of participants, the negative experiences seemed to be fresh in their minds as they had no difficulty describing what they would not do based on their own experiences through the educational system.

Theme 5: Technology is a Double Standard for Preservice Teachers

I explained how the participants in this study use technology to help them learn, "I could not imagine life with out it" (Study Participant). The theme focused on technology being so embedded within their lifeworld, it was just an extension of whom they were. When it comes to teaching using technology, the scope is changed.

> I do not know, as far as using the Internet in the classroom, I guess it just depends, like I think it is good for them, but I think it is good to use other things too, so we are not always focusing on technology (Study Participant).

What is surprising about their attitudes toward teaching using technology is that the elementary education preservice teachers were very limited in how they plan to use technology in their classroom. "PowerPoint and the Smartboard where you can show the steps and how to do everything" (Study Participant). Reading and listening to the conversations regarding technology, I found during the individual interviews when asking how important the Internet was for themselves as learners the statements were: "it is huge, it is important, and it is vital to how I learn" (Study Participants). Then, I asked, "How about for you and your students?" The conversations and tone of the their voices changed and comments such as, "it is good for games during recess, can use it to authors of books, can do lunch count on the Smartboard" (Study Participants) became prevalent in the dialogue.

> I think it's still important for us to teach our kids where the glossary is and how to use an appendix, I was in a 6th grade classroom for one of my practicums and the kids asked the teacher how to spell a word she would say "please go get a dictionary and look it up" and some kids might not even know how to use a dictionary, so I think it's important for us to teach kids how to use those.

I am going out on a limb with this theme, but because I taught all of these participants in educational technology; I know what they know about technology. It is interesting that they use technology for their own learning as individuals, but they were not enthusiastic about using it a lot with their future students.

> I have heard of teachers having microphones in the classrooms and kind of putting their lessons on-line so students, for the parents to listen in to see is my student adjusting, how are they acting in class, not how are they learning, it's how are they acting, and so we have to teach the kids independence and so how far do you go with technology? Because the parents are just, they will come in and do they relate? I do not know, it is something to think about (Study Participant).

My personal intuitive integration is that the participants in this study do not want to use technology because they believe that technology has the potential to interrupt or change the dynamics of the emotional connection to the teacher. "I think that communication is just making sure you're face to face" (Study Participant). Basically, I purport these elementary education preservice teachers want to be the "sage on the stage" or the "director of knowledge" and the use of technology in their eyes takes away the personal connection between them and their students. The comments regarding issues with technology were discussed in teaching took on a varied meaning from the discussions on technology in learning. "I also think that the disadvantage would be we do not remember as much because it's at our fingertips and we can look it up, we need it for that moment and forget it, so that's kind of the disadvantage" (Study Participant).

There is a need for the emotional ties between teacher and student that these elementary education preservice teachers are looking for and technology is the threat. "Technology does

take away the face to face value of actually talking to somebody and communicating with them, which I think is so important in the classroom" (Study Participant). I also teach an instructional technology course for graduate teachers. The teachers that I have in my graduate course are introduced to many of the same instructional technology components as my undergraduate students, however the difference is the graduate teachers learn a concept and then apply it the next day in their own classrooms. They then come back to class to discuss the pros and cons of using the technology. Undergraduate students do not have the opportunity to immediately put into practice new knowledge like practicing teachers do.

Theme 6: Preservice Teachers Lack in Understanding Systems of Practice

These participants' experiences as they enter the teaching field will result in some tough situations where they will question themselves and the role of education. They will have to choose whether to stay in education or to leave education. Their experiences will hold many experiential firsts where their parents or the educational umbrella does not protect them. One first for preservice teachers will be understanding that they possess a great deal of responsibility; they are accountable, for example, for student learning as evidenced by high-stakes test scores. Another first will be learning that teaching is not an 8-3 Monday-thru-Friday job. Instead, they will learn that teaching requires a passion in which a workweek does not exist and summers are as much for reflecting on what to do better next year to improve student learning as they are for vacationing.

Many teacher education programs around the country utilize the theme of learning through experience by engaging preservice teachers in peer teaching, field experiences, also known as practicums, and student teaching as part of their coursework on learning how to

become a professional educator. As one participant contended, field experiences for her had more value than peer teaching:

> Practicums, they remind you why you're in this major and just that inspiration to want to teach and getting to practice it with your peers is one thing, but getting to practice with the actual students is definitely a difference, so practicums are really important and very meaningful.

Preservice teachers are impressionable. They often end up teaching with the same methodologies and practices that they observed during their 16-week student teaching experience. This leads to the issue raised by Lortie (2002) who contended there exists a *cultural transmission of teaching practice* where a teachers practice is grounded on how they were taught "which, being generalized across individuals, becomes tradition and transcends generations" (p. 63). When preservice teachers graduate and are placed in their own classrooms they may not use the tools they were taught in teacher education programs. Rather, they are likely to use the tools they experienced as students.

Field experiences were seen as a highpoint of their elementary education program. The participants in this study felt that learning through authentic situations rather than peer teaching made their learning real and helped them connect theory to practice. Field experiences for the preservice teacher are often idealized experiences. For some the field experience is an awakening, a realization of the limited authority that a teacher has. For some the field experiences are more than just liking kids and being with them, the field experiences provide the first experiences into the 'real life' of a teacher, not the idealized life.

> I'm most nervous about learning, getting familiar with all the material because until I do that I feel like I'm reading off a cue card when I'm teaching rather than interacting with

the students and seeing what their reactions are, trying to figure out who's struggling. Once I get that confidence, then I can go off script, but right now I just want to follow what I have written. (Study Participant)

Field experiences in teacher education programs are used to bridge learning construction to field based experiences for the preservice teacher. Darling-Hammond (2002) purposed that highly effective teacher education programs implemented field experiences, in which preservice teachers were carefully supervised, were a key component to bridge preservice teachers' understanding between coursework and application. I found this to be true in this research. For instance, one participant stated, "just being able to be in the classroom doing first hand what we are learning is valuable." For this participant the value was in the field experience was the connection between theory and practice. However, research on field experiences suggested that a controversy exists regarding the use of field experiences in preservice teacher education. Some research suggested that field experiences were highly beneficial, while other research suggested that field experiences could be detrimental to preservice teacher beliefs and learning (Schmidt, 2010).

It is my contention that embedded field experiences within courses provide a more authentic experience into teaching. My colleague and I both practice embedded field experiences. For example, in my Language Arts course, I teach students how to do running records to identify student-reading levels. I then take students to the Kindergarten Center School in our city. Each classroom has a table in the hallway and a reading assessment kit. Teachers individually send students out to have their reading assessment with one of the students. Each elementary education preservice teacher assesses 12-20 students that day. We have three to four faculty circulating the building for questions. The preservice teacher is totally in charge of the

assessments and will give them to the classroom teacher. They are not being watched and because the building is large, they are often alone to make decisions on whether to move a child to the next level. In essence, they learn as they go. They are using what they have learned in class and are applying it in practice. It is one of their favorite activities and the next class session we talk about what went well, what they learned, and what they need to improve on for their own students.

Summary of Themes

This study used a process of imaginative intuition to interpret data from questionnaires, focus groups and interviews. The first part of the intuitive integration provided a look into the learning lifeworlds of elementary education preservice teachers. The second part of chapter five was based on the teaching lifeworlds of the elementary education preservice teachers.

We began with the Power of Learning and understanding that learning provided (a) confidence, (b) the ability to communicate, (c) personal satisfaction, and (d) was transformative within the participants lifeworlds. The second theme discussed how learning began with a social connection to others, preferably peers. The third theme focused on true learning moving from social to personal connection in which interpretation of the learning event was a priority. The fourth theme focused on how the participant's ability to learn is influenced by the affective domain. The relationships forged within their learning environments are also an important component to consider in learning. The fifth and final theme focused on how preservice teachers are lacking in exposure to how their learning relates to the 'real world' and the Big Picture.

The second section of the intuitive integration process provided a look into the teaching lifeworlds of the preservice teachers studied. The first theme identified how participants ideologized their future teaching positions and their role in being a teacher. The second theme

showcased how emotional connections are a priority to preservice teachers. In order for their students to learn, participants believed they must first develop relationships with their students. The third theme identified how this population of preservice teachers preferences for teaching were based on how they learn and their own personal learning styles. Theme four identified the influences that affect teaching. Participants discussed how their own academic experiences impacted how they wanted to teach. Negative experiences were found to be more prevalent in terms of what not to do. The fifth theme identified that technology is a tool but not a conduit for these participants. While they use technology for their own learning, they did not see technology as important to their students' learning when they have their own classroom. The sixth and final theme identified how real-world practice, through field experiences and embedded practicums, is a favorite part of teacher education programs for preservice teachers.

Chapter six will discuss the essence of the experience for this research study. The chapter will offer what Moustakas (1994) terms the essence of the experience in transcendental phenomenology research. The fullness of experience, the relationship between subject and object, will be synthesized into a composite description of the phenomenon discovered. The Dimensions of Learning Model that was discussed in chapter two will be revisited and analyzed in light of the findings of this study. Furthermore, chapter six will discuss implications for teacher education programs based on the themes found in this research study.

CHAPTER 6. ESSENCE OF THE EXPERIENCE

Individuals begin learning at the moment of birth; some research suggests that learning actually begins in the womb. Learning has many definitions, connotations, and implications for the lifeworlds of individuals. There are many ways to learn and many ways that learning can be impeded. The research literature on learning is vast and a researcher could spend a lifetime trying to understand learning and never truly succeed. Learning, for all purposes, is a mystery and something that is taken for granted to occur implicitly (*without doubt or questioning*). Students take classes and sit within four walls listening, participating, and engaging with course content. They leave the classroom and it is assumed that they have learned. It seems learning also has an element of magic: if students listen, participate and engage, they magically learn. As the reader of this research study, have you thought about how you learn? Have you considered the implications of your own learning? If you have not, you are not alone. Individuals often do not think about how they learn, they just know that they learn. Researchers Novak & Gowin (1984) contended, "most human beings do not know what they know" (p. 10). The question to then ask is, why? Why do we not understand something that we have been doing prior to our birth? Why do we not think about and discuss how we learn? Illeris (1999) made a valid point about the role of learning and education as he contended that we should consider how "learning about the nature and structure of knowledge helps students to understand how they learn, and knowledge about learning helps to show them how humans construct new knowledge" (p. 9). Many of the participants prior to this study had not thought about their own learning [See figure 11]. Yet, they have spent a majority of their formative years going through an educational system that supposedly structured to create lifelong learners.

Figure 11. Have you Thought about How you Learn?

Learning as a word surrounds us in education: the term is used daily; it informs a teacher's practice. The goal of education is to assist students in learning. Yet, it seems we have become complacent when hearing the word *learning*. We think we understand the meaning, yet when asked to describe learning it becomes much like a foreign language that is difficult to translate. Teaching and learning go together like peanut butter and jelly: they possess a symbiotic relationship with one another, and while they can be separated, I believe they work better together. Kuhn (2001) purported that "to fully understand the processes of knowing and knowledge acquisition it is necessary to examine people's understanding of their own knowing" (p. 1). The elementary education preservice teachers in this study acknowledged that defining learning, talking about how they learn, knowing about knowing, and understanding how

individual learning will inform their practice as a teacher is difficult. I find it perplexing that as human beings we have spent our entire lives learning, yet it is a difficult topic of conversation.

This study sought to understand the personal lifeworlds of learning for elementary education preservice teachers. The discussions with this group of elementary education preservice teachers provided insight into both learning and teaching. It began as they responded to questions designed to help them begin to think about their own learning individually. Then, their thoughts were brought into a social realm, where learning was discussed with peers. And lastly, the discussion returned to them as individuals, students, learners, and preservice teachers through individual interviews with the researcher. This study was done to understand the term learning and teaching according to a population who has a view from both sides of the desk.

The story of learning based on this population of elementary education preservice teachers is part of a larger component in teaching and learning. It informs teacher educator practices and provides an opportunity to revisit our own epistemological beliefs regarding knowledge. It can help teacher educators identify and revisit their own metacognitive strategies they use when teaching this population. Teacher educators have a difficult position in the field of learning. We teach students who will be teachers (individuals in charge of learning). Yet, our methodology is to provide them information as through they are only students, not future teachers. Our assumptions about what they need reside in traditional teacher-student exchanges. We may see them only as students at the present moment; they are the receivers of knowledge, not necessarily the leaders of knowledge and learning. We as educators may possess the knowledge of teaching, but not of learning. We may understand how to teach, but do we really understand learning? And if we understand our own learning, can we then understand teaching better? If we know learning explicitly, instead of implicitly, will our own learning transform us

to be better prepared to teach? And better prepared to learn? Does identifying our epistemologies about learning improve our teaching expertise? Does knowing about our own learning provide us the "big picture" with the ultimate goal of education, learning? This study did not seek to answer the questions posed above; rather the intent is simply to wonder.

Several themes were identified in the horizonalization of the data in regards to learning. However, as much as the themes were individual, they were also interconnected throughout the discussions with the population being studied. In retrospect, from the literature on operationalizing learning several notable researchers contended that defining learning with a common definition was very difficult because of human nature (Harasim, 2012; Illeris, 2007; Jarvis, 2006; Rogers, 1969; Smith, 1982).

Dimensions of Learning Model Revisited

The outcome of this phenomenological study of learning was not to reduce learning to a *do this for this outcome* mentality rather, the object of learning in this study was to bring the mystery and magic more wholly into our existence as teacher educators and learners. The framework for this study identified four quadrants of learning: (a) physical, (b) individual, (c) social, and (d) systems. On the outside of the dimensions, current advances in technology were identified as being a backdrop or embedded component to each of the quadrants. The essence of this study can be shown through the Dimensions of Learning Model. The original model has been modified to showcase the preservice teacher as both a learner [See Figure 12] and as a teacher [See Figure 13]. Short snippets of the themes identified in chapter five have been synthesized into each model to showcase the essence of the phenomena. Both figures 12 and 13 are interconnected and will be discussed together.

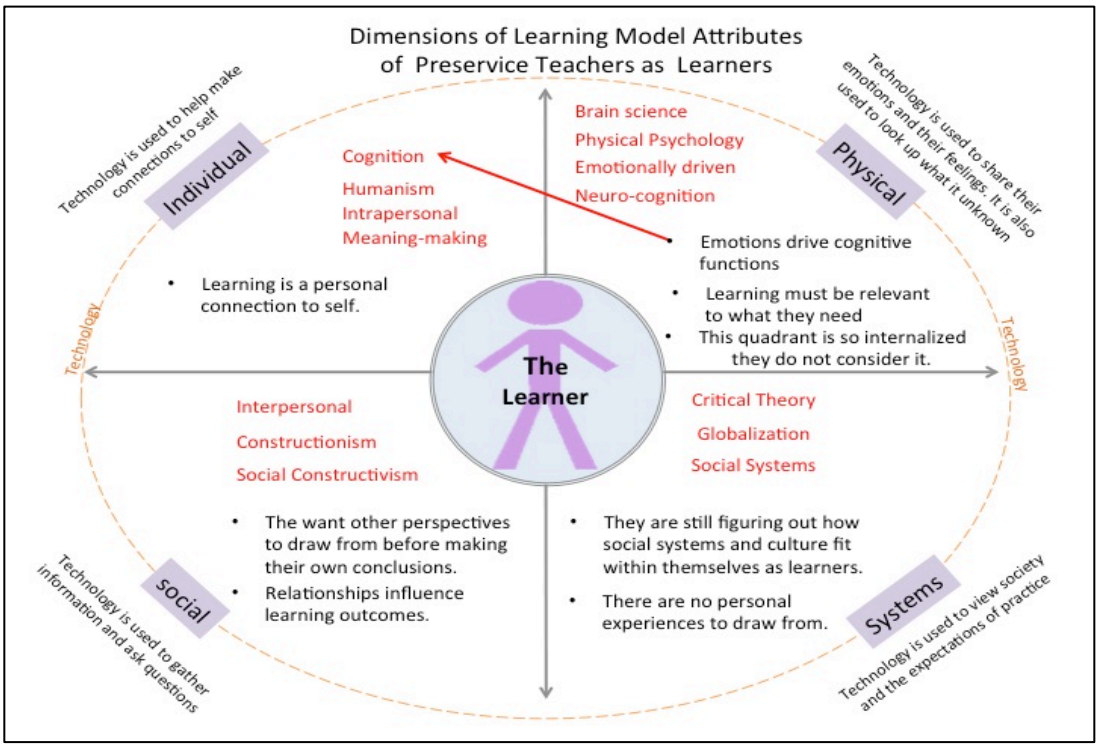

Figure 12. Dimensions of Learning Model Preservice Teachers as Learners

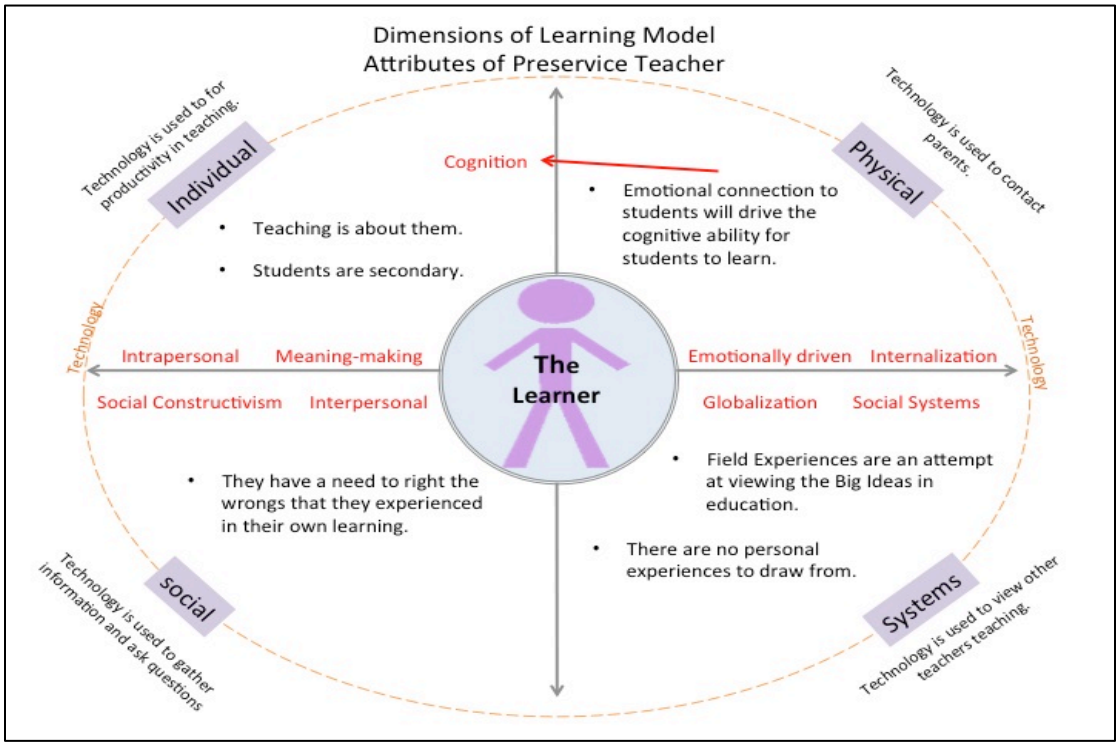

Figure 13. Dimensions of Learning Model Preservice Teachers as Teachers

The Physical Quadrant

The physical quadrant in the model of learning in the literature review focused on the theoretical framework of behaviorism. The stimulus-response system in learning from external stimuli had the potential to affect learning. During the analysis of the data collection, this quadrant was based on the emotional needs of the learning compelling learning. This quadrant in some respects is so internalized that they do not really consider it in their learning. Yet, when talking about learning, the quadrant comes alive with the emotional being a huge component to successful learning attainment. Participants in this study were guided by their emotions or (affective domain). Fear or failure resulted in avoidance of learning situations. The emotional ties they had with instructors and peers often influence whether learning occurred or did not occur. The use of technology in this quadrant was based on gathering information from outside resources to understand concepts that they were learning. An interesting discussion with participants was that they often Google words they do not understand when the instructor is teaching. This is another example of how the quadrants are interconnected.

The participants in this study felt that as elementary education preservice teachers they must make an emotional connection in order for their students to learn. Technology was not found to be a relevant component to teaching in this quadrant. The elementary education preservice teachers felt that the emotional connections made with students should be done in face-to-face situations and technology was not a component to be used for emotional connections to students.

The Individual Quadrant

The individual quadrant in the model of learning during the literature review focused on the theoretical framework of cognition, constructivism, and intrapersonal meaning making. Participants in this study identified that in order for learning to happen, they must connect the learning event to themselves. Learning must be relevant to their individual needs, and they preferred to showcase their learning of a concept through creative projects. Technology was seen as a tool to help them obtain instant information on concepts that they struggled with understanding. Additionally, technology was a tool that was available whenever needed. As a future teacher, the data analysis identified that the teaching methods held by the elementary education preservice teachers were based on how they learn as individuals. The use of technology in the individual quadrant for teaching was based on teacher productivity. The main purpose to use technology in teaching focused on how it would assist the elementary education preservice teacher in teaching lesson to students. It was discovered that the elementary education preservice teachers' preferences in teaching students were based on how the preservice teachers, themselves, learn.

The Social Quadrant

The social quadrant in the model of learning during the literature review focused on the theoretical framework of social constructivism, radical constructivism, and interpersonal skills. Several of the elementary education preservice teachers in this study were adamant that their own learning began with a social framework. They wanted examples on concepts from their instructors; they wanted personal stories on concepts; they wanted to be put into groups to devise a shared meaning of the concepts being discussed; they wanted to work together to solve problems and create solutions prior to individually internalizing the concepts through the

individual quadrant. Technology in the social quadrant was a large part of their learning. The ability to connect to peers, instructors, the Internet, and social media was useful in obtaining the shared meanings.

As future teachers the participants' social aspects were in the hopes that they would right the wrongs that they had experienced during their own academic career. The negative learning experiences would serve as a *what not to do manual*, while the positive learning experiences would serve as a *what to do manual*. The use of technology for this quadrant was not a priority. The most useful tool was the ability to email or use a blog to connect with parents. Teaching their students, they would use social aspects, but overall, as teachers they needed to be the directors of knowledge for their students.

Systems Quadrant

The systems quadrant in the model of learning during the literature review focused on the theoretical framework of critical theory, culture, and social systems. This quadrant was the lowest priority in both teaching and learning. For the participants in this study, it was found that they are still working on understanding how the 'Big Picture' (culture, social systems, globalization) fit within their individual learning. They used technology to watch videos YouTube to gain a perspective of concepts they were unable to individualize. They had parts of the big picture, but lacked in understanding how the parts fit into the whole.

The participants' discussions on systems in their future teaching also was found to be lacking in understanding the 'big picture' of the culture, society's expectations of the teaching field. They discussed that they were concerned/nervous about classroom management, teacher expectations, and struggling learners. All three of these components require an understanding of systems and the big picture. Technology for the elementary education preservice teacher in this

quadrant was through social media sites such as Pinterest. They found that finding lesson ideas that professional teachers had used helpful in identify how to teach and manage classroom learning. While Pinterest as a social media site could be viewed as part of the social quadrant, it is more strongly part of a systems quadrant because of how it is organized and used. While they share ideas, they do not build relationships using Pinterest.

For the elementary education elementary education teachers in this study, field practicums were found to be a favorite element of their teacher education program. Field practicums are an attempt to help preservice teachers understand the big picture, however, the preservice teacher is often guided or directed so closely by the classroom teacher during their field practicums that they do not get the whole picture.

Technology

Technological components that are prevalent in our current society and expanding exponential rate were found embedded within each quadrant. What surprised me the most was that while technology was found to be vital for learning, when discussing using technology in teaching, the tone and discussions changed to concerns about using technology as a teaching tool.

Implications for Teacher Education Programs

"Every student who writes a paper, takes a test, asks a question, participates in a student activity as a leader or follower, or comes to our office for conversation or help has a lesson to teach us about how students learn" (Darling-Hammond, 2008, p. 32). What did this group of elementary education preservice teachers want from their own instructors to learn? What do they need from instructors to engage them, create a passion for lifelong learning, and expand their knowledge base? As stated previously, the goal of the study was to investigate how teaching and

learning involve art, personal decision-making, and many other factors that cannot be controlled, rather than to define a particular methodology. This study did not intend to provide conclusions as to what teacher education programs should change; instead the ideas presented here should be viewed as possibilities to explore in teaching 21st century preservice students.

Examining How Preservice Teachers Learn

When preservice teachers enter the classroom they bring with them a personal learning style that does not always match the teacher educator's style. Keefe and Jenkins (2008) contended that a "gestalt" of *how* students learn and their preference in learning techniques exists personally within each learner. When students are presented with new or difficult learning information, their learning style can assist them in understanding the information through a series of processes that enable students to acquire new knowledge. A study conducted by Rosenfeld and Rosenfeld (2004) found that the preservice teachers studied had limited knowledge of individual learning styles. Rosenfeld and Rosenfeld's participants were able to identify that there were differences in how students learn, but were unable to articulate how learning differences affected learners.

Teacher education programs are often highly involved with teaching preservice teachers how to differentiate lessons to meet the various learning needs of students. It stands to reason, that preservice teachers understand and connect their own learning prior to learning how to teach an important component in teacher education programs. Evans (2004) thought student-learning outcomes could be enhanced if teachers learn about their own teaching styles and the affect they have on student learning. The current research has also shifted the focus of understanding teaching styles towards understanding learning processes so that teachers can assist students in learning how to learn (James & Maher, date, p. 122).

> In order to flourish in this knowledge economy, individuals and communities will constantly need to learn new things, apply their knowledge in new contexts, create new knowledge where existing ways of doing and thinking are found wanting, and exercise wise judgment about what is important and what is not. Learning content will always be important, but learning how to learn will be equally vital (James & McCormick, 2009, p. 973).

The elementary education preservice teachers in this study learned that their personal preferences for how to learn are basically the same methodology they will use to teach their future students. Several researchers agreed with what the preservice teachers put forward in this study. They contended that teachers often teach according to their own personal style or the manner in which they were taught (Entwistle, 1998; Hall, 2005; Hall & Moseley, 2005; Riding, 2002; James & Maher, date; Evans, 2004). However, this is not always considered the optimum way to teach. Morrow (2011) suggested "learner difference is only one variable," effective teachers provide a multitude of learning activities to meet the needs of the diverse population they teach (p. 20).

Teacher educators and preservice teachers who implement the knowledge of student learning patterns, strategies, and tools begin to understand how students learn (Johnston, 1996; James & Maher, 2004; Johnston, 1996; Cassidy, 2004; Kolb, 1984). Identifying personal learning styles provides a consciousness in the approaches used by the preservice teacher in planning purposeful teaching lessons (Evans, et al., 2008; James and Maher, 2004). Kolb (1984) contended that styles do change as new and better ways of learning are discovered (p.533); Evans (2004) suggested that student learning outcomes could be enhanced if teachers learn about their own teaching styles and the effect they have on student learning.

There are several tools that teacher educators can use to assist preservice teachers in identifying their own individual learning style. The learning cards available in this research study are readily available. Other learning surveys such as Myers-Briggs Type Indicator, Kolb's learning style inventory, or Learning styles Inventory are all research-based inventories that can be used to provide preservice teachers with how they learn. Researchers did caution that learning style does not tell us how well one learns, rather learning styles tell us the preference for learning (Felder & Spurlin, 2005; Brophy, 1998; Riding & Cheema, 1991). For instance, Felder and Spurlin (2005) cautioned against teaching exclusively to learning style preferences and that optimal teaching style is balanced between the comfortable and uncomfortable levels of students' learning styles for optimal growth in the learning process. Nonetheless, understanding personal learning style dimensions for educators is an initial step in the teaching-learning transaction (James & Maher, 2004, p. 133).

Processes of Teaching Preservice Teachers

The elementary education preservice teachers in this study had a desire to understand why they should pay attention to their instructors, why they should engage with the content teacher educators are presenting, and how the teacher educator's words are going to affect them in their personal lifeworlds and as future educators. Preservice teachers have the apprenticeship of observation to draw from through their own experiences. Teacher educators need to dispel the myths surrounding the thought that being a student provides the necessary knowledge for becoming a teacher. Darling-Hammond (2005) posits the following statement regarding preservice teachers, learning, and experiences:

> The importance of learning about one's students is paralleled by the importance of learning about oneself. Activities or experiences that place students (*preservice teachers*)

> face to face with their entering beliefs and assumptions both about themselves and others, and about learning, schooling, and intelligence, are essential as novice teachers prepare to teach students who are often different from themselves. (Darling-Hammond, 2005, p. 266)

To dispel the myths, the elementary education preservice teachers in this study suggested that teacher educators give examples of the concepts being taught. The principles of the constructivist theory support a learner's ability to decode new learning episodes using prior knowledge. This process results in a "construction and transformation of information instead of an acquisition or accumulation" of knowledge (Loyens & Gijbels, 2008, p. 352). The use of social methodologies in learning provided them with engagement with topics and the ability to connect schema to topics. The participants use stories and examples from their instructors to activate schema. They want to be told personal stories or recollections about experiences the teacher educators have had regarding the concepts. These elementary education preservice teachers want to explore and discuss with peers the concepts being introduced to gain a shared meaning. Finally, they want to have the opportunity to connect the concept to themselves through projects that provide an opportunity to internalize their knowledge on the concept.

The elementary education preservice teachers in this study wanted learning to become a personal endeavor. They wanted to have opportunities to connect the concept individually. A study conducted on student engagement and learning by Carini, Kuh, and Klein (2006) found a positive link between students who were engaged in the learning environment and learning outcomes. Further, they found that students in higher educational institutions who had the lowest-abilities benefited more from engagement with learning content than those students who possessed higher cognitive functioning (p. 1).

Providing opportunities to use their personal knowledge and acquired knowledge through project-based learning helped these preservice teachers internalize content. Providing choices in assignments and/or projects allowed opportunities to capitalize on their existing knowledge with the new knowledge acquired. If teacher educators do not provide the opportunities to internalize and connect concepts, the elementary education preservice teachers in this study contend that the acquired knowledge would be surface learning. They understood and commented that this is not a good way to learn, but if they are unable to connect the content to themselves, they will use this strategy.

Teaching the Preservice Teachers the Big Picture

Making connections to systems is difficult for preservice teachers. The elementary education preservice teachers in this study discussed that they were nervous about classroom management, teacher expectations, and helping struggling readers with resources. The main concepts that these elementary education preservice teachers discussed all relate to seeing the 'Big Picture' and how it fits within the school culture and society's expectations of teachers. Teacher educators should consider whether field experiences are a cultural transmission of teaching practices or an opportunity to learn about all the roles and hats that a teacher wears. Preservice teachers lack cultural and societal experiences. Providing opportunities to connect their learning to our current society can provide opportunities to understand society's expectations. Two types of teaching were found to assist in helping preservice teachers make system-to-learning connections: (a) case studies and (b) Field experiences or embedded practicums.

A methodology that is gaining attention in the research on preservice teacher education is on the use of case writings (aka. case studies). There are several types of case studies. One type

is through the teacher educator designing a situation in which preservice teachers use theory and practical teaching knowledge to solve a problem or situation. Another type of case study involves the preservice teacher using his/her own lesson taught during a field experience and then analyzing the lesson based on teacher education program content. The use of case studies is an effort by teacher educators to bridge theory to practical application. In using case writings, preservice teachers are "analyzing teaching and approaches that influence learning in the context of their own practice" (Bransford, Derry, Berliner, Hammerness, Beckett, 2005, p. 83; Darling-Hammond, French, Garcia-Lopez, 2002). The use of case studies based on authentic learning applications constitute an experience of learning about teaching and students learning attainment can provide a transformative experience in which the preservice teacher can draw from when they become a professional educator.

Field experiences were a highpoint in eyes of the preservice teachers in this study. The ability to connect theory to practice was a beneficial component in their learning to teach. However, researchers lamented that it is very important for teacher educators to assist preservice teachers in connecting coursework to field experiences (Conway, 2010; Schmidt, 2002). If teacher educators do not help preservice teachers make connections Schmidt and Conway found that field experiences lack in meaning the end result an invaluable experience for the preservice teacher.

The lack of quality in field experiences has the potential to become what Lortie (2002) coined, *cultural transmission of teaching practice* discussed in theme six. Placing preservice teachers with practicing teachers can be a difficult undertaking teacher education programs. The difficulties in placing preservice teachers result in some preservice teachers being placed with an ineffective practicing (cooperating) teacher, which creates a quandary because the

impressionable preservice teacher will often end up teaching using the same methodologies as their cooperating practicing teacher (Darling-Hammond, 2010). Embedded practicums provide an opportunity for the preservice teacher to implement coursework and knowledge on teaching concepts, and then apply the learned concepts to 'real' students without the influence of a practicing teacher's expectations on how a lesson should be taught. There also exists the ability to teach the same lesson several times which should lead to improvement in the original lesson and opportunities to make judgments and adjustments based on student learning during lessons.

In combining the use of case studies in teacher education programs Bransford, et al., (2005) found that many of their students had aha moments while working through case studies and connecting information from the field experiences to theory regarding learning. The participants in this study were judgmental about the cooperating teachers they were placed with for field experiences. The epistemological beliefs about teaching are an opportunity for teacher educators to negate unrealistic judgments or explain why some things are the way they are in the scope of the 'Big Picture'.

Relationships Influence Learning and Teaching for Preservice Teachers

A year ago on my student evaluations I received a few negative comments from one group of elementary education preservice teachers because I did not learn their names during my first course with them. My story and the participant's statements in this study show the importance of creating and maintaining a relationship with their instructors. Experiences are often "given meaning through emotional connections and the response to them" (Powell, 2012, p. 63). An individual's interrelationships are often bound to past, present, and future understandings of their own lives.

In 1943, Abraham Maslow introduced the *theory of human motivation*. Maslow rejected the objectivist view of learning theories. He held the belief that meaning and subjectivity were more important for individuals' learning needs. His theory was based on the phenomena of experience, intrinsic motivation, and self-directedness towards a state of self-actualization. Learning according to Maslow (1954) was based on a hierarchy of needs. This hierarchy is often represented in a pyramid format and contains five levels of needs in the following order: physiological (air, water, and food); safety (security within body, family, and belongings); social (love, acceptance, friendship); esteem (respect for self and from others); and self-actualization (desire to become what one is capable of becoming). Maslow's theory reflects an internal function of individuals and their needs (Schorpp-O'Neill, 2008). Considering Maslow's hierarchy, it stands to reason that if learners internally do not feel socially accepted or their self-esteem is impacted, they may have difficulty cognitively moving to the next hierarchical level.

Relationships in learning can also be viewed as a cultural exchange between society and the learner, which has the potential to affect student learning (Dewey, 2007; Darling-Hammond & Bransford, 2005; Freire, 2005; Cross, 1999). There were instances in this study when the cultural environmental factors such as schools and/or peer relationships impacted the ability to learn or not learn for participants in this study. The literature on social constructivism contended that knowledge is socially constructed and that we learn through a process of interaction with others. The interaction and cultural influences, according to Cross (1999), is not through objective reality, but through the "social process of constructing knowledge through negotiation and agreement among knowledgeable" peers (p. 16).

Teacher education programs I have been involved with do not discuss in-depth the emotional component to teaching and learning. The elementary education preservice teachers in

this study identified many fears that they have in teaching. Most of the fears were a result of what they had experienced in the academic setting. The fears are transferred to the possibility that they would be the teacher they disliked the most. As stated previously, but worth mentioning again, is Freire's (2005) contention that teachers should admit their fears and in doing this they will gain an acceptance of "themselves as a person …in their desire to learn with learners" (p. 88). Teacher educators may want to consider adding the emotional component to teaching and learning based on the importance that was exposed by the participants in this study.

Technology's Double-Edge Sword for Preservice Teachers

Personally, what I learned in this study regarding technology surprised me, intrigued me, and has made me ponder for quite some time. As learners, the elementary education preservice teachers in this study use technology for learning, even considering it "vital to learning" (Study Participant). The concern over technology in their own learning was based on the credibility of websites for research purposes.

The elementary education preservice teachers in this study used technology in all four quadrants of the Dimensions of Learning Model for their own learning. However, as teachers, they did not believe technology should coincide with their student's learning. They believed that technology was important for their students to know for future employment opportunities. They believed that most of their students would surpass them in technology knowledge in the next few years. But, as teachers, they spoke of technology being used for presentations, games during recess, teacher productivity, and connecting with parents. Smart boards were understood to be an important component because they could use the technology in their lesson presentation.

Teacher education programs often have an educational technology course that elementary education majors are required to take as part of their coursework. I teach such a course, and

students in my course are exposed to blogging, web-based curriculum, webquest development, teacher productivity, leading researchers in the field of educational technology, and National Educational Technology Standards (NETS) for both teachers and students. During my course, they are excited about learning the new technologies that I teach. The one component I changed this past year was that I made the course more hands-on, something that I had not done previously. Instead of teaching just the technology, I had students using technology to create products, in order to help them make more connections as individuals. For example, below is one of my lessons.

> Students learn how to use PowerPoint to create worksheets and other teacher productivity sheets. In one lesson, students use PowerPoint to create a first day or last day bag for their students. They had to problem solve how to align a regular brown lunch bag to the PowerPoint slide and the printer. They create their bag and then print it out. This is a simple activity, but they are thinking like a teacher for the bag, making decisions on how their printed bag would change if they only had access to a black/white printer, and then problem solving how to get the technology to do what they want (Researcher Story).

They loved this lesson. From this research study, I understand why they like the bags so much. The bag lesson connects to their individual learning needs, they feel like teachers, and they are creating something to show their newly acquired knowledge. It may be worth exploring other ideas for technology-based lessons in which preservice teachers can connect, feel like a teachers, and create projects.

Summary

In summary, this study sought to understand the mystery and magic of learning through the voices of 21st century preservice teacher students who are learning to become the teachers of tomorrow's learners. This chapter provided the essence of what the findings of this research mean for learners, preservice teachers, and teacher education programs.

This group of elementary education preservice teachers held several ideologies about education and teaching; in fact their ideologies are what guided this discussion. They are excited to learn, excited to teach, and excited to make a difference. I believe through this study that occurrences in learning and learning to teach must be individually experienced. Teacher education programs and teacher educators could provide more opportunities for discussions regarding teaching and learning, in which preservice teacher beliefs about learning are explored.

> When we were sitting in the groups somebody would say they learn this way and I would say, "I learn that way too" and then somebody else would say something totally different and I would be "well I learn that way too". It was neat because I figured out really quickly that I do not learn just one way, I learn the way others do, just in a different order. (Study Participant)

I believe teacher educators should ask and assist elementary education preservice teachers in understanding and asking questions regarding their epistemological beliefs about learning, how they view metacognition, and what they are most excited about and fear the most in their future careers as professional teachers. We should provide them with the knowledge of their own learning and knowledge of how they learn having the ability to impact them in teaching. For example, "If I understand how I learn best, then I can find out the kinds of things that work for students" (Study Participant). Teacher educators should never stop learning and

growing as professionals through current scholarly research or by doing their own research to understand how each generation of learners attributes transfer as they move to the other side of the desk. For teacher education programs, the essence of this theme suggests that opportunities are provided during courses to talk with preservice teachers about their experiences in learning and how their experiences have the potential to impact them as learners.

CHAPTER 7. A NEW NARRATIVE

This study used a transcendental phenomenological procedure to reveal the essence of 21st century elementary education preservice teachers lifeworlds in learning. The perspective of being a student and learning to become a teacher provided an opportunity to understand learning through a dual lens. The processes of dialogue with the elementary education preservice teachers in this study were filled with purposeful talk regarding their learning experiences and their hopes for future teaching endeavors.

This study is a beginning to an end in understanding the learning lifeworlds of elementary education preservice teachers. This study was based on transcendental phenomenological stages of analyzing data according to a research process described by Moustakas (1994). This final stage in the research process consists of revisiting the purpose of the study, the exploratory research questions, a summary of the chapters, the possibilities for future study, the relationship between personal, professional, social meanings, relevance and a final closing conclusion.

Purpose of the Study

The purpose of this study was to develop an understanding of the pattern of meanings and/or themes related to what it means to learn for 21st century senior standing elementary education preservice teachers. The characteristics of this research study were to portray the experiences of participants through their opinions, beliefs, and lived experiences as both a student and a teacher. This study also sought to explore elementary education preservice teachers' understanding of how they think about learning, how they define learning, and how their own experiences as students in learning will transfer, as they become professional teachers.

Exploratory Research Questions

The study sought to understand the overarching research question: *What does it mean to learn and think about learning through the lens of 21st century senior standing elementary education preservice teachers as they transition to the other side of the desk?* Included were four investigative sub-questions:

1. How do 21st century elementary education senior level students in postsecondary education define learning?
2. What helps 21st century elementary education senior level students in postsecondary education learn?
3. How do 21st century elementary education senior level students in postsecondary education know when learning has occurred for them?
4. What experiences influence learning for 21st century elementary education senior level students in postsecondary education?
5. How do 21st century elementary education senior level students in postsecondary education think their personal ways of learning are going to impact how they teach?

While this study has met its end stage where the research questions posed have been answered, there are many more opportunities and lens to look through in exploring 21st century preservice teacher learning.

Overview of the Chapters

Chapter One

Chapter one provided an introduction to this study. It proposed that our current society is showing interest in knowing how learning is achieved and to further understand the concept of learning exploratory research needed to be continued. Several researchers contended that learning in the 21st century has created countless avenues of possibilities for learning and teachers are a contributing factor in student learning. However, as researchers pointed out, there has been very little research conducted on how preservice teachers learn. The implications of understanding preservice teacher learning have the potential to increase the effectiveness of teacher education programs.

Chapter one included a conceptual framework that served as the lens for conducting this study. The purpose of using a conceptual framework in the design was to assist myself as a novice researcher in understanding the complexity of research through a visual representation of the factors involved in scholarly research studies.

Chapter Two

Chapter two provided a synthesis of relevant literature pertaining to the Dimensions of Learning Model created by this researcher's mentor. The model was used as a guide in researching learning theories that pertained to each quadrant. While more theories could have been added to the model, time is always an issue and the researcher chose to understand and synthesize the theories that are most prevalent in elementary education programs.

Chapter Three

Chapter three discussed the methodology used to conduct this research study. The methodology of transcendental phenomenology was chosen because it provided a systematic set of steps to collecting and analyzing data for research. This study had a pool of 25 participants who all were involved with the three forms of data collection in this staged design: 1) online questionnaire, 2) focus group sessions, and 3) individual interviews. Following the transcendental methodology, the researcher posed a written Epoche to position herself in a state of consciousness prior to collection of data. This chapter also explained how ethical assurances were put into place to reduce and/or eliminate the potential for harm.

Chapter Four

Chapter four provided an in-depth look at the horizonalization of the data analysis completed for this study. This chapter provided an in depth step-by-step description of the transcendental processes of horizonalization used to analyze the data. The chapter also included snippets of the actual data.

Chapter Five

Chapter five was the imaginative variation of this study. In this chapter, themes and meaning units were explained through an understanding of the experience. It explained the textural '*what'* and structural '*how'* regarding the participants' experiences with learning. This chapter was the story of the participants' understanding of learning and learning to teach as told through the lens of the researcher.

Chapter Six

Chapter six was the essence of this study. It synthesized the stories that were unwoven through the data into the essence of this study. Chapter six provided an analysis of the object of learning to close the loop on this study based on the Dimensions of Learning Model. Chapter six also provided ideas and possibilities for teacher education programs to consider when teaching 21st century preservice teacher students.

Suggestions for Further Research

"Research findings are often thought of as a conclusion in our investigations into learning…it might be better to think of them as the start of our investigations" (Cross, 2005, p. 5). The outcome of this transcendental phenomenological study was not to come to any conclusions for the general public or teacher education programs. Rather, this study sought to understand learning through the lens and lifeworlds of the population who participated in the study. This study provided insight into learning and learning to teach from a unique population of individuals who have a dual commonality in higher educational institutions. It offered stories of learning that other teacher education programs may want to ask of their 21st century preservice teachers. More than anything, I believe this study leaves the researcher and the reader with questions pertaining to learning, learning theory, and preservice teacher education. While a glimpse into the lifeworld of this population was afforded, this research study could be replicated with other preservice teachers to further understand how 21st century learners view learning and learning to teach.

A second recommendation to follow this study would be a more in-depth look at the Dimensions of Learning Model and how the individual and the process of learning can be viewed from other theoretical learning philosophies. A third recommendation would be to

further research on how to assist preservice teachers and other learners in making the systems connection to their individual self.

Personal, Professional, Social Reflections

In some respects, it saddens me to close this research study. I have learned through this study how involved an individual can become during the research process. I have also learned how enlightening and influential research can be to an individual's soul. When a researcher spends hours, days, months, and even years researching a topic, it becomes a part of their lifeworld. It never goes away; the topic is in our thoughts during the day and our dreams at night. For instance, I believe I memorized all 789 pages of data, because I read and reread it so many times. As an outcome, this study that was to be a culminating activity of my learning towards a PhD, instead it became a life mission. My topic was broad and had endless possibilities for exploration, that I will never fully complete this research study. Yet, I believe just like learning is lifelong, so too should be the process of research and becoming a scholar.

Professionally, this study has changed my practice as an educator of elementary education elementary education teachers. This study has brought an understanding of learning that I did not possess prior to the study. The lifeworlds of preservice teachers showed me their ideologies, their fears, and their excitement regarding learning and teaching. I know I will make time to understand my future elementary education preservice teachers' aspirations regarding their own learning and their views on teaching. I look forward to having discussions on their own learning and watching the 'aha' moments occur when they realize how they go about the process of learning. I find that I am excited for next fall and it feels like a fresh start into a new world of being a teacher educator. This is not an end; it is only the beginning. The growth that I

have experienced through this study has given me an outlet for pursuing more research on learning.

I possess more knowledge than last year and my growth has increased exponentially in understanding learning through this dissertation. I sat down with my Vice President of Academic Affairs last week to discuss learning. It was the first time that I was not nervous. I had something to say about learning and my thoughts were backed by my research study. The social relevance to this study is embedded within all of the aspects of the study itself. It is intertwined into my personal and professional meanings. Like many of my participants stated, Learning is a feeling of confidence, something that you can share with others. This study was planned and written so other novice and expert researchers would be able to replicate the design of this study. This study contributes to the scholarly institution of higher education through in-depth explanations of the themes, meaning units, and essence of the study. Teacher education programs can use this study to start a conversation with their own elementary education preservice teachers on learning and learning to teach.

Conclusion

This transcendental phenomenological study sought to understand the lifeworlds of 25 participants who shared their stories of learning and their hopes and dreams for themselves as teachers. The elementary education preservice teachers who participated in this study are excited to learn, excited to teach, and excited to make a difference. The scholarship of teaching and learning is, at its core, an approach to teaching that is "informed by inquiry and evidence" (both one's own, and that of others) about student learning. (Hutchings, Huber, Ciccone, 2011, p. 10).

Throughout this study, the participants grew in their understanding of learning. Students often stopped me in the hallway at the university because they wanted to share more stories and

more ideas regarding learning and teaching. Cross (2005) purported, "if we are to take learning seriously, we need to know what to look for (through research), to observe ourselves in the act of lifelong learning (self-reflection), and to be much more sensitively aware of learning" (p.1). The participants in this study expressed that the knowledge they gained regarding their own learning and teaching methodology created an avenue of discussion and understanding about learning, that had not happened in their education courses, at least not to the extent that this research study provided. In hindsight as their past instructor I find this unfortunate because "learning is about individuals, and improving learning is about understanding what goes on in the mind of the learner" who is our student (p. 10). In concluding this research study, my thoughts return to what brought me to this study.

This study was brought about as the researcher tried to operationally define learning and realized that this was nearly impossible as several prominent researchers identified (Harasim, 2012; Illeris, 2007; Jarvis, 2006; Rogers, 1969; Smith, 1982). Part of the issue with defining learning is that learning is based on individuals who each think differently and according to their own needs. How humans acquire knowledge is highly personal. Throughout the history of people, learning has been a component that has "both propelled and detained educational scholarship" (Hansen, 2000, p. 23). Yet, there will always be a need for human beings to learn and for teachers; the need extends to educating students "effectively and efficiently is at the root of human survival and civilization" (Harasim, 2012, p. 16). I stated earlier that we have as a society become complacent about the term learning. This research study sought to bring complacency of learning to the forefront of knowing for this researcher and hopefully for the readers of this study.

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APPENDIX A. INVITATION TO PARTICIPATE

FROM: Sheri Okland, Instructor at Valley City State University. I am also a doctoral candidate at North Dakota State University.

REQUEST: I need your help with a study I am doing titled "Learning in a 21st Century Society: The Direct Experiences of Preservice Teachers and Learning Theory"

TIME REQUIRED: 20-30 minutes either in person or through Skype.

PARTICIPATION REQUIREMENTS:

- Senior Elementary Education major
- Between the ages of 18-23

PURPOSE of STUDY: The purpose of this study is two-fold. The first purpose is to explore the term learning and your experiences in learning throughout your educational career. The second purpose is to explore how your own learning will influence you as a professional educator.

CONFIDENTIALITY: Your responses during the online interview are recorded for the research purposes, but will be kept confidential with only the researcher team having access to your thoughts. Any data from the interview presented in the written report will NOT contain any identifying information about you.

INTERVIEW METHOD: I would like to meet with you either in person or through the software program called Skype.

HOW TO PARTICIPATE: If you would like to participate in this study, please email Sheri Okland (sheri.l.okland@ndsu.edu). Include your name, contact number, and how you would like to participate in this study. Either through a face-to-face meeting or through Skype.

TIME LINE: I would like to interview you during the month of January, 2013.

Thank you for your consideration in participating in this study.

Sincerely,
Sheri Okland

Dr. Elizabeth Anne Erichsen
College of Human Development and Education
Elizabeth.erichsen@ndsu.edu

Sheri Okland
School of Education and Graduate Studies
sheri.l.okland@ndsu.edu

APPENDIX B. ONLINE QUESTIONNAIRE

1. What is your current age?

2. How do you self-identify your gender?
   - ☐ Female
   - ☐ Male
   - ☐ Other

3. How do you self-identify your race/ethnicity?
   - ☐ White/Caucasian
   - ☐ American Indian
   - ☐ Black/African American
   - ☐ Hispanic/Latino
   - ☐ Asian
   - ☐ Other

4. Which of the following environments best describes where you attended K-12 schooling?
   - ☐ Rural – one classroom, one teacher, multiple grades
   - ☐ Rural – different classrooms per grade with different teachers
   - ☐ Urban
   - ☐ Private
   - ☐ Montessori
   - ☐ Religious
   - ☐ Other
   - ☐ Prefer not to answer

5. What experiences have you had throughout your kindergarten to college career that have defined you as a learner?

6. What context or situations have typically influenced or affected your experiences in learning?

7. How do you know when you have learned?

8. How do you think your own experiences in learning will impact you when you begin teaching?

9. When you want to learn something new, what steps do you take to learn?

10. How do you think your own learning experiences will influence the way you teach?

APPENDIX C. FOCUS GROUP MANUAL

Procedural Steps

Okland

STEPS IN FOCUS GROUP INTERVIEW RESEARCH

MOVING TO THE OTHER SIDE OF THE DESK: LEARNING EXPERIENCES OF PRESERVICE TEACHERS AS THEY TRANSITION TO PROFESSIONAL TEACHERS

Focus Group Protocol Guide

Guiding Questions

STEP G

Purpose: *To define the questions that will be presented to participants' in the focus group interview session.*

Purpose of Research:

The purpose of this research is to investigate perceptions of senior elementary education major students regarding their own learning through the current educational system's practice in educating future teachers.

Research Questions from Study:

1. How do senior preservice teachers in post secondary education define learning?
2. How do senior preservice teachers in post secondary education know when learning has occurred for them? How do they know when they have learned something?
3. How does the 21st century technological tools impact their personal learning processes?
4. How do they see 21st century skills impacting their students' learning processes when they become classroom teachers?
5. In what ways do senior preservice teachers in post secondary education see themselves as learners?
6. How do preservice education majors view themselves as future teachers?

Overview of the Study Oral Script:

What I am interested in learning about with this study is your views regarding learning including: how you define learning, how you know learning has occurred for you personally, how technology has impacted your own learning, your views on how technology will impact your future students' learning, how you see yourself as a learner and a future teacher.

Introduction

STEP 1

Purpose: *To establish rapport with the participants, creating a comfortable environment for upcoming disclosure of ideas, and to provide information related to expectations during the session.*

Welcome Outline– 5-10 minutes

1. Welcome participants to the focus group session.
2. Give time for participants to look at the menu and place their lunch order.
3. Describe how the focus group session will be conducted.
4. Introductions
5. Review the consent forms and ask if there are any questions.
6. Thank participants for taking time to assist me in this process.

Oral Statement:

Welcome, and thank you for your participation in this focus group study. I asked you to participate in this study because you are a senior elementary education major. This is not a structured question and answer session, instead this is an opportunity to discuss and talk freely between everyone about the questions that you will be asked.

Introduction Statement of Research Team:

_____ is joining us today. She will be transcribing what we talk about and taking some detailed notes.

Audio Recording Oral Statement:

I will be audio recording our discussion today, I want to assure you that anything you say, will remain confidential. When I write my analysis of this research study, you will NOT be identifiable.

Introduction Continued…

STEP 1

Informed Consent Statement

I have an informed consent letter that I would like to read through with you before we begin the focus group process. This informed consent is the same informed consent that we discussed in the individual interviews. I would like to restate your rights as a participant in this study and your choice on whether to continue in this study. *I will read the informed consent aloud with you.*

Questions/Statements about the informed consent:

- Do you have any questions regarding the informed consent?
- Would you still like to participate in the study?
- If at anytime, you would prefer not to answer any question, please just let me know.
- Participants will sign the informed consent.

Description of the Ground Rules - 5 minutes

1. State that this is an open, safe, and secure forum.
2. All suggestion and ideas are welcome and acceptable.
3. Be an active listener and participant.
4. Ask questions if the researcher is unclear.

Transition – Questions – Responses

STEP 2

Purpose: *To obtain a snapshot of the participants' overall perceptions and/or views about the topic. To provide an opportunity for clarification and logic behind thoughts and/or ideas without undue argumentation.*

Introductory to the questions:

I am going to ask you four main questions for this focus group session. I may ask you to elaborate, or I may restate what you said to make sure that I understood your statement. Your personal experiences and stories about the questions are welcomed in this discussion. Again, this is not a structured question and answer session, instead this is an opportunity to discuss and talk freely between everyone about the questions that I will ask you.

Introductory Question:

This introduction question is to help the participant(s) relax and feel confident in speaking with the researcher.

- **What has been your favorite part of your college experience?**

Focus Group Discussion Questions

Question 1:
What experiences have you had throughout your kindergarten to college career that have defined you as a learner?

- How do you know you have learned?
- How do you see yourself as a learner?
- How do you see yourself as a teacher of learners?

Transition – Questions – Responses

STEP 2

Question 2:
What context or situations have typically influenced or affected your experiences in learning?

- How has the 21st century influenced your learning?

Question 3:
How do you think your own experiences in learning will impact you when you begin your teaching profession?

Question 4:
When you want to learn something new, what steps do you take to learn?

Question 5:
Can you think of a positive situation, which influenced or affected your learning? Please tell me about it.
Can you think of a negative situation, which influenced or affected your learning? Please tell me about it.

Question 7:
How do you think the 21st century has changed the teaching profession compared to when you were in elementary school?

Question 8:
How do you define learning?

In-Depth Investigation

STEP 3

Purpose: *To generate detailed, substantive information about participants' views toward the most important issues related to the core purpose of the focus group session.*

In-Depth Investigation

Use the questioning techniques below to gain a deeper understanding of the thoughts/ideas that have emerged as a result of participants' responses.
Continue asking questions until you feel that participants' have exhausted all thoughts/ideas related to questions.

Questioning Techniques to get more information.

Taken from:

Focus groups - Nottinghamshire County Council. (n.d.). *Nottinghamshire County Council - Nottinghamshire County Council*. Retrieved February 22, 2011, from http://www.nottinghamshire.gov.uk/home/whatdoyouthink/consultationguides/focusgroups.htm

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Summarizing	Encouraging	Involving others
If I've understood right, you mean…	Tell me more about…	That's helpful, Let's hear some other views…
So it sounds like you are saying…	Keep talking/Say more	Let's hear a different perspective on that…
So it's fair to say / conclude that…	Can you give us an example…	Who can add to that?
So the message you want me to get from that example / story is…	Can you explain to us…	Does everyone accept that?
	How can we solve this problem?	

Closure

STEP 4

Purpose: *To create opportunity for participants to alter or clarify positions in they're thoughts, to verify the conclusions drawn across the topics, and to thank participants' for their time.*

Conclusions

1. Restate the information that participants' have given you regarding each of the questions.
2. Allow for an opportunity for any final comments or thoughts from participants.

Summary Statement:

Thank you for taking the time to talk with me today. Is there anything that you would like to add about our conversation?

Closure

1. Thank participants for attending.
2. Make sure to acknowledge their experiences and views as valid and enlightening.
3. Remind participants why their thoughts and ideas are important.

Closure Statement:

Thank you again for participating in this study. I want to assure you that the information collected through the audio recording remain protected. Your name will not appear in any written form in my study.

I will be contacting you for a follow-up individual interview in the next couple of weeks, just let me know what time and day will work best for your schedule. Thank you.

APPENDIX D. INDIVIDUAL INTERVIEW QUESTIONS

Introduction Statement: Welcome, and thank you for your participation in this interview study. I asked you to participate in this study because you are a senior elementary education major between the ages of 18-23.

Overview of Study: What I am interested in learning about with this study is your views regarding learning including: how you define learning, how you know learning has occurred for you personally, how technology has impacted your own learning, your views on how technology will impact your future students' learning, how you see yourself as a learner and a future teacher.

Informed Consent: I have an informed consent that I would like to read through with you before we begin the interview process. The informed consent lets you know your rights as a participant in this study and your choice on whether to continue in this study. *I will read the informed consent.*

Questions/Statements about the informed consent:

- Do you have any questions regarding the informed consent?
- Would you still like to participate in the study?
- If at anytime, you would prefer not to answer any question, please just let me know.
- Do you understand that by agreeing to continue with the study, you are in essence signing the informed consent in front of you? (Skype only)
- Face-to-face participants will sign the informed consent.

Introduction to the Questions: I am going to ask you four main questions for this interview. I may ask you to elaborate or I may restate what you said to make sure that I understood your statement. Your personal experiences and stories about the questions are welcomed in this discussion.

Introductory Question: *This introduction question is to help the participant relax and feel confident in speaking with the researcher*.
What has been your favorite part of your college experience?

Question 1:
What have you experienced in your Kindergarten through college career in terms of learning?

- How do you know you have learned?
- How do you see yourself as a learner?
- How do you see yourself as a teacher of learners?
    - How will your own learning experiences influence the way you teach?

Question 2:
What contexts or situations have typically influenced or affected your experiences in learning?

- How has technology influenced your learning?
- How do you see yourself using technology with your future students?

Question 3:
How will your experiences in learning help you become a professional teacher?

Question 4:
How do you define learning?

Final: Summary of what was discussed.
Thank you for taking the time to talk with me today. Is there anything that you would like to add about our conversation?

Follow-up: Possible Focus Group Session

- I will be doing a focus group with other participants who have done interviews with me.

  Would you be interested in participating in the focus group session on January _____,

  2013? The focus group would last approximately 1 ½ - 2 hours?

- May I send you information on the focus group session and if you choose to participate

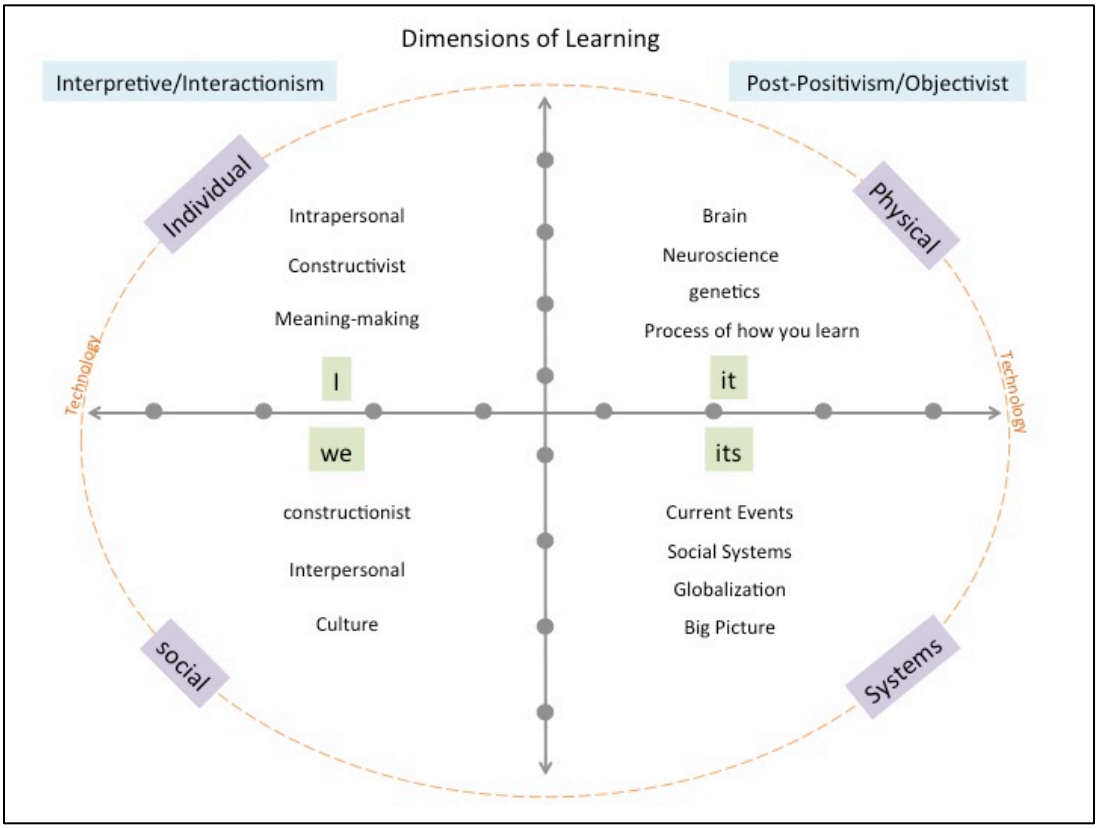
  and the times work for your schedule, you can email me back with your acceptance?

Closing:
Thank you again for participating in this study. I want to assure you that the information collected through the audio recording remain protected. Your name will never appear in any written form in my study.

Individual Interview Questions

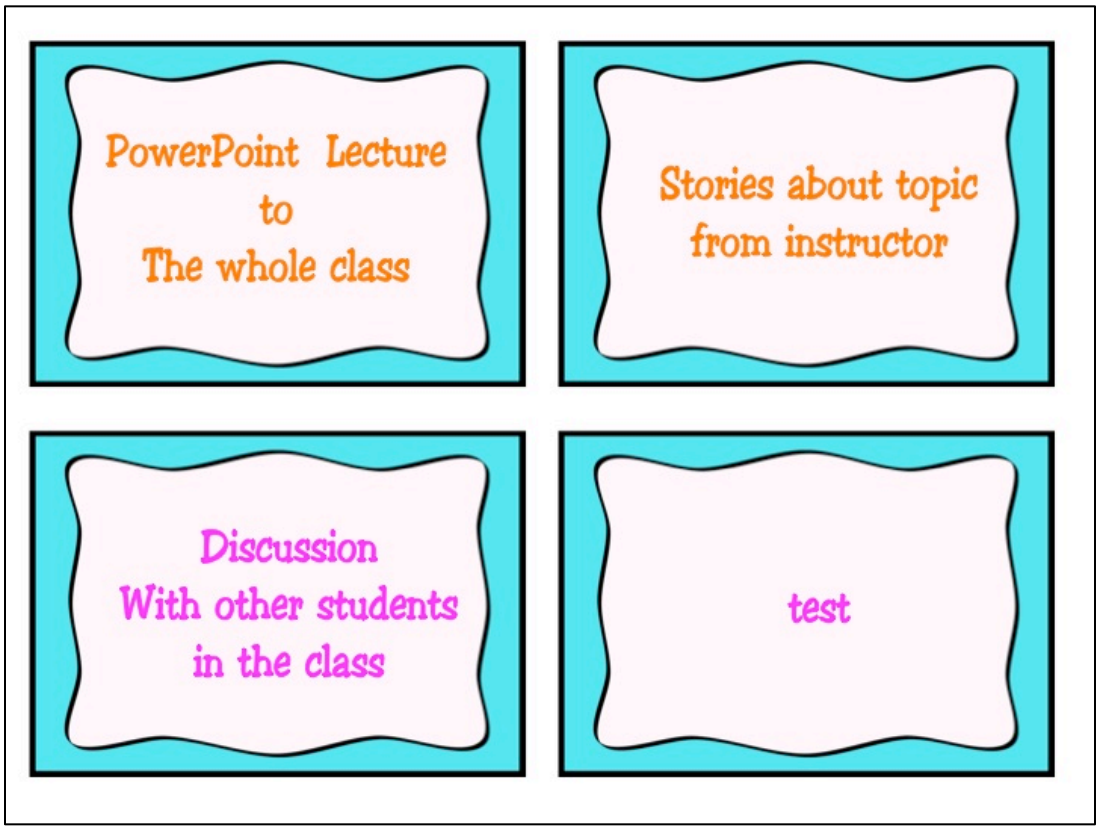
Interview Question 1

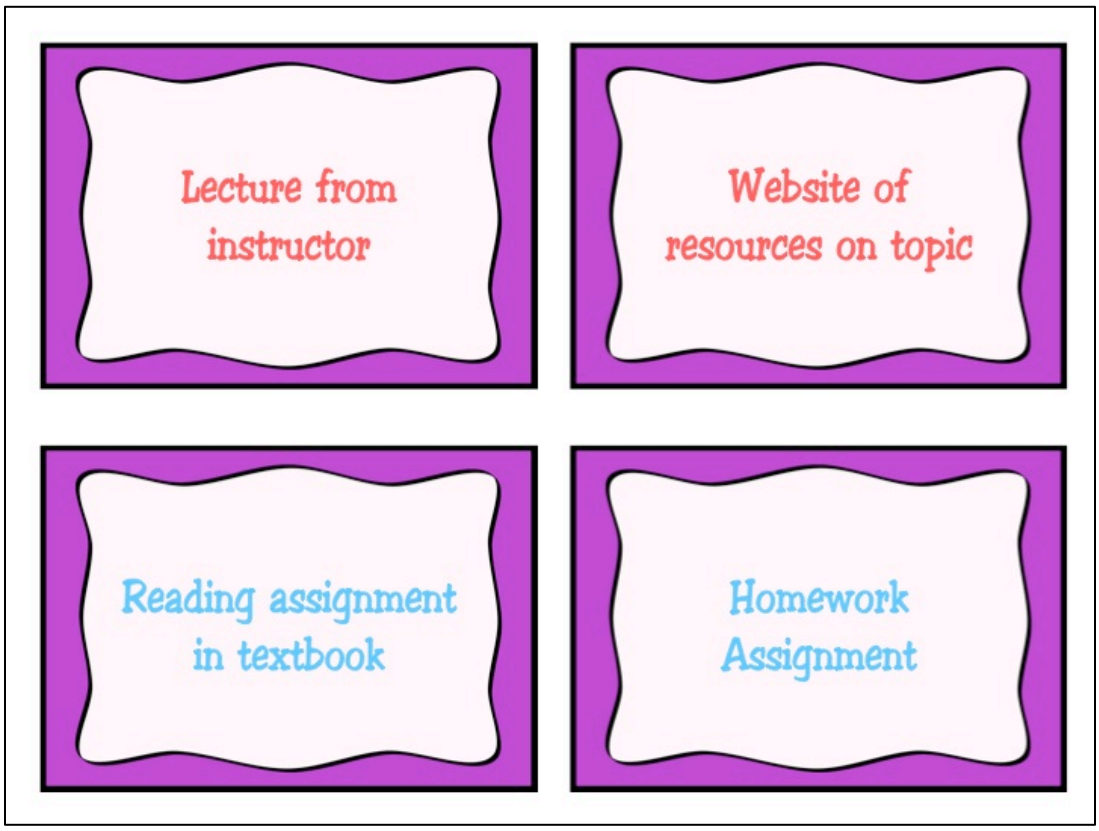
- I want to show you this model on learning.
- Four quadrants of learning. Briefly explain each quadrant.
- Where do you believe that you would fall on the model in regard to your own learning.
- What quadrants do you feel you use the most in your learning?

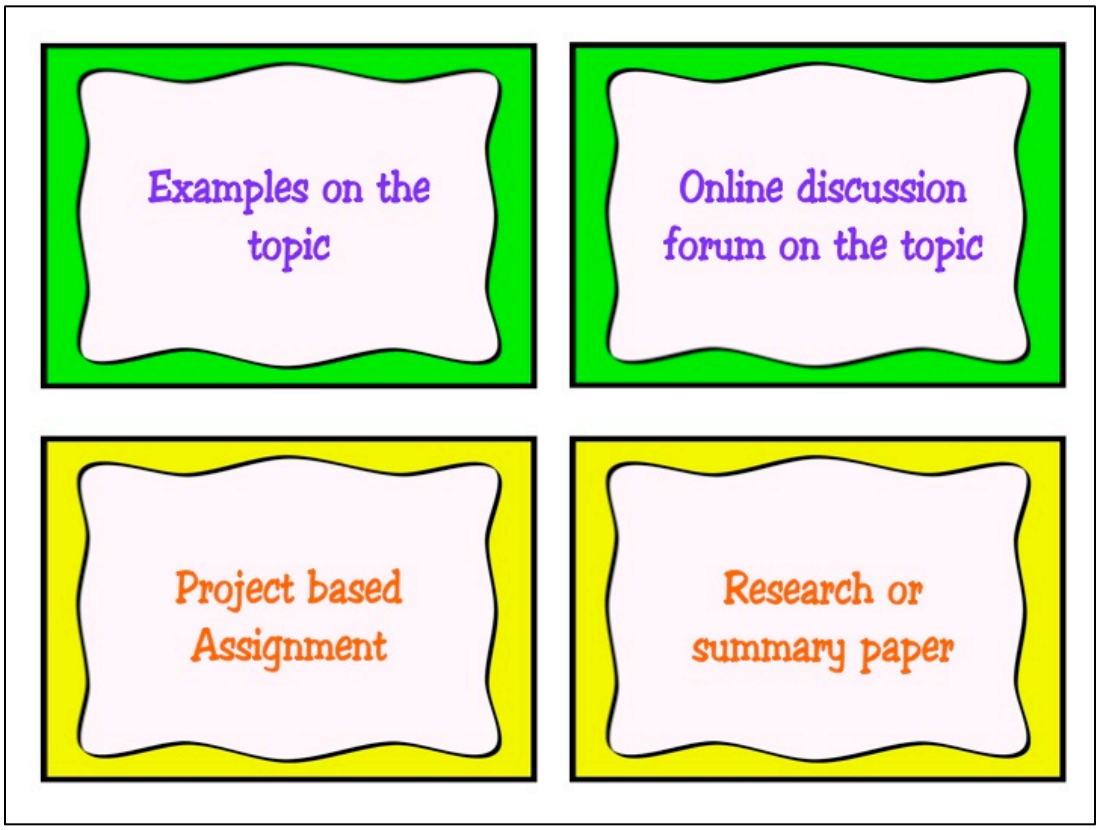


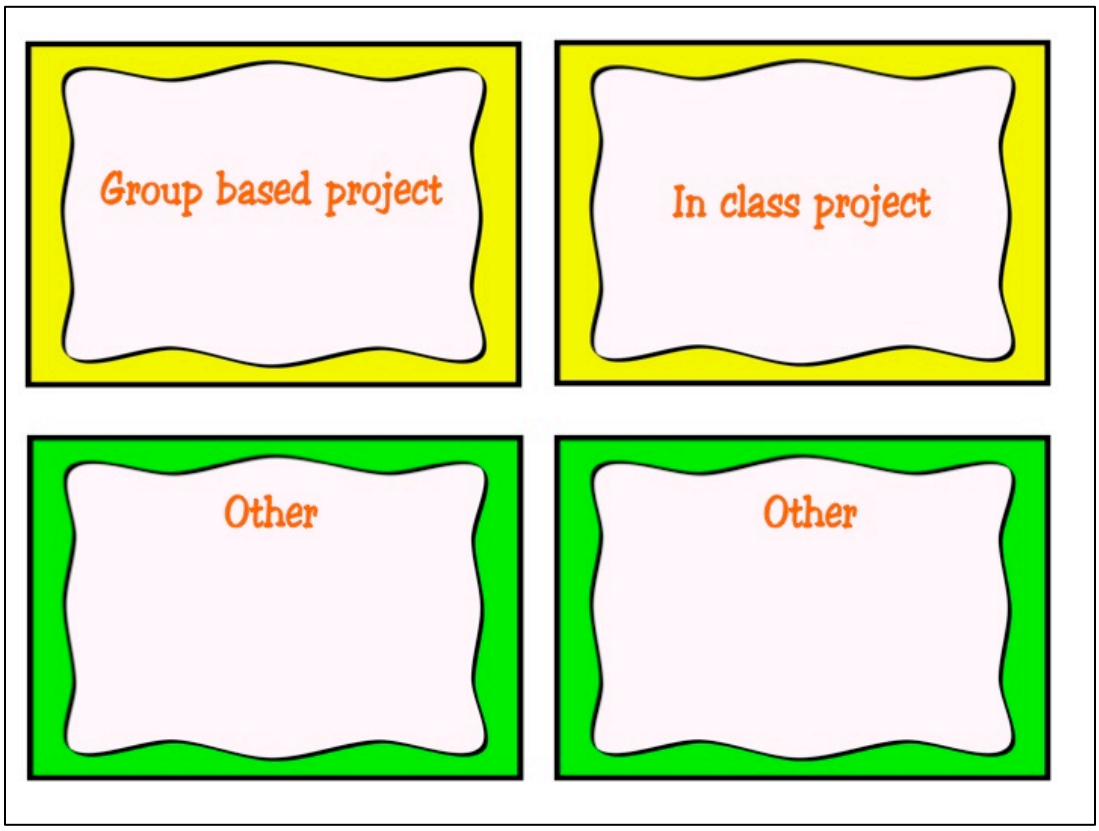
Interview Question 2

- Let's say that I am going to teach you about a topic that you need to learn.
- I give you a choice on how you learn this topic.
- Choose 2-5 cards
- Rank – which one would be the most – least valuable for you.
- Put them in the order that you find the most useful in your learning.
- Are their other ways that I missed and we could add another card?


PowerPoint Lecture
to
The whole class
Stories about topic
from instructor
Discussion
With other students
in the class
test


Lecture from
instructor
Website of
resources on topic
Reading assignment
in textbook
Homework
Assignment


Examples on the topic
Online discussion forum on the topic
Project based Assignment
Research or summary paper


Group based project
In class project
Other
Other

Interview Question 3

- Let's look at these cards again.
- Pick 2-5 cards that you feel are the worst ways to help you learn.
- Rank – which one would be the worst to which one is ambilivent.
- Put them in the order that you find the most useful in your learning.
- Are their other ways that I missed and we could add another card?

Interview Question 4

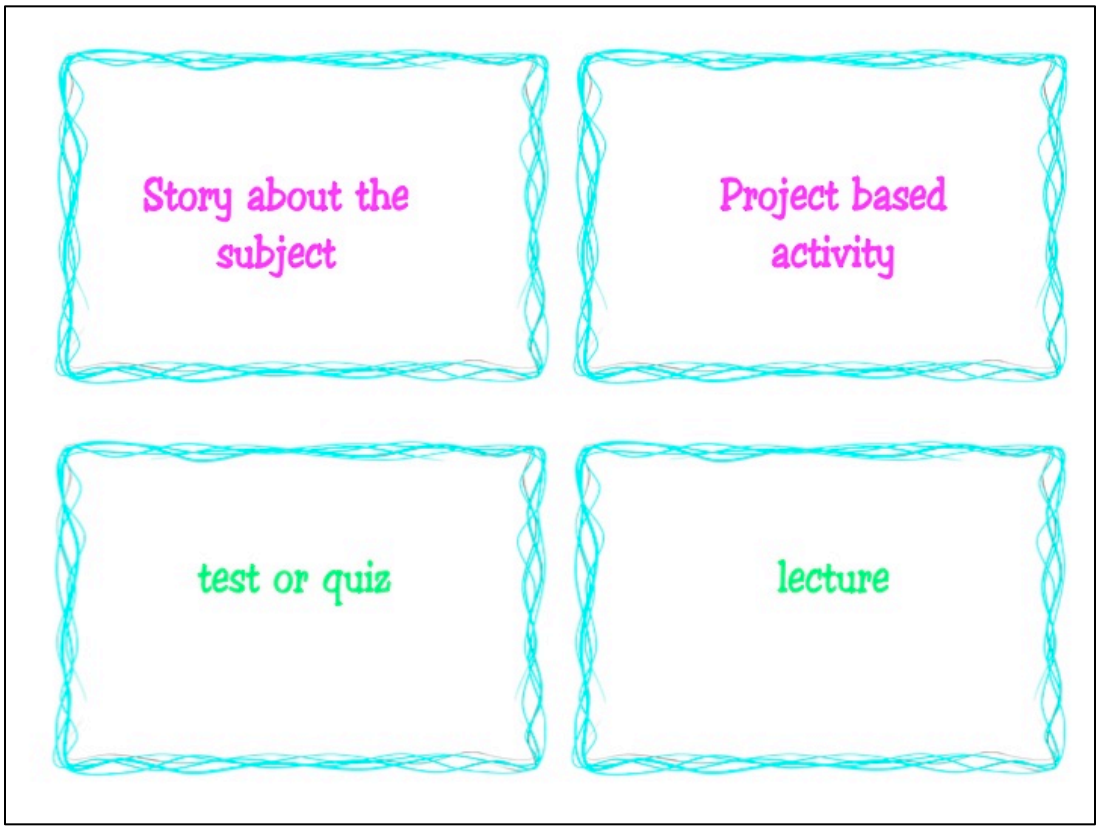
- How important is the Internet/mobile technology for your own learning?
- and for your students learning?

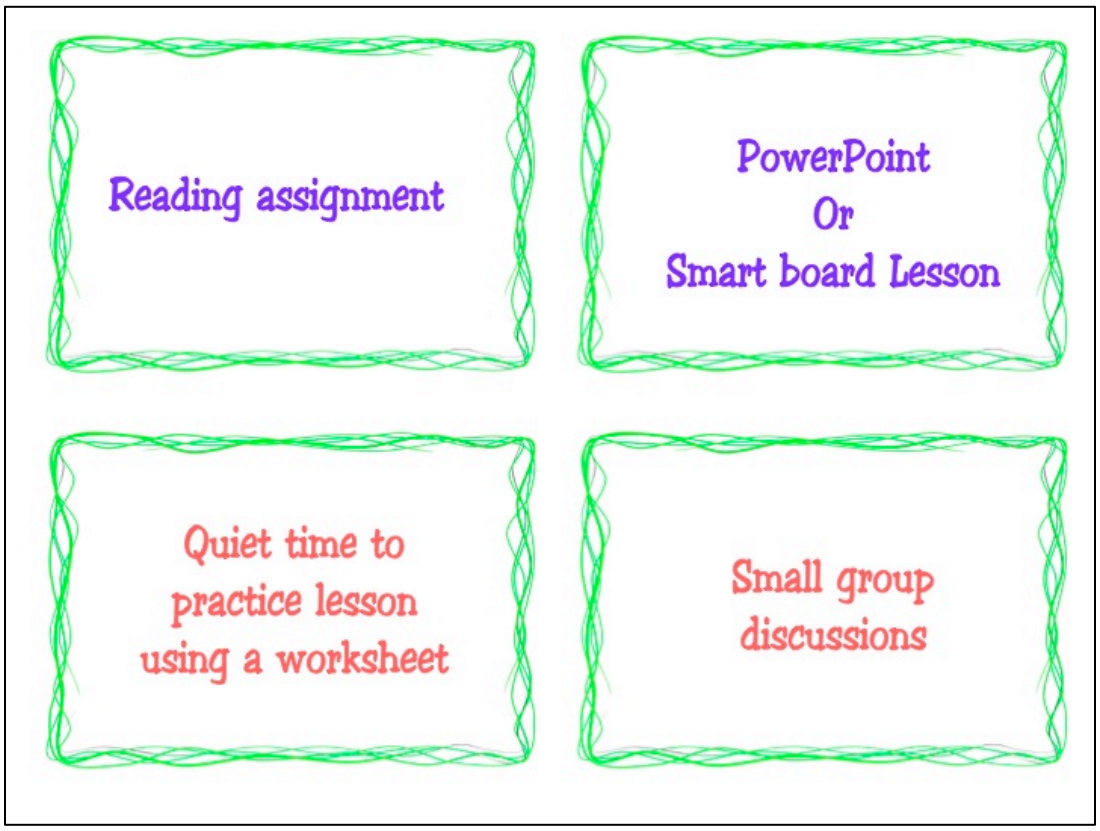
Interview Question 5

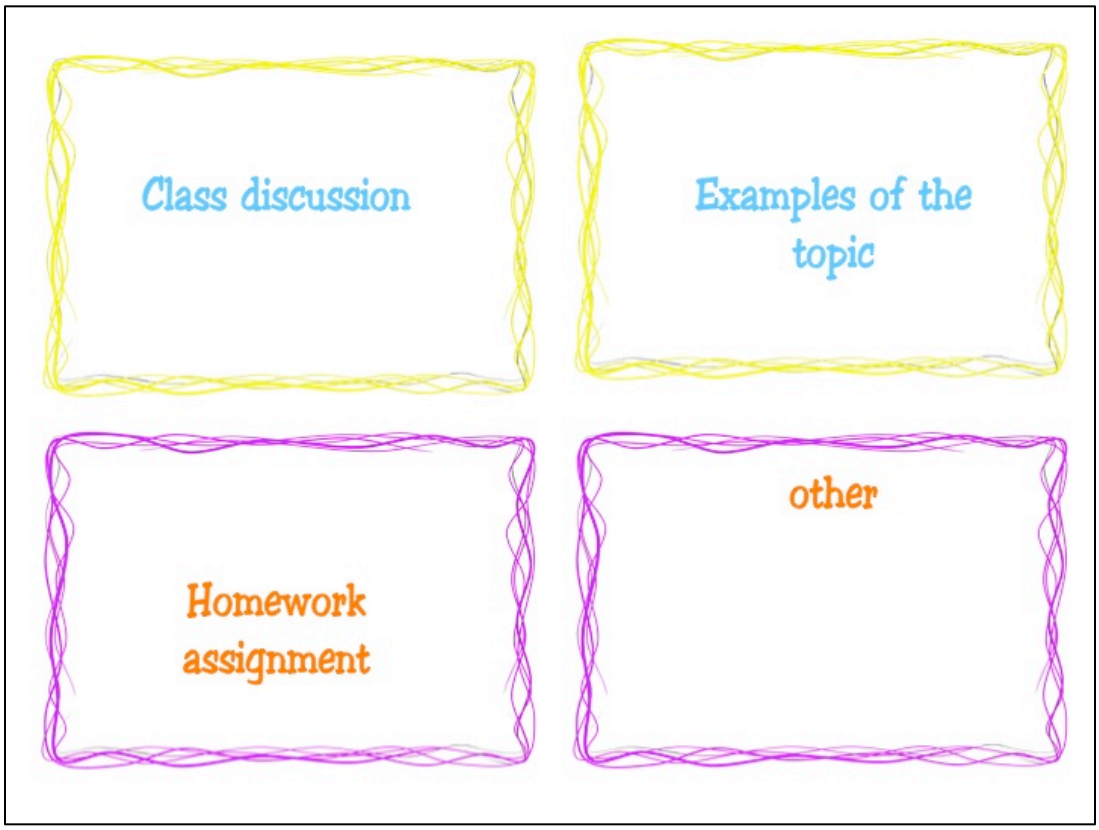
- What do you think hinders your learning the most?
  - Motivation
  - Anxiety or fear about the learning topic
  - Distractions
  - Disinterest
  - Bad instructors
  - Lack of background knowledge (schema) to draw from.
  - Sleep deprivation

Interview Question 6

- When you teach a lesson to students in your future classroom. Which of the following cards would you use to teach a lesson in reading based on the common core standards?
- Talk to me about the cards you chose and the rank you chose. How would you use those strategies.
- What about Math? How would the cards change?
- Is this how you learn?


Story about the subject
Project based activity
test or quiz
lecture


Reading assignment
PowerPoint
Or
Smart board Lesson
Quiet time to practice lesson using a worksheet
Small group discussions



Interview Question 7

- Have you thought about how you learn before?
- Please share any other comments you would like me know regarding your learning or anything we have talked about in the survey, focus group and today in this interview.

APPENDIX E. IRB APPROVAL LETTER

NDSU NORTH DAKOTA STATE UNIVERSITY

Institutional Review Board
Office of the Vice President for Research, Creative Activities and Technology Transfer
NDSU Dept. 4000
1735 NDSU Research Park Drive
Research 1, P.O. Box 6050
Fargo, ND 58108-6050

701.231.8995
Fax 701.231.8098
Federalwide Assurance #FWA00002439

Friday, January 04, 2013

Elizabeth Anne Erichsen
School of Education
216B FLC

Re: IRB Certification of Exempt Human Subjects Research:
Protocol **#HE13115 , "Learning in a 21st Century Society: The Direct Experiecnes of Pre-service Teachers and Learning Theory"**

Co-investigator(s) and research team: **Sheri Okland, Leah Woodke**

Certification Date: 1/4/2013 Expiration Date: 1/3/2015
Study site(s): **varied**
Funding: **n/a**

The above referenced human subjects research project has been certified as exempt (category # 1, 2) in accordance with federal regulations (Code of Federal Regulations, Title 45, Part 46, *Protection of Human Subjects*). This determination is based on the revised protocol (received 1/2/2013).

Please also note the following:

- If you wish to continue the research after the expiration, submit a request for recertification several weeks prior to the expiration.
- Conduct the study as described in the approved protocol. If you wish to make changes, obtain approval from the IRB prior to initiating, unless the changes are necessary to eliminate an immediate hazard to subjects.
- Notify the IRB promptly of any adverse events, complaints, or unanticipated problems involving risks to subjects or others related to this project.
- Report any significant new findings that may affect the risks and benefits to the participants and the IRB.
- Research records may be subject to a random or directed audit at any time to verify compliance with IRB standard operating procedures.

Thank you for your cooperation with NDSU IRB procedures. Best wishes for a successful study.

Sincerely,
Kristy Shirley

Kristy Shirley, CIP, Research Compliance Administrator

APPENDIX F. INFORMED CONSENT

Title of Research Study:
"Learning in a 21st Century Society: The Direct Experiences of Preservice Teachers and Learning Theory"

This study is being conducted by:

Principal Investigator
Advisor – NDSU
Dr. Elizabeth Erichsen
North Dakota State University
210D Family Life Center
701.231.5778
elizabeth.erichsen@ndsu.edu

Co-Investigator
Sheri Okland
4757 Woodhaven St. S
Fargo, ND 58104
701.630.2998
sheri.l.okland@ndsu.edu

Why am I being asked to take part in this research study?
You have been asked to volunteer for this study because you are 20-24 years old and a senior standing student in elementary education at North Dakota State University. Your current status as a student makes you an expert in my area of research and your opinion is valued and respected.

What is the reason for doing the study?
Under the supervision of Dr. Elizabeth Erichsen, Professor of Doctoral Studies at North Dakota State University, Sheri Okland, a doctoral student in Adult learning and Education is conducting research on *Learning in a 21st Century Society: The Direct Experiences of Preservice Teachers and Learning Theory*. The purpose of this study is to investigate your perceptions of your own learning through the educational system (K-16), how the 21st century has impacted they way you learn, and how your own learning will impact the way you teach.

What will I be asked to do?
There are three components to this study. The first component is an online survey that will take approximately 15-30 minutes, the second component is a focus group interview with 5-6 other participants, which will take approximately 2 hours, and the third component is an individual interview with the researcher that will take approximately 30 minutes.
As a participant in this study, the researcher will ask questions regarding how you learn, how you define learning, how the 21st century has impacted your learning, and how your learning impacts your future teaching endeavors.

Explanation of procedures?
The focus group and interview sessions will ask you to discuss your experiences in learning and your personal perceptions regarding learning and how you will use your own learning to educated children. I will audio record your answers in both the focus groups and interviews for the purpose of rereading your thoughts. The recordings will be transcribed into written statements, however your name will not be identifiable. If a statement from you is used in the final research paper, your name will not appear. All data obtained through the focus group and interview sessions will be put into a folder that is password protected with only the researcher(s) having access.

Where is the study going to take place, and how long will it take?
There are three components to this study. The first component is an online survey that will take approximately 15-30 minutes; the second component is a focus group interview with 5-6 other participants, which will take approximately 2 hours. This focus group interview session will be held at the Holiday Inn in Fargo, North Dakota. The third component is an individual interview with the researcher that will take approximately 30 minutes and will be held at Starbucks, Caribou, or NDSU coffee shop *(your choice)*. Skype is an option if time does not allow you to participate in a face-to-face interview session.

What are the risks and discomforts?
It is not possible to identify all potential risks in research procedures, but the researcher(s) have taken reasonable safeguards to minimize any known risks to the participants**.**

What are the benefits to me?
As a participant in this research, your valued opinion will help instructors in higher education improve learning methodology.

What are the benefits to other people?
The benefit to other individuals as a result of your participation is the possibility of further research in student learning preferences.

Do I have to take part in the study?
Your participation in this research is a choice. If you decide to participate in the study, you may at any time change your mind and stop participating.

What are the alternatives to being in this research study?
Instead of being a participant in this research study, you may choose not to participate.

Who will see the information that I give?
The information collected during each of the sessions is only available to the researcher(s). In the final study, your information will be combined with information from other people taking part in the study.

Will I receive any compensation for taking part in this study?
I understand that you time is valuable. I would like to extend a gift of gratitude for participating in this study. The following is an outline of reimbursement for participation:

Online survey: $5.00 gift card to Amazon.com
Focus Group Interview: lunch and teacher gift bag
Individual Interview: Coffee and treat at Starbucks, Caribou, NDSU coffee shop, or Skype *(*Skype -*$5.00 gift card to Amazon.com)*

What if I have questions?
If you have any questions about the study, you can contact the researchers:

Principal Investigator:
Dr. Elizabeth Anne Erichsen
College of Human Development and Education
Elizabeth.erichsen@ndsu.edu

Co- Investigator:
Sheri Okland
School of Education and Graduate Studies
sheri.l.okland@ndsu.edu

What are my rights as a research participant?
You have rights as a participant in research. If you have questions about your rights, or complaints about this research, you may talk to the researcher or contact the NDSU Human Research Protection Program by:

- Telephone: 701.231.8908
- Toll-free at 1.855.800.6717
- Email: ndsu.irb@ndsu.edu
- Mail: NDSU HRPP Office, NDSU Dept. 4000, PO Box 6050, Fargo, ND 58108-6050.

The role of the Human Research Protection Program is to see that your rights are protected in this research; more information about your rights can be found at: www.ndsu.edu/research/irb.

Documentation of Informed Consent:
You are freely making a decision whether to be in this research study. You may print out this informed consent for your own records. If you have questions regarding the study before accepting, please email Sheri Okland at Sheri.L.Okland@ndsu.edu.

Accept or Decline participation:

To accept participation in this study, please state that you accept or sign the form below as acknowledgment that you understand the information in this consent form and wish to participate in the study.

1. You have read and understood this consent form
2. You have had your questions answered, and
3. You have decided to be in the study.

Thank you for taking part in this research. If you wish to receive a copy of the results, please let me know by checking the box below.

☐ Yes, I would like to receive a copy of the research study's results

☐ No, I would not like to receive a copy of the research study's results

Signature:_____

APPENDIX G. FORMULATED MEANING UNITS

Listed According to Research Questions

Research Question: 1

How do 21st century elementary education senior level students in postsecondary education they define learning?

Significant Statement	*Formulated Meaning Unit*
I think when a lot of us think of learning we're in such college mode that we think of quiet and studying but I think learning is not so quiet, I think when kids are really learning they're very engaged and active…noisy.	Learning is noisy and engaging and active.
I've been thinking of it more as like there is information that students are trying to understand or you're trying to get and just depending on how you're able to remember it or get it into your brain can happen through different ways like how we talked about there's different types of learners, that some can remember it or access it better through pictures and for met it's reading and writing things down and thinking about it that way.	Learning is an individual process. Teachers need to vary the ways in which they teach for students to think.
Three words that keep coming up to me are "sharing, exploring and experiencing" sharing can be sharing a question that you have with someone or the instructor sharing a new idea with the class, and then there's the exploring that you do to look further into whatever that was shared before, you have a question now you're exploring that question with the teacher or by yourself and then you take it from exploring or experimenting with it and trying it to experiencing it out in the real world, It might not be the way you originally explored it but then you see how it can take different angles and shapes and different directions out in the real world.	Learning is sharing, exploring, and experiencing with others for a shared experience.
Because you learned about it you've experienced it now you're sharing it, you have confidence knowing that it works and you have confidence knowing how to explain.	Learning is confidence

Research Question: 1

How do 21st century elementary education senior level students in postsecondary education they define learning? *(continued)*

Significant Statement	*Formulated Meaning Unit*
I always did get stuck with the more strict teachers, but I'm actually really thankful for it and how hard they push you and you know, I'm just thankful that I didn't get all the easy teachers and just have to slide through.	Having teachers who are difficult or strict can be a positive because learning is increased.
To me learning is just being able to retain information and also having an open mind and being open to new experiences to keep learning	Learning is allowing for new experiences in order to connect to prior knowledge.
I guess in my head if I had to define learning it would be being able to walk away from something and either knowing maybe a little bit more about it or having a different opinion on it or just even having something new or different about that subject or whatever you are working with than you previously did. Because constantly, you know, like there is the expression "you learn something new every day" whether it's something you already know and you just get a little different twist on it just to change your opinion of it just a little bit, so I think learning is such a broad thing it comes in so many different forms and ways it's hard to specifically define it.	Learning is knowing and having a different perspective on the content learned. Learning is many processes that include experiencing, sharing, and confidence.
Learning is experimental, you have to experience things in order to actually have had learned something, and it can be accidental I agree, sometimes you don't mean to actually learn something but it affects you and it has meaning and then you use it again and you just know that you have learned because you are able to see how it's relational to yourself and to others and a lot of different situations.	Learning is experimental and individuals learn through experiences.
I do learn from the peers and just the stories and things like that really help me, and then a project that I'm doing with other people so I can get that discussion from my peers, but also I can do it and I can do the hands-on and it's not just telling, I can actually, so I know that I'm capable of completing what you have taught me, or what I have seen, that knowledge.	Learning is talking with others in order to see knowledge.

Research Question: 1

How do 21st century elementary education senior level students in postsecondary education they define learning? *(continued)*

Significant Statement	*Formulated Meaning Unit*
Define myself as a learner would be I like to research and find answers to different questions I have and I've always liked science and being able to explore things.	Having an inquisitive nature and the ability to explore is important to learning.
When you finally do learn something you can kind of put that anxiety away and feel confident like you have said in the fact that you have knowledge now.	Learning is confidence
I think you really covered the different types of learners, but it was funny because when we were sitting in the groups somebody would say they learn this way and you would say "I kind of learn that way too" and then somebody would say something totally different and you would be "well, I kind of learn that way too" so it was kind of neat because I figured out real quickly that I don't learn just one way I learn the way everybody else learns, but in a different order.	People learn in different ways, but ultimately everyone has the potential to learn.
Have you thought about how you learn before? Not in depth. *Do you think that's important for teachers?* I think it is because kids learn in all different styles, they have all different ways of processing and I think it's important to notice how they learn and listen so you can help those other learners who have different styles.	Learning about learning has not been an in-depth topic of study. Teachers should know different types of learning styles and how individuals process information to help students.
I think you really covered the different types of learners, but it was funny because when we were sitting in the groups somebody would say they learn this way and you would say "I kind of learn that way too" and then somebody would say something totally different and you would be "well, I kind of learn that way too" so it was kind of neat because I figured out real quickly that I don't learn just one way I learn the way everybody else learns, but in a different order.	Everyone learns the same, only the order of how they learn is different.

Research Question: 1

How do 21st century elementary education senior level students in postsecondary education they define learning? *(continued)*

Significant Statement	*Formulated Meaning Unit*
I sometimes really do need a little time and quiet to think about things.	Learning is solitary
The way I learn, honestly is a combination of a lot of these, but mainly it's the social, being able to build off of ideas from peers and just getting ideas on how to improve my learning from how they learn, but I also was very individual trying to make those initial connections for myself, and then using those global systems as well, seeing you it's applied outside of just my classes, but for a lot of it I really relied on social for knowing that I'm on the right track, but I did use a lot of combination for learning. I like things that get me involved with the content.	All of the quadrants of learning are important. Learning is about connections and becoming involved with the content.
Have you thought about how you learn before? I have a few times when we talk about it in class, because we talk about how to reach all the students and I've thought about how I would probably be a visual learner, but I never really went this in-depth with it. *Do you think it's important for teachers to know how they learn?* Yes, because it's obviously how I would teach it is how I would like learn it. So good to know.	This research provided an opportunity to look at learning in more detail. Knowing how a teacher learns and how a teacher teaches provides knowledge on how to teach other learning styles.
In classes we talk about "are you a kinesthetic learner? Are you a visual learner?" and I've kind of thought about it but I hadn't really thought in depth about it before. Yes, it helps me to know if I have to help someone that doesn't learn like this then I would teach different techniques. It's a lot more than just like "here's this reading assignment" and then "here's this homework assignment" I need a lot more examples and discussion about things and letting you go on your own, so that's the whole group thing, I like doing things on my own but I would rather learn it as a group first and then go off on my own. I don't know, I like work for a purpose not just like busy work because some teachers have done that in my high school and it's so annoying. I know that I'm learning something from it and not just doing it.	Thoughts on in-depth learning process were not explored prior to research. how learning occurs is important for teachers because everyone learns differently and being able to modify instruction is important.

Research Question: 2

What helps 21st century elementary education senior level students in postsecondary education learn?

Significant Statement	*Formulated Meaning Unit*
I do learn from the peers and just the stories and things like that really help me, and then a project that I'm doing with other people so I can get that discussion from my peers, but also I can do it and I can do the hands-on and it's not just telling, I can actually, so I know that I'm capable of completing what you have taught me, or what I have seen, that knowledge.	Learning is working with peers and having stories to connect to schema. Learning is showing knowledge.
It really helps me figure out what other people thing about the subject or topic or whatever and comparing it to what I feel and then after I figure out what they think I go to myself and how I can relate to it	Learning is talking with others prior to creating a personal connection.
I notice in class that when we talk about things and compare to what other people have learned or heard or thought about, I just pick up new ideas and learn more about it that way.	Discussions with others helps form new ideas and thoughts
Personal relationship. Motivation	Personal motivation and connections to others
Examples because you see exactly what's expected and what you would want to learn and stories,	Examples of learning content helps make connections to prior knowledge and stories help build a picture in the mind.
I always try and find someone who knows how to do it who can show me first, because then if I have someone physically showing me how or being an example I can ask the questions that I need instead of having to look it up online try what I found and then figuring out that that method didn't work	I prefer to learn by asking questions of friends before trying to learn on my own and not having the correct method or answer.
I usually have to do something and hear it and then do it and keep repeating those steps. I can't just read about it and figure it out, usually I have to talk about it and discuss it with somebody in depth and then try it, repetition before I can really retain it.	Learning involves a multi-step process, which includes talking about the concept and doing something related to the concept repeatedly.

Research Question: 2

What helps 21st century elementary education senior level students in postsecondary education learn? *(continued)*

Significant Statement	*Formulated Meaning Unit*
I learned what I thought was a lot, especially for a beginning level Spanish class and last summer I realized that I didn't remember hardly any of it so I wanted to pick that up again so I just had my Spanish book out and I was practicing it and I had nobody to use it with like we did in class and that didn't work.	Learning doesn't occur in isolation, learning attainment requires socialization with others.
I usually, the first thing I usually do is find someone that knows about it and what they're talking about and then if I can't find anyone that knows anything about it I usually end up doing research on line, go onto different websites.	Learning requires talking first, if no one is available to discuss learning concept, the internet is used to give a broad picture.
I'm first learning something like if I haven't heard about it or anything like before or anything, I usually try to find little things about it like not try to learn everything about it right away but just like main points about it, like if it's a textbook something like a chapter, I usually just skim it because if I tried to read it I'd probably be sitting there for like 2 hours trying to read a chapter that's like 30 pages long and I'd just be frustrated because I wouldn't even get half the information because I'd just kind of like daze out while I'd be reading it, and then I usually try to actually do something with the information that I've learned like maybe write down some key points like on my computer like maybe just notes and stuff without the book just trying to think back on it and see what I know and then I can look at it again and review it again before I do anything with it. But it's also nice to have a teacher that really knows it or somebody else that really knows it to help you. That really helps a lot, especially in classes.	Learning requires going from parts to a whole. Reading textbooks is a task that can be daunting because of retention of material read. Instructors or experts are helpful in learning.
I sometimes really do need a little time and quiet to think about things.	Learning is solitary
I think there needs to be a balance between that quiet and noisy time you know?	Learning is both a solitary time and a time to make connections with others.

Research Question: 2

What helps 21st century elementary education senior level students in postsecondary education learn? *(continued)*

Significant Statement	*Formulated Meaning Unit*
I can go to YouTube and see "how did they work through that" that's kind of what got me through Math in high school, she would give us a website and they would have a teacher maybe explaining things differently or you could watch YouTube or things like that.	Learning is visual step-by-step process.
Website as resources, I guess it help initially if you look at them, but a lot of times I don't, unless I feel a reason to look at them I feel like it's just there and it's not something I feel I need to go learn from unless I have a specific reason to.	Technology's use in learning is for when it is needed.
Honestly, I think it's kind of sad how dependent people have become on their phones, but I do think it enhances how I can grasp something, if I don't know something right in a second, I can just look it up real quick on a phone or with technology, so I think that it does play a big effect on how everybody learns, not just myself but just because it's easy access and it's always there.	Technology enhances learning because it is instant knowledge. Technology affects how learning occurs and results in self-directed learning opportunities.
I always have my iPad right there and so I always look stuff up, like if something's bothering me, if we're watching a movie or something and I'm like "what's that person's name?" I'll look it up, it's so nice to have that, or if I'm having a conversation with a friend and they're "what was that thing that happened a couple years ago?"	Technology enhances learning because it is instant knowledge.
A lot of repetition, whether I have to read things over and over again or just trying things over and over a lot of it is repetition for me.	Learning requires repetition in order to cognitively understand the concepts being taught.
I'm kind of like that too but I like to write down things, like read and take notes because it is another way for me to remember and somehow keep it in my brain, and re-reading.	Learning requires writing, taking notes, and re-reading a few times. Repetition is necessary to learn.
If I can talk to someone and have them take me through, like for coaching, if I see one coach doing something I want to go to them and ask them "how did you get this person to do this" or "how are you doing that" and then have them show me so that I can carry it on and be directly involved.	Learning is a social engagement with the material and others.

Research Question: 2

What helps 21st century elementary education senior level students in postsecondary education learn? *(continued)*

Significant Statement	*Formulated Meaning Unit*
When I want to learn something I get kind of obsessive I guess and I really research the one thing that I want to focus on and I'll look on the internet I'll get books I'll find movies or videos or whatever, and so I get really focused. I guess for me I do like to ask other people then I get the positives and the negatives of it and I'll get all aspects of it plus the personal experience and different ways it's helped them or depending on what it is like motivated them or whatnot.	Learning is focused engagement with many different ways to understand the information.
I like discussing things with others I feel like it helps me learn more about whatever I'm learning when I talk about it and then stories about the topic from instructors, I really like it when instructors tell us stories because then I feel like I hold on to the information better, I can retain it more and always come back to that example that they gave, and then a classroom based project, I do like working on projects and I'd rather have that over tests and quizzes, more hands on.	Examples, stories, and discussion help in the retention of information for learning.
I think the "we" it really helps me figure out what other people thing about the subject or topic or whatever and comparing it to what I feel and then after I figure out what they think I go to myself and how I can relate to it, I think that's what I would say.	Social learning helps in processing information on the topic prior to learning on my own.
I do learn from the peers and just the stories and things like that really help me, and then a project that I'm doing with other people so I can get that discussion from my peers, but also I can do it and I can do the hands-on and it's not just telling, I can actually, so I know that I'm capable of completing what you have taught me, or what I have seen, that knowledge.	Learning is doing, not telling. It is showing your knowledge.
Examples really help me and it helps people relate to them and like it's shown, if you can relate to it, you can memorize it or whatever, and that's when you tell them the stories, and then you talk about it, but how do you get away from what you know and works well with you.	Examples and stories on the topic being learned is important for relating to understanding of concept being taught.

Research Question: 2

What helps 21st century elementary education senior level students in postsecondary education learn? *(continued)*

Significant Statement	*Formulated Meaning Unit*
I really enjoy seeing how other people work and so it really helps me to connect with the other people, so I can go to YouTube and see "how did they work through that" that's kind of what got me through Math in high school, she would give us a website and they would have a teacher maybe explaining things differently or you could watch YouTube or things like that, and just, I know I text classmates a bunch like "so, how did you interpret this question, what does it mean to you?" And I understand it better and so I think it's huge.	Social learning is important in connecting with other people, asking questions and understanding concepts more effectively.
I notice in class that when we talk about things and compare to what other people have learned or heard or thought about, I just pick up new ideas and learn more about it that way.	Learning from others leads to new ideas and new learning.
When we do talk and stull like when I talk to other people then I get a big picture generally, so then I'll go look for things, or I'll talk about things, I ask myself	Discussions help create a big picture which is important for learning about the smaller parts of the content.
I think sometimes with learning too it helps with less stress because it's not all on me, I can depend on other people to help me learn information rather than just myself trying to figure it out or me misinterpreting something that maybe the instructor would say, I can be like "oh, that's not what I heard" and then my peers can say "well, this is actually what it means" so like I'm learning it, then I hear more stories about how to connect it, discuss it with the classroom, with my peers and then we do something actually applying what we're learning about.	There is a fear of misinterpretation of information and social learning assists in gaining multiple perspectives.
I feel like kids are starting to move over to the technological side of learning now and it's really important for kids, it's easier for kids to connect with instructors now than it was for me when I was in high school.	The younger generation uses technology for learning and technology makes it easier for creating connections with others.

Research Question: 2

What helps 21st century elementary education senior level students in postsecondary education learn? *(continued)*

Significant Statement	*Formulated Meaning Unit*
Website as resources, I guess it help initially if you look at them, but a lot of times I don't, unless I feel a reason to look at them I feel like it's just there and it's not something I feel I need to go learn from unless I have a specific reason to go. Tests, I learn the stuff, but I learn it usually for the test and then I probably forget it as soon as I turn it in, a lot of times, and then, reading assignment is kind of the same thing, just cuz sometimes reading isn't the best way for me to learn just because I'm slow at it and so I get frustrated and put it off and then I take forever to do it. I mean I can learn from it but it's kind of the same things as a test, I forget it.	Technology Technology in learning should be purposeful.
Website as resources, I guess it help initially if you look at them, but a lot of times I don't, unless I feel a reason to look at them I feel like it's just there and it's not something I feel I need to go learn from unless I have a specific reason to go. Tests, I learn the stuff, but I learn it usually for the test and then I probably forget it as soon as I turn it in, a lot of times, and then, reading assignment is kind of the same thing, just cuz sometimes reading isn't the best way for me to learn just because I'm slow at it and so I get frustrated and put it off and then I take forever to do it. I mean I can learn from it but it's kind of the same things as a test, I forget it once I'm done or else.	Technology Technology in learning should be purposeful.
I just looked it up on my phone quick. And compared to having to go to the library, find a book to read through who knows how many pages to find the answer, it's so much more accessible when you can make your learning more mobile, you don't have to be at a library or a classroom you can be at home or wherever and you have to know how to successfully determine if a source is good or not.	Technology's provides an accessibility for anywhere/anytime learning is important to learning and easier than going to a library where the learning will take longer.
I feel like kids are starting to move over to the technological side of learning now and it's really important for kids, it's easier for kids to connect with instructors now than it was for me when I was in high school.	The younger generation uses technology for learning and technology makes it easier for creating connections with others.

Research Question: 2

What helps 21st century elementary education senior level students in postsecondary education learn? *(continued)*

Significant Statement	*Formulated Meaning Unit*
I picked individual because I like to work on my own because I'm very hands-in and if I don't make it mean something to me, it doesn't happen, so a lot of times it's going to sound crazy, but I'll make rhymes in my head for meanings for something in order to remember it so then it's like I can repeat that rhyme in my head whether it's acronyms or whatever, it has more meaning for me, I guess I learn more usually.	Using tools for individual learning such as mnemonic devices assist in learning for meaning.
I like having a lot of examples, I like being able to do whatever it is and kind of play with it and figure out what works for me, so this is also how I like to learn, most teachers, how you like to learn is how you teach your students, cuz it works for you and you know how you like it and you know the little things that help you the most so you try them out on the students and if it doesn't work then you adjust it, but if it does…great.	How a teacher teaches is based on how he/she learns. Modification for students who don't learn using the same style is important.
I Google everything, I am the Google queen, it's nice to have access to something if you're wondering about something, even like in class and a teacher says a word I don't really know what that word means instead of raising my hand and asking what that word means you can figure it out on your own.	Technology allows individuals to learn on their own.
Honestly, I think it's kind of sad how dependent people have become on their phones, but I do think it enhances how I can grasp something, if I don't know something right in a second, I can just look it up real quick on a phone or with technology, so I think that it does play a big effect on how everybody learns, because it's easy access and it's always there.	The availability of technology assists and enhances how information is understood. The ease of immediacy is important in learning.
I would say the Internet is important but it depends on what access, like I said before, you know, knitting, I taught myself from YouTube videos, I can see somebody do it, I can do it along, I can pause it, but just reading it, sometimes I have a hard time reading and then I'm thinking about other things and then I have to go back and re-read.	Technology allows for self-directed learning opportunities. The ability to control the amount of information being learned is important.

Research Question: 2

What helps 21st century elementary education senior level students in postsecondary education learn? *(continued)*

Significant Statement	*Formulated Meaning Unit*
A lot of breakdowns. Definitely had a lot of break downs (laughter) and a lot of calling my mom, but it was also going to my peers and asking how they learned it and a lot of ways didn't work for me so I had to figure it out on my own	Social networking in the learning environment is important, but ultimately the way one learns resides within them.
I need that personal, I have a horrible fear of disappointing people, still to this day, my biggest fear in the world is disappointing my father, if I ever disappoint my dad it's the end of the world, same with my teachers, I am terrified of being called out "you're doing poorly and I'm very disappointed in you" I just don't feel like any sort of online, I mean I love computers and I love instant learning, but for me personally it won't be the most effective way for me, I can't do it online, not learning, I can learn well, but just the classes, I need that personal relationship.	Personal relationships are the most important. The fear of disappointing others contributes to how one learns.
I notice that I use YouTube a lot more to find videos, like how-to videos, because I want to learn, like I want to learn how to sew, I want to learn how to knit, I'm kind of looking, I haven't really started, but I've been kind of looking there and	Technology has changed where learning takes place. Location is not important.
I text classmates a bunch like "so, how did you interpret this question, what does it mean to you?" And I understand it better and so I think it's huge.	Learning is talking and having the instant availability to others for questions.
I need to have that instructor give me the information first and then work with my peers when I need that extra help and be able to apply it on my own to feel comfortable that I have that math content down.	Learning involves many areas in order to fully grasp the concepts being taught and making them personally relevant to the learner.

Research Question 3:
How do 21st century elementary education senior level students in postsecondary education know when learning has occurred for them?

Significant Statement	*Formulated Meaning Unit*
Just remembering that learning doesn't stop, you don't know as much as you think you know about one certain thing, there's always more to learn about it and so it's more of just a process rather than you know something or don't. I also think a lot more about experiences and connections when learning, cuz I think I learn better if I can make connections with it.	Learning never stops, it is a process that grows and builds upon other knowledge through connections.
Excitement, you know when you feel like you've learned something you just instantly have a smile on your face and you're so excited and excited to share it with others.	Learning builds confidence to share thoughts and ideas with others.
I also think it makes you more optimistic about what you can learn and going further and learning more about it.	Learning builds confidence in individuals to further their learning.
I'd say when it's almost like that light bulb turns on in your head.	Learning is an awakening of the mind.
I was just going to say the "aha" Yeah, the "aha" moment	Learning is an awakening of the mind.
I think it's a feeling, confidence, like I can use that for the rest of my life.	Learning builds confidence.
There's just such a sense of accomplishment especially if it is something that you have been struggling with.	Learning build confidence.
Connect it somehow to yourself, to apply it somehow that it makes me excited about it if I'm just like hearing something or can even memorize it that doesn't really excite me, if it's not something that I can see, like applicable to my life somehow, so excitement and confidence, and "I'm going to use this somehow" just excited that you know about something that you can share with someone.	The ability to apply something that has been learned creates confidence much more than memorizing facts.

Research Question 3:
How do 21st century elementary education senior level students in postsecondary education know when learning has occurred for them? *(continued)*

Significant Statement	*Formulated Meaning Unit*
You know you have learned something and you actually could say "I'm going to tell you about this" or carry on a conversation, when you don't really know anything it's kind of "I'm not quite sure" when you have a conversation I feel you can really relate that you've learned something.	Learning is knowing that you can communicate what you learned through conversations with others.
When you can actually do it, read it, write it, make it, talk about it, when you take a test and you see the question and it's like "I know this one" and you can go on and on about it and you can write about it, just the confidence when you retain something and you know.	Learning is the ability to use multiple methods in explanations and discussions on the topic.
Have the experiences to know something of whatever it is, if it's a skill, if it's a fact or if it's how to do something, if you can relay that to others, or if you can repeat it later on, if you somehow remember it in a way where you can tell somebody or you can do it or you can just remember it, that's how I think of learning is, it's not just in and out, it somehow stays with you.	Learning is the ability to use multiple methods in explanations and discussions on the topic.
Learning you can learn something and then you can just know it for a really short period of time and then just completely forget it, like a lot of things that I've learned, I learn it for something and then I just forget it, but it seems like there's also a lot of learning that takes place where you can repeat it or it gets repeated by somebody else you know so you can actually have conversations about it may be like in classes and then you feel like you've learned it and it's just like in your head and you can't forget about it or if anybody asks you about it you can actually talk about it.	There are two types of learning, one type of learning is short term memory learning and the second type of learning is where information is put into the long term memory.
the way I always look at it is if I can teach someone else to do that skill or teach them about whatever it is that I've learned then if I can do that effectively that's how I judge if I've learned.	Learning involves relationships with others to talk about what has been learned.

Research Question 3:
How do 21st century elementary education senior level students in postsecondary education know when learning has occurred for them? *(continued)*

Significant Statement	*Formulated Meaning Unit*
Brain dump I learn something and a week later it's out the window, after I test for it I don't need it anymore, and unfortunately that does affect me now because it's like "oh man I really wish I could remember that information that we learned in this content area" and it's just gone	Understanding that learning something is important and learning it well enough to be put into long-term memory is something that will be a focus in teaching career.
When I was in 2nd grade I was reading at a 7th grade level and so my teacher, my favorite teacher, she had me teach half of my grade how to read, and so that, I think ever since that point I was like "oh, I'm kind of good at this"	The teacher gave opportunities to show knowledge to others was important in identifying ability.
I ended up getting a A because I figured out how the teacher teaches, how I had to take notes, how I had to study to do well in the class, and I learned more about my own learning style through that	Adjusting learning styles is important because you never know how an instructor teaches until you are in a course.
The project because that can be more hands-on, reading from the textbook or listening to a PowerPoint, I'm going to forget it, but if it's something that I've worked with then I'm more likely to remember it, because I have something to take from it. Examples because you see exactly what's expected and what you would want to learn and stories, I think the things that I remember most from class are the stories that you guys tell us. Usually I go home and tell my husband. I'd prefer to do in class rather than out of class because then I can ask for help and get a little more guidance	Making connections in learning assists in memory retention. Examples and stories provide a context for learning. In class projects assist learning because of the instantaneous feedback and direction of having the instructor right there.

Research Question 3:
How do 21st century elementary education senior level students in postsecondary education know when learning has occurred for them? *(continued)*

Significant Statement	*Formulated Meaning Unit*
I'd probably say the social. It's just nice for me to be able to bounce things off other people and, like if you don't understand something from the book when you're talking they can tell you different terms so I'd go with that, the second one would probably be individual because I like writing things.	Learning through a social process helps in understanding concepts. Writing helps in learning.
I guess, I like the physical, I like the step by step, I think that's really important, because if it's not step by step I find myself getting lost easily, but I also like the individual, I like working individually, I learn better when I'm just by myself compared to with others, I feel like I end up not exactly doing as much work as I should be doing, or study as well.	Learning through a process of steps provides a framework for learning. Learning by oneself gives the impression that more learning is occurring.
I need to have that instructor give me the information first and then work with my peers when I need that extra help and be able to apply it on my own to feel comfortable that I have that math content down.	Learning involves many areas in order to fully grasp the concepts being taught and making them personally relevant to the learner.
I've learned something because I can communicate it to other people and talk about	Learning is knowing that you can communicate what you learned through conversations with others.

Research Question: 4

What experiences influence 21st century elementary education senior level students in postsecondary education learning? *Both positive and/or negative recorded

Significant Statement	*Formulated Meaning Unit*
I had a speech and for some reason, everything she had told us to do to prepare, one night I just did, everything, and I went into the Speech and people were laughing when I wanted them to laugh and it just went really well and I got an A+ on the speech and she even put a nice note on the bottom which she had never done before saying something really nice about the speech and I think that's the point when I realized that a lot of instructors when tell you something they come off as being strict or this or that, but they're not doing it to give you work so that you can fail, they want you to do better.	Connections and small things make learning easier.
I don't really learn from tests, plus you don't get feedback right away so I'm not sure if I got it right or not.	Tests are ineffective for learning
I feel like I'm highly motivated but I have such an anxiety about learning new things and being successful in them or confident in learning them or doing them that it just holds me back from really digging in, because I'm so motivated to learn it but the anxiety and fear of failure holds me back,	Motivated and confident individuals who have anxiety about learning new topics struggle with learning because of the fear of failure.
I guess the most influential right now is my Education Psychology class because before I've always learned and not really applied it to like "oh, this is going to be my job I'm going to be doing this" and really applying it to my life, and so in my Educational Psychology class he's been very encouraging and he always is like motivating us and just giving, I don't know, words that help me to not worry about like "oh there's so many new doors opening all at once"	Connections are important to motivating learners.
Probably the number one thing would be disinterest, if it's something that I don't really connect with, and then probably stress, stress living in college with roommates and everything, especially when a roommate doesn't have as much homework as I do and so they always want to do things and stay up late. Probably a combination of the two.	Disinterest in learning is caused by a lack of connecting with material.

Research Question: 4

What experiences influence 21st century elementary education senior level students in postsecondary education learning? *Both positive and/or negative recorded *(continued)*

Significant Statement	*Formulated Meaning Unit*
I've always learned and not really applied it to like "oh, this is going to be my job I'm going to be doing this" and really applying it to my life, and so in my Educational Psychology class he's been very encouraging and he always is like motivating us and just giving.	Not really understanding what the final expectation of a teacher is, but having a motivating teacher who encourages and give examples is important. Teacher connections are important in realizing that learning is vital.
I think back to this time in 6th grade, I had this teacher and she was known to be hard and strict and not very personable and I was struggling with this writing assignment so bad and ended up just bawling and so when the other students left to go to the next class she kept me behind and she talked with me and gave me licorice and just, the licorice I remember, and you know it just made me see the true side of her in that she really did care and so after that I was more comfortable going to her and asking for help and I think she understood me better as well, so that really sticks with me.	Connections are vital in teaching and learning. Getting to know a teacher personally can make a lot of difference in learning.
Technology is vital because we've learned to rely on it being able to look up answers and help whenever I need it. If I'm studying for a test or working on a project or something and I forget something my first step is Google it and then if I can't find a Google I go to the textbook, I've learned to rely on it, and it gives you so many different ways of looking at it where a textbook is one point of view.	Technology provides an opportunity to learn anywhere and at anytime an answer is needed. Technology provides a variety of opportunities to learn content material.
Sometimes you'll hear like teachers say that something's like very difficult to do and I feel like it discourages sometimes you're feeling of "I can do it" it makes you second think how you would do it if you hear that it's very difficult to teach this way or teaching.	What a teacher says has an impact on ability.

Research Question: 4

What experiences influence 21st century elementary education senior level students in postsecondary education learning? *Both positive and/or negative recorded *(continued)*

Significant Statement	*Formulated Meaning Unit*
I do have a high anxiety or fear about not necessarily learning the topic but being successful at learning the topic or learning it incorrectly. I am highly motivated in class but then when I go home I cannot take online classes, I am not motivated to do online classes, and I think a lot of it is you don't know the instructor and so you don't have that connection where like my in-class instructors you don't want to disappoint them so you're more motivated to do better, but then again, if they're a bad instructor or if you don't see eye to eye with the instructor you're not as motivated to do well in that class. So I don't know, a lot of them are kind of intertwined.	Anxiety and fear in learning is not always about the topic to be learned, but from learning the topic incorrectly. Not having a connection with a teacher can result in a lack of motivation. Having a connection with a teacher can create anxiety because of the fear of disappointment.
I would say motivation and disinterest. I find it hard to get motivated to do something and usually I am a really good procrastinator so I put it off for until the last minute and that's usually when the motivation kicks in because I know I have to get it done. And then disinterest because there's a lot of stuff that I really find boring or really repetitive, like with our HDFS classes, the Child Development I found really repetitive so I didn't pay much attention.	Motivation and disinterest in learning causes procrastination, which in turn creates motivation. Disinterest hinders learning, especially when the learning topic is repetitive.
Lack of communication, explaining it one way and I'm not getting it and they explain it the same way, sometimes I need it just a little bit different of a way told to me or taught to me, um, I think of teaching only one way, I think of college classes when I'm one of 500 people in the class and they're just giving me a lecture, I don't learn that way whatsoever, so I think of that as being a bad instructor, teaching one way the whole semester or year.	Communication can impede learning, if only one method of explanation is available.
I feel like disinterest. *How come?* Because when I'm not very interested about a topic I don't really put my all in it, I kind of just do it to do it, and when I'm interested I know because I want to work hard at it and make it the best, so that's probably what I would say.	Disinterest in learning topics creates a lack of motivation to learn, whereas when there is interest in the topic an individual puts forth effort.

Research Question: 4

What experiences influence 21st century elementary education senior level students in postsecondary education learning? *Both positive and/or negative recorded *(continued)*

Significant Statement	*Formulated Meaning Unit*
I think I get, when I'm studying something, and as a teacher this is something that's really bad for me because I have a lot of questions, but I'm not always I can't ask an instructor questions, I like to do it in private because I don't like to let people know what I don't know, if they're also students, as an instructor I'm also paranoid about that so I want to find my own way around it and wrap my head around it rather than asking for help, or even if they're looking for ideas in a group project, I sometimes hang back because I don't want to be the one giving a bad idea, and some of that comes with, I don't want to say something again that's going to come off sounding wrong because it is, with my age, because there's some times either in the military or in school where people see it as age and he must know, but I don't, I'm trying to learn just as much as you and I've got a lot of ideas, I thought, "well it must be like this" and I fought against learning something and then by the time I realize "no, I really should be looking at it like this" I'm far behind, so it's my own way of doing things that back me up but I can't get out of that, but I know I need to get better at working with others and letting others know what I think, and I think it's been very rare that I've said something that has been totally out in left field and has made me feel silly either in front of the instructor or other students.	Self-esteem and fear of rejection in learning can create situations where learning doesn't occur.
I think it would be disinterest with some anxiety or fear about learning about it because in my geology class, I was nervous about it because it's been forever since I took a class like that and so I was nervous and then I'm not really interested in it, that's not what I want to do, you know it was on Monday Wednesday and Friday from 1 to 1:50 and I would have rather been in my 40 hour practicum, that's what I wanted to do, I didn't want to sit there, so I was bored and not interested in the topic.	Disinterest, fear, and anxiety hinder learning. Disinterest in learning takes away from the ability to do authentic learning.

Research Question: 4

What experiences influence 21st century elementary education senior level students in postsecondary education learning? *Both positive and/or negative recorded *(continued)*

Significant Statement	*Formulated Meaning Unit*
Anxiety. I think a lot of times I have avoided things that were going to be difficult, like, if it's going to be tough I'm going to try and find someone else who can help me with this, just staying away from it and, but also, this time, going back to school, you know, I know all the things that I need to get done, and in the past if I didn't get it done, now if I don't get it, we're on a plan, and I've got my family, I've got my out coming family my wife who just said "go do what you want to do" I told her this is what I want to do and I do, but there's a just a lot, there's a lot of pressure on it, if I could change just from the lack of, how do I put this? Too much background knowledge that I thought was relevant, so I came in thinking, I know I came into class thinking, I'd hear something and "no, it's not really like that" so I shut off and then all of a sudden it's like "oh, I need to learn about that" even if I disagree with it, the more that I learn about it the more I can make a stronger argument to say "I think more this way" or I can get my head out of my butt and say "yeah, this is a better way" so, just being too stubborn on some things and not being open-minded enough, that's probably the other one.	Prior experiences can create conflict in learning situations. Anxiety can cause individuals to avoid learning situations.
Have you thought about how you learn before? Not really. *Do you think it's important to know?* I think it is because clearly how I'm going to teach is how I learn, so it's underlying there. *How is it going to form how you teach?* I want to make sure that I'm not just teaching to the students who are like me, I want to make sure that I am, cuz there are people who do like to do project based activities, so I'm going to have to make sure that I do have those in my classroom even though I don't like them.	Teachers will teach the way they learn. Knowing about individual learning styles is important to understanding how to teach.
Yeah, if I don't want to learn about something it's hard for me to get interested in it I guess, bad instructors maybe a little bit, good instructors make you want to learn more I feel like.	Interest in learning can help or impede the learning process.

Research Question: 4

What experiences influence 21st century elementary education senior level students in postsecondary education learning? *Both positive and/or negative recorded *(continued)*

Significant Statement	*Formulated Meaning Unit*
I definitely think relationships form is of growing importance, I look back at my teachers that formed that relationship with me and I remember things that they did, I remember topics they went over and stuff and then I think of teachers that didn't and I don't remember that kind of stuff.	Relationships affect learning.
I would probably say anxiety or fear of learning a topic, if you don't feel comfortable or if you don't know a lot, I guess it goes back to lack of background knowledge too, but if you don't know a lot about the topic before you're kind of, you don't really know what to expect, so I would say those two.	Fear and anxiety regarding the learning topic can have an affect on learning.
What I have learned from all my different teachers that I have had throughout the years and everything is I remember the awful teachers the most and I remember the specific things that I did not like about their teaching style and if I struggled and what I struggled with and those are the things I try to avoid. It's a lot easier for me to remember a bad teacher and remember points that I struggle with, so I will try and avoid those and how it made me feel.	Negative teachers affected me more than positive teachers. Teaching is about NOT doing what negative teachers do.
I would probably say anxiety or fear of learning a topic, if you don't feel comfortable or if you don't know a lot, I guess it goes back to lack of background knowledge too, but if you don't know a lot about the topic before you're kind of, you don't really know what to expect, so I would say those two.	Fear and anxiety regarding the learning topic can have an affect on learning.

Research Question: 5

How do 21st century elementary education senior level students in postsecondary education think their personal ways of learning are going to impact how they teach?

Significant Statement	*Formulated Meaning Unit*
I think back to this time in 6th grade, I had this teacher and she was known to be hard and strict and not very personable and I was struggling with this writing assignment so bad and ended up just bawling and so when the other students left to go to the next class she kept me behind and she talked with me and gave me licorice and just, the licorice I remember, and you know it just made me see the true side of her in that she really did care and so after that I was more comfortable going to her and asking for help and I think she understood me better as well, so that really sticks with me.	Based on prior experiences, teachers who show kindness even when they have harsh personalities can make a difference in learning ability.
I guess since I learn hands-on, that's probably the way that I'm going to be teaching the most, I will try to teach other ways, but that's probably what's going to come.	Teaching ability is based on a teacher's own personal preferences in learning and other methods will be explored, but not in-depth.
I think it is because kids learn in all different styles, they have all different ways of processing and I think it's important to notice how they learn and listen so you can help those other learners who have different styles.	Learning is a process and as a teacher knowing how student learn is important to creating an effective learning environment.
When we just did this I didn't realize that I was setting it up the way that I wanted to learn it, so I guess it's kind of true, I think it's important also you should know your students too because all your students might not learn like that, so I can maybe do that once in a while but I probably would have to change it so that I make sure that they're knowing it or teach a skill this way one day and then do it this way the next day or something like that.	Teaching ability is based on a teacher's own personal preferences in learning and other methods will be explored, but not in-depth.
I need to adapt to the needs of not just my students but for parents and families and for them.	Teaching is not just about the students, it involves parents and family members.

Research Question: 5

How do 21st century elementary education senior level students in postsecondary education think their personal ways of learning are going to impact how they teach? *(continued)*

Significant Statement	*Formulated Meaning Unit*
How you like to learn is how you teach your students, because it works for you and you know how you like it and you know the little things that help you the most so you try them out on the students and if it doesn't work then you adjust it, but if it does…great.	Teaching ability is based on a teacher's own personal preferences in learning and other methods will be explored, but not in-depth.
I think it's important because knowing how you learn can help you realize that people learn differently and if you know how you learn you can help the students learn through activities or homework.	Learning is a process and as a teacher knowing how student learn is important to creating an effective learning environment.
Because then you can better accommodate student's needs and stuff if you know all the different ways out there that they could learn.	Knowing about learning is important for identifying all the different ways to create lessons.
Even looking at this I'm like "that is how I learn" it's how I would set up my lesson and just thinking about that, even though I think that would be a good way to teach, I might need to change the order of things, so being able to reflect that the way you teach is kind of showing how you learn and it's good to know and think about.	Teaching ability is based on own personal preferences in learning. Other methods will be explored, but not in-depth. Learning how you teach is good to know.
Yes, it helps me to know if I have to help someone that doesn't learn like this then I would teach different techniques.	Teaching ability is based on a teacher's own personal preferences in learning and other methods will be explored.
I think you should have a starting point in how you learned or how someone can learn. I think it's important, because I, if there's a student that's like me and learn like me, then I'll be like "cool, I can kind of maybe set this up so you will understand" because it worked for me maybe it will work for you, if not we can move things around, so having a starting point and then trying to move things around.	Knowing how a teacher learns is a starting point, but other methods need to be explored.

Research Question: 5

How do 21st century elementary education senior level students in postsecondary education think their personal ways of learning are going to impact how they teach? *(continued)*

Significant Statement	*Formulated Meaning Unit*
I think it is because clearly how I'm going to teach is how I learn, so it's underlying there… I want to make sure that I'm not just teaching to the students who are like me, I want to make sure that I am, because there are people who do like to do project based activities, so I'm going to have to make sure that I do have those in my classroom even though I don't like them.	Teaching ability is based on a teacher's own personal preferences in learning and other methods will be explored
If the teacher can understand how they learn I think it's a lot easier for them to figure out different ways to help students to learn in different areas. If they don't know how they learn maybe it's just, they might just pull random things out and not help anyone, like it wouldn't even help the teacher.	Knowing how a teacher learns is important to providing a classroom environment.
I want things that students can touch and feel and manipulate themselves, I think they'll get a lot more from that versus me standing and moving things or just "this will go here" whatever, letting them do it themselves.	Teaching ability is based on a teacher's own personal preferences in learning and other methods will be explored. Learning is individual process of experiencing.
Asking the students how they learn I think is important, once they're in 2nd, 3rd, 4th grade, they can identify themselves like, "I really learn what you're teaching me when we're doing a hands-on activity" or "I really learn what you're teaching us when you verbalize it or when you show pictures" or something like that just getting the feedback from the students because I realize that not everybody learns the way that I learn so identifying how each of my students learn then I can plan lessons that are geared toward their learning styles.	Planning lessons for varied learning styles is important.
Something I think I will really focus on as a teacher is making sure that students take their education beyond just learning and testing for it and then being done with it.	Learning is more than taking a test.

Research Question: 5

How do 21st century elementary education senior level students in postsecondary education think their personal ways of learning are going to impact how they teach? *(continued)*

Significant Statement	*Formulated Meaning Unit*
Most elementary teachers don't teach like a college professor does anyway, but I learned that's definitely not the way to teach, I can't just put the math book or slides of the math book up on the PowerPoint slide and say "ok, kids, this is what you need to know" and go through it and expect them to know it, I know that they have to work with it and practice and depending on what type of learner they are they might have to hear me explain it several times, they might have to rework it in their own brain or actually have physical blocks or whatever to work with the information, so I will provide all of those experiences to my students.	Providing varied experiences in teaching can help reach all students.
The one thing that I'm most scared about is like you talked about addressing all the learning styles and there's so many, but when you plan your lesson, you're not thinking about that, you're planning what you're doing, everything that you have to and then it's like after you have everything whatever, then you start thinking about it, so it's not really geared toward those other people, you're just kind of making accommodations for them and it's not directly a lesson for them.	Planning lessons for students is based on the concept being taught and not on the students.
You need to understand how you learn so you can teach students, you know, these are the options how they can help you, this is what I've done, this is what other people have done, these are our suggestions, this is what I've been told, but you need to understand learning if you want to teach kids how to learn. It's pretty easy to understand either your learning so you can explain that and make it more personal so students can relate to you more, have that connection with you, they're more willing to learn.	Teachers need to understanding learning in order to teach others how to learn. Learning is a personal process where students need to make connections with the teacher in order to learn.
I will want to do things the way I was taught. But then also realize that I've been learning other ways to teach that might not work, that combination or order might not work, so play around with it	Teaching how an individual is taught through school, but understanding that it may not work is important.

Research Question: 5

How do 21st century elementary education senior level students in postsecondary education think their personal ways of learning are going to impact how they teach? *(continued)*

Significant Statement	*Formulated Meaning Unit*
What I have learned from all my different teachers that I have had throughout the years and everything is I remember the awful teachers the most and I remember the specific things that I did not like about their teaching style and if I struggled and what I struggled with and those are the things I try to avoid. It's a lot easier for me to remember a bad teacher and remember points that I struggle with, so I will try and avoid those and how it made me feel.	Negative teachers affected me more than positive teachers. Teaching is about NOT doing what negative teachers do.
But not all elementary kids know that so it's more our job to figure out how they learn and go from there instead of making them figure out how they learn, they probably don't know all the skills and all the different strategies that we do, so we have to be able to change what we're doing instead of making them change what they're doing.	A teachers job is to learn about learning styles and change based on student needs instead of students adjusting to the teacher's style of learning.
Do you think it's important for teachers to understand and learn how they learn and know how they learn before they begin to teach? I think you should have a starting point in how you learned or how someone can learn. I think it's important, because I, if there's a student that's like me and learn like me, then I'll be like "cool, I can kind of maybe set this up so you will understand" because it worked for me maybe it will work for you, if not we can move things around, so having a starting point and then trying to move things around.	Understanding personal learning styles and other types of learning is important to being able to identify and modify learning for students.
The frustrating part is when you teach a lesson, at some point it's not going to be every student's favorite way to learn, and you can incorporate into a unit or even a lesson, different ways, but it's not always going to fit every person every time and you do have to move on and it's not going to relate, so I don't know if that's teaching me anything but it's frustrating, learn to handle it after a time.	With the curriculum, you don't have the opportunity to meet each learner before having to move on to the next subject, because of this it can be frustrating, but adaptable.

Research Question: 5

How do 21st century elementary education senior level students in postsecondary education think their personal ways of learning are going to impact how they teach? *(continued)*

Significant Statement	*Formulated Meaning Unit*
Had you thought about how you learn before? I have a few times when we talk about it in class, because we talk about how to reach all the students and I've thought about how I would probably be a visual learner, but I never really went this in-depth with it. *Do you think it's important for teachers to know how they learn?* Yes, because it's obviously how I would teach it is how I would like learn it. So good to know. *What does that tell you about what you need to know when you start teaching, does it inform your practice at all?* I need to come up with other ways that just I don't use one way, other ways that students might learn with lectures, whereas I don't, I'm going to use a lot of different ways and not just my ways.	This research provided an opportunity to look at learning in more detail. Knowing how a teacher learns and how a teacher teaches provides knowledge on how to teach other learning styles.
When we just did this I didn't realize that I was setting it up the way that I wanted to learn it, so I guess it's kind of true, I think it's important also you should know your students too because all your students might not learn like that, so I can maybe do that once in a while but I probably would have to change it so that I make sure that they're knowing it or teach a skill this way one day and then do it this way the next day or something like that. *Does it help in identifying how you would do that?* Yeah, well, I would think it would help me because now I see that I explain it the way that I would learn it.	Teaching the way we learn is important to know, but connecting with students is important in understanding their learning style.
I've been thinking about it more. I guess I knew how I study, I know that I read the book and then outline and organize it, and I knew that I was more of a visual learner, but that's about the farthest I went into that. *Do you think that's important for teachers?* Yeah, I think it's important because knowing how you learn can help you realize that people learn differently and if you know how you learn you can help the students learn through activities or homework.	Understanding how one learns is important if you want to help others learn.

Research Question: 5

How do 21st century elementary education senior level students in postsecondary education think their personal ways of learning are going to impact how they teach? *(continued)*

Significant Statement	*Formulated Meaning Unit*
If the teacher can understand how they learn I think it's a lot easier for them to figure out different ways to help students to learn in different areas. If they don't know how they learn maybe it's just, they might just pull random things out and not help anyone, like it wouldn't even help the teacher, like if they just started out with a PowerPoint, then went to homework and then did a discussion, I don't know, I feel like they would learn more from the discussion and then they wouldn't, they might not learn at all, but there are students that maybe they could just off the PowerPoint they could just do the homework right away but I still think it's more important to get all the class on the same page.I guess I kind of, like the way I learn is I kind of procrastinate a lot and I kind of, if there's something else going on or even if there's not I kind of find a way to distract myself away from doing my homework unless it's something that I actually think is fun, if it's like homework like reading out of a textbook I usually don't do it until the night before, but if it's something like putting a lesson together or something or it's a lesson that I think I can use and think it's important, I usually spend more time going through, I could do this, I could do this, and I usually take time to think about which one I would best use and then I'll create that one.	A teacher should be informed about how learning occurs, especially for themselves, so that they are making informed decision regarding the content area for learning.
But you haven't thought about your own learning? No, not really. *Do you think this will be helpful to you going forward?* Yes, I do. Because if I understand how I learn best than I can look at the kids that learn like I do, that are auditory, and I can help them better but I can also help the visual and kinesthetic learners because I know the kinds of things that work for them and I can try those with them and see if it works better.	Teachers should understand learning and how students learn to be effective educators.

APPENDIX H. THEMES FROM MEANING UNITS WITH EVIDENCE

Category: Elementary Education Preservice teachers' own learning

Themes derived from Meaning Units

Meaning Units Identified	Evidence in Participants' Statements	Literature Connection
Theme 1: The Power of Learning through Self-Efficacy Beliefs		
Learning provides a feeling of confidence.	Because you learned about it you have experienced it, now you are sharing it, you have confidence knowing that it works and you have confidence knowing how to explain it. A feeling, confidence, like I can use that for the rest of my life.	Bandura (1994, 1997) and Self-efficacy beliefs
Learning provides the ability to communicate	I am going to tell you about this" or carry on a conversation. You know you have learned something and you actually could say "I'm going to tell you about this" or carry on a conversation. A lot of learning that takes place where you can repeat it or it gets repeated by somebody else…can actually have conversations about it.	
Learning is transformative	Sometimes you do not mean to actually learn something but it affects you and it has meaning and then you use it again and you just know that you have learned because you are able to see how it's relational to yourself. When people are talking and all of a sudden you are like 'oh, yeah, ok' and you can communicate and carry on a conversation then you know that you have learned it and internalized it. When people are talking and all of a sudden you are like 'oh, yeah, ok' and you can communicate and carry on a conversation then you know that you have learned it and internalized it Sometimes you do not mean to actually learn something but it affects you and it has meaning and then you use it again and you just know that you have learned because you are able to see how it's relational to yourself	

Themes derived from Meaning Units

Evidence in Participants' Statements	Evidence in Participants' Statements	Literature Connection
Theme 1: The Power of Learning through Self-Efficacy Beliefs (continued)		
Learning provides a feeling of elation	You know when you feel like you've learned something, you just instantly have a smile on your face and you are so excited and you are excited to share it with others. I have such an anxiety about learning new things and being successful in them or confident in learning them or doing them that it just holds me back from really digging in. Wow, I nailed it. It is a refreshing, aha moment. I never really went this in-depth with learning before.	Bandura (1994, 1997) and Self-efficacy beliefs

Themes derived from Meaning Units

Meaning Units Identified	Evidence in Participants' Statements	Literature Connection
Theme 2: Learning begins with a Social Connection		
Learning provides a feeling of confidence.	Because you learned about it you have experienced it, now you are sharing it, you have confidence knowing that it works and you have confidence knowing how to explain it. A feeling, confidence, like I can use that for the rest of my life.	Bandura (1994, 1997) and Self-efficacy beliefs
Learning provides the ability to communicate	I am going to tell you about this" or carry on a conversation. You know you have learned something and you actually could say "I'm going to tell you about this" or carry on a conversation. A lot of learning that takes place where you can repeat it or it gets repeated by somebody else…can actually have conversations about it.	
Learning provides a feeling of elation	You know when you feel like you've learned something, you just instantly have a smile on your face and you are so excited and you are excited to share it with others. It really helps me figure out what other people thing about the subject or topic or whatever and comparing it to what I feel.	
Learning is transformative	I had not thought much about how I learn before this study. When people are talking and all of a sudden you are like 'oh, yeah, ok' and you can communicate and carry on a conversation then you know that you have learned it and internalized it. I never really went this in-depth with learning before. Sometimes you do not mean to actually learn something but it affects you and it has meaning and then you use it again and you just know that you have learned because you are able to see how it's relational to yourself.	Bandura (1994, 1997) and Self-efficacy beliefs

Themes derived from Meaning Units

Meaning Units Identified	Evidence in Participants' Statements	Literature Connection
Theme 2: Learning Begins with a Social Connection *(continued)*		
Learning is transformative	When people are talking and all of a sudden you are like 'oh, yeah, ok' and you can communicate and carry on a conversation then you know that you have learned it and internalized it. When people are talking and all of a sudden you are like 'oh, yeah, ok' and you can communicate and carry on a conversation then you know that you have learned it and internalized it. Sometimes you do not mean to actually learn something but it affects you and it has meaning and then you use it again and you just know that you have learned because you are able to see how it's relational to yourself.	Bandura (1994, 1997) and Self-efficacy beliefs
Processes involved in learning	I guess this like a learning pattern for me, and then tell me stories so that I can make more connections to what you are teaching. Let me discuss it with other students in class, and together we could do a classroom-based project.	Learning Cards
Tell stories on the topic they are learning	If you can relate to it, you can memorize it or whatever, and that's when you tell them the stories, and then you talk about it.	Bruner (1977) Cross (2005) Marton & Saljo (1984) Piaget Cross (1999, 2005)
Group Projects help learning attainment	I guess this like a learning pattern for me, and then tell me stories so that I can make more connections to what you are teaching. Let me discuss it with other students in class, and together we could do a classroom-based project. In-class projects, I think it connects, like a hands-on activity would connect what we are learning about in the project to help us base our learning foundation	Cross (1999, 2005)
Topic examples assist learning content	Examples on the topic can help relate it more to life. Well it must be like this and I fought against learning something and then by the time I realize no, I really should be looking at it like this, and I am far behind.	Bruner (1977) Cross (2005) Marton & Saljo (1984) Piaget

Themes derived from Meaning Units

Meaning Units Identified	Evidence in Participants' Statements	Literature Connection
Theme 2: Learning begins with a Social Connection *(continued)*		
Topic examples assist learning content *(continued)*	Well it must be like this and I fought against learning something and then by the time I realize no, I really should be looking at it like this, and I am far behind. It can be some of them and it can be a combination, it just depends…a lot of times it can be the lack of background knowledge, if you're not given enough to build up on and it's just thrown at you, it can be a problem to learning because you're expected to have prior knowledge and then really you didn't have any...so being able to move forward is hard.	Bruner (1977) Cross (2005) Marton & Saljo (1984) Piaget (1969) Cross (1999, 2005)
Peer assist in learning Work together to solve problems Shared meanings What others think about concept	I think learning helps with peers because there is less stress and it is not all on me…I can be like, oh that's not what I heard and my peers can say, "well, this is actually what it means." Then, I'm learning it. The first thing I usually do is find someone that knows about it. I can depend on other people to help me learn information rather than just myself trying to figure it out or me misinterpreting.	Cross (1999, 2005)
Technology provides an element of immediacy in learning	If I do not know something right in a second, I can just look it up real quick on a phone or with technology, so I think technology has a big effect on how everybody learns. It is usually words that I do not understand the meaning of that I look up, so that I kind of get a basic idea of what we are talking about. Technology is vital. We have learned to rely on it through being able to look up answers and help whenever we need it. If I am studying for a test or working on a project and I forget something, my first step is Google it. Then, if I cannot find the answer on Google, I go to the textbook.	21st century Technology Harasim (2012)

Themes derived from Meaning Units

Meaning Units Identified	Evidence in Participants' Statements	Literature Connection
Theme 3: Learning is an Individual Connection to Self		
Learning is a personal connection with content	Hey Sheri! See the great books that I got at a garage sale today. I need time to think and process things. I just bought eleven awesome books at Boys Ranch for $3.75. Woohoo! Make it more personal.	Dewey (2007)
Learning is Engagement	Project based assignments, something you do at home where you can be creative with it and interpret it in your own way without the outside influences. Make your own idea of what it is without somebody telling you what they think.	Papert (1928-) Crotty (2003)

Themes derived from Meaning Units

Meaning Units Identified	Evidence in Participants' Statements	Literature Connection
Theme 4: Affective Domain Influences Cognitive Functions		
Self-direction and personal commitment are vital to learning and making Associations to assist in learning	Connect it somehow to yourself, to apply it somehow that it makes me excited about learning… if it's not something that I can see, like applicable to my life it is done. I'm going to use this somehow. I compare my learning to what I feel, then I go to myself and think how I can relate to it. I need those connections.	Noddings (2005) Caring Relationships
Need a connection to instructors and content	I definitely think forming relationships is of growing importance. I look back at my teachers that formed a relationship with me and I remember things that they did, I remember topics they went over. Then I think of teachers that didn't and I do not remember that kind of stuff. My school experiences have obviously affected my experiences in learning, because I wouldn't know how to teach if it weren't for my teachers to help me learn. I need that personal relationship. I remember when I was a senior I was in AP Physics. The only reason I took AP was the teacher was my favorite teacher in the whole school. He made everything so simple that I thought it was way better because I had the other teacher for Chemistry the year before and I did not do very well in his class because if you had a question, he would say "it's in the book" and I'd just go "I couldn't find it, can you give me a little more direction than that?" I didn't like that as much, but being able to apply it; like we had the Physics Olympics I thought that was really cool, but I thought that was really fun and at the time I think I learned a lot.	Noddings (2005) Caring Relationships

Themes derived from Meaning Units

Meaning Units Identified	Evidence in Participants' Statements	Literature Connection
Theme 4: Affective Domain Influences Cognitive Functions *(continued)*		
Emotional drive influences learning attainment. Relationships can cause frustration or assist in learning	In middle school, there was a professor…he taught upper level math class, which I was not an upper level student (laughter)…I didn't know what was going on…I was so nervous just to go in there, but my relationship with my professor was great, just having that, I guess that bond, that relationship with him made it a little easier, but then at the same time it's kind of hard because you do not want to disappoint him because you have that relationship. We did time math tests in 6th grade. I can't remember how many problems it was but it was within three minutes and you had to get the whole thing done. If you did not finish, you had to write out the times tables that night for homework. I couldn't do it in three minutes; I just could not get them done. So she was just like "you're just going to have to keep writing them out until you get it" and she said, "I would have to do more and more, so that was when my math anxiety started.	Humanism Driscoll (2000)

Themes derived from Meaning Units

Meaning Units Identified	Evidence in Participants' Statements	Literature Connection
Theme 5: Learning is having the Big Picture		
Lack of experience with societal factors	Learning is experimental, you have to experience things in order to actually have had learned something.	Piaget – construction of personal meaning through experiences
Difficulty in learning and connecting it to oneself	I've been frustrated with how I learn and my sister and I were talking about it last night, we just can't remember things, (*History for example*), or I struggle learning, remembering things that I need to use again, and it's been a struggle for classes. Having that prior knowledge, experience and reapplying it would be useful.	Driscoll (2000), Freire (2005)
Need authentic learning situations	I guess the most influential right now is my Education Psychology class because before I've always learned and not really applied. Now, as a teacher it is like "oh, this is going to be my job I'm going to be doing this" and now I am really applying it to my life. Three words that keep coming to me are sharing, exploring and experiencing… experiencing it out in the real world. It might not be the way you originally explored it, but then you see how it can take different angles and shapes and different directions out in the real world. I really struggle with Daily 5 and visualizing it. I haven't really seen it in the classroom yet, and so I have gone and watched some videos on it to just kind of get a better grasp on how it takes place. I have the book on Daily 5 and it is great, but just reading about it does not quite put exactly in perspective how it is going to work, so I watched some videos on it that have helped make connections and make it more understandable.	Field practicums and experiences Case Studies Darling-Hammond (2002) Bransford & Derry (2005)

APPENDIX I. THEMES DERIVED FROM MEANING UNITS

Category: Elementary education preservice teachers' teaching

Themes derived from Meaning Units

Meaning Units Identified	Evidence in Participants' Statements	Literature Connection
Theme 1: Preservice Teachers Idealize Future Teaching Ability		
Need to have their own style	I am excited to have my own classroom and make my own rules and just have my own ways.	Darling-Hammond (1993, 1997, 2000, 2001. 2002, 2005, 2006, 2008, 2010, 2012) Bransford (2000)
Students will identify that the teacher has importance for their learning	I'm most excited about seeing kids get excited about learning something, even if I'm just reading something to them. They are staring at you because they are so into the lesson. It may not seem that important, but for some reason they want to know about it and I'm teaching it.	
Teaching is about them.	I do what makes sense to me, if I'm not going to be able to understand it, like, I'm going to teach it the way that I would understand it.	
Super teacher	I am most excited just to actually have my own classroom and do things the way that I want to, not have to think, "oh, this could maybe work better" but it's not my classroom and as a preservice teacher I do not want to step on any toes and so just to be able to do things my way and be able to learn from and modify things to fit the needs of my students. I know in my 80 hour practicum I was in a 2nd grade class and she always wanted it really quiet and I remember thinking all the time that if I were a 2nd grade classroom teacher my class would not be quiet, I remember thinking "my classroom would drive her nuts" because it would not be quiet, the kids would work in groups or pairs and they would talk about things.	Darling-Hammond (1993, 1997, 2000, 2001. 2002, 2005, 2006, 2008, 2010, 2012) Bransford (2000)

Themes derived from Meaning Units

Meaning Units Identified	Evidence in Participants' Statements	Literature Connection
Theme 2: Emotions Guide Preservice Teachers Thinking about Teaching		
Making connections with students is important.	I am going to get to know them so that they feel that they are important to me . My own experiences will impact me when I begin to teach, because I know how important that student-teacher relationship is. My desire is for my students to know they can come to me with anything. I also know that if I can demonstrate passion towards what I teach, my students will show the same passion. I think the thing I'm most excited about is getting to share things that I enjoy with my students, especially books, like introducing them to books that I liked when I was younger and that maybe they'll like, I'm really excited about doing that.	
Experiences influence learning and teaching	My school experiences have obviously affected my experiences in learning, because I wouldn't know how to teach if it weren't for my teachers to help me learn	Noddings 2005 Freire 2002, 2005 Deker and Rimmkaufman, 2008
Negative experiences affect thoughts on how to teach.	I remember the awful teachers the most and I remember the specific things that I did not like about their teaching… so I will try and avoid those and how it made me feel	
Negative teachers have more of an affect than positive teachers	I remember the awful teachers the most and I remember the specific things that I did not like about their teaching style and if I struggled and what I struggled with and those are the things I try to avoid. It's a lot easier for me to remember a bad teacher and remember points that I struggle with, so I will try and avoid those and how it made me feel.	
Teachers who show kindness even when they have harsh personalities can make a difference in learning ability.	I think back to this time in 6th grade, I had this teacher and she was known to be hard and strict and not very personable and I was struggling with this writing assignment so bad and ended up just bawling and so when the other students left to go to the next class she kept me behind and she talked with me and gave me licorice and just, the licorice and you know it just made me see the true side of her in that she really did care and so after that I was more comfortable going to her and asking for help and I think she understood me better as well.	

Themes derived from Meaning Units

Meaning Units Identified	Evidence in Participants' Statements	Literature Connection
Theme 3: Natural Learning Method is also Teaching Method		
Different methodologies are difficult	I've seen with the teachers that I've had a chance to observe, how they change, they'll do that, but then they'll be really interactive with the kids and they'll have all the kids getting up and doing different things, and it's a little overwhelming to think about that. The one thing that I'm most scared about is addressing all the learning styles, and there's so many. But when you plan your lesson, you're not thinking about that, you're planning what you're doing, everything that you have to, and then it's like after you have everything, whatever. Then you start thinking about it, so it's not really geared toward those other people, you're just kind of making accommodations for them and it's not directly a lesson for them.	Noddings 2005 Freire 2002, 2005 Deker and Rimmkaufman, 2008
Teaching is based on personal preferences for learning	I learn hands-on, that's probably the way that I'm going to be teaching the most, I will try to teach other ways, but that's probably what's going to come Most teachers, how you like to learn is how you teach your students, because it works for you and you know how you like it and you know the little things that help you the most so you try them out on the students and if it doesn't work then you adjust it, but if it does…great. The one thing that I'm most scared about is addressing all the learning styles, and there's so many. But when you plan your lesson, you're not thinking about that, you're planning what you're doing, everything that you have to, and then it's like after you have everything, whatever. Then you start thinking about it, so it's not really geared toward those other people, you're just kind of making accommodations for them and it's not directly a lesson for them.	
Teaching is about students, parents and family. Teaching is about making connections	I'm gonna think about the kids and their parents and their families all the time, it's one thing to think it, it makes you human.	

Themes derived from Meaning Units

Meaning Units Identified	Evidence in Participants' Statements	Literature Connection
Theme 3: Natural Learning Method is also Teaching Method (continued)		
Teaching ability is based on a teacher's own personal preferences in learning and other methods will be explored	That is how I learn" …it's how I would set up my lesson … even though I think that would be a good way to teach, I might need to change the order of things. How you like to learn is how you teach your students, because it works for you… and if it doesn't work then you adjust Obviously how I would teach it is how I would like learning it. If you don't know how you learn, how, you have to be able to relate to them, you have to be able to say well, if I don't learn like that maybe they won't learn like that or vice versa. How you like to learn is how you teach your students, because it works for you and you know how you like it and you know the little things that help you the most so you try them out on the students and if it doesn't work then you adjust.	Noddings 2005 Freire 2002, 2005 Deker and Rimmkaufman, 2008

Themes derived from Meaning Units

Meaning Units Identified	Evidence in Participants' Statements	Literature Connection
Theme 4: Experiences Influence Preservice Teachers Teaching		
Preservice Elementary Education teachers want to emulate those teachers who had a positive impact on them as students	I think the negative experiences are definitely more powerful to me. They are going to help me to be a different kind of teacher than some of the teachers I had. I want my kids to have a different kind of experience than the negatives that I had I want to be more strongly influenced by my 4th grade teacher, I'll always want to be like her because the whole experience was positive, so I'm hoping that's what motivates me.	Freire 2002, 2005
Preservice elementary education teachers desire to fix the bad experiences they encountered as students	I think I'll be able to connect with them more and hopefully be there for them through those experiences of their own. I also had some undesirable learning experiences that I will make sure to not repeat when I begin my teaching profession. For example, I had an elementary teacher who seemed rude and unkind. I feel like the majority of her lessons didn't involve doing much beyond the textbooks. I will make sure to NOT recreate my unfavorable learning experiences in my own classroom.	Freire 2002, 2005

Themes derived from Meaning Units

Meaning Units Identified	Evidence in Participants' Statements	Literature Connection
Theme 5: Technology is a Double Standard for Preservice Teachers		
Technology's attribute in teaching is related to free time and "extra practice" Technology is not seen as a vital component to teaching.	I do not know, as far as using the Internet in the classroom, I guess it just depends, like I think it is good for them, but I think it is good to use other things too, so we are not always focusing on technology. It is good for games during recess, can use it to authors of books, can do lunch count on the Smartboard. I think it's still important for us to teach our kids where the glossary is and how to use an appendix, I was in a 6th grade classroom for one of my practicums and the kids asked the teacher how to spell a word she would say "please go get a dictionary and look it up" and some kids might not even know how to use a dictionary, so I think it's important for us to teach kids how to use those.	21st Century Skills Harasim (2012)
Technology is seen as a disadvantage in teaching	I also think that the disadvantage would be we do not remember as much because it's at our fingertips and we can look it up, we need it for that moment and forget it, so that's kind of the disadvantage. I have heard of teachers having microphones in the classrooms and kind of putting their lessons on-line so students, for the parents to listen in to see is my student adjusting, how are they acting in class, not how are they learning, it's how are they acting, and so we have to teach the kids independence and so how far do you go with technology? Because the parents are just, they will come in and do they relate? I do not know, it is something to think about. I think that communication is just making sure you're face to face. I also think that the disadvantage would be we do not remember as much because it's at our fingertips and we can look it up, we need it for that moment and forget it, so that's kind of the disadvantage. PowerPoint and the Smartboard where you can show the steps and how to do everything.	21st Century Skills Harasim (2012)

Themes derived from Meaning Units

Meaning Units Identified	Evidence in Participants' Statements	Literature Connection
Theme 6: Preservice Teachers Lack in Understanding Systems of Practice		
Prior experiences, teachers who show kindness even when they have harsh personalities can make a difference in learning ability.	Practicums, they remind you why you're in this major and just that inspiration to want to teach and getting to practice it with your peers is one thing, but getting to practice with the actual students is definitely a difference, so practicums are really important and very meaningful. I think back to this time in 6th grade, I had this teacher and she was known to be hard and strict and not very personable and I was struggling with this writing assignment so bad and ended up just bawling and so when the other students left to go to the next class she kept me behind and she talked with me and gave me licorice and just, the licorice I remember, and you know it just made me see the true side of her in that she really did care and so after that I was more comfortable going to her and asking for help and I think she understood me better as well, so that really sticks with me. I really struggle with Daily 5 and visualizing it. I haven't really seen it in the classroom yet, and so I have gone and watched some videos on it to just kind of get a better grasp on how it takes place. I have the book on Daily 5 and it is great, but just reading about it does not quite put exactly in perspective how it is going to work, so I watched some videos on it that have helped make connections and make it more understandable. I'm most nervous about learning, getting familiar with all the material because until I do that I feel like I'm reading off a cue card when I'm teaching rather than interacting with the students and seeing what their reactions are, trying to figure out who's struggling. Once I get that confidence, then I can go off script, but right now I just want to follow what I have written. Just kind of making accommodations for them and it's not directly a lesson for them and so I think that's something that makes me nervous is knowing how I step back. Now I see that I explain it the way that I would learn it.	Case Studies Darling-Hammond, 2002 Field Experiences Field Practicums Lortie, 2002 Cultural transmission of teaching practice

Themes derived from Meaning Units

Meaning Units Identified	Evidence in Participants' Statements	Literature Connection
Theme 6: Preservice Teachers lack in Understanding Systems of Practice (*Continued*)		
Teaching ability is based on a teacher's own personal preferences in learning and is dependent upon the teacher's comfort level	Well for me, these are options that I hadn't considered before and I think that's the important thing is to consider different options, but I'm comfortable with this, I'm comfortable with this, and this, but I know I really enjoyed this and bringing students in actually makes me a little bit, I love talking to students one-on-one, but talking to the whole group and bringing them in for answers and asking them for answers, that still intimidates me, I mean, kids say the darndest things and you don't know what they're going to say, you don't know what direction it's going to go, you want to keep it on track, who's going to talk to me when I do this, what 's gonna happen, but you have to take that risk.	Case Studies Darling-Hammond, 2002 Field Experiences Field Practicums Lortie, 2002 *Cultural transmission of teaching practice*