The Application of Adult Learning and Development Theory in the Undergraduate Classroom

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The Application of Adult Learning and Development Theory in the Undergraduate Classroom

A Dissertation Presented

by

Jennifer Martin Flewelling

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The Application of Adult Learning and Development Theory in the Undergraduate Classroom

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Ph.D. Educational Studies
Educational Leadership Specialization

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Abstract

Instructors in higher education may have a limited knowledge of ways adults learn and develop. That lack of theoretical understanding may have inhibited the pedagogical practice of faculty in the undergraduate classroom. The purpose of this study was to explore how university instructors described their understanding of adult learning and development in undergraduate settings, and to identify factors that influenced the design and implementation of instructional practice as reported by undergraduate faculty. The study employed an explanatory sequential mixed methods research design. An online survey collected quantitative and qualitative data from 95 university instructors in Northeastern Massachusetts. Follow-up interviews were conducted with ten survey participants to garner additional qualitative data. Consistent with analysis procedures for phenomenological research, significant statements were extracted from surveys and interview transcripts and sorted into concept codes that were categorized and analyzed for emergent themes, resulting in six findings. These findings suggested that the majority of university instructors had minimal training in and understanding of adult learning and development theory. Instructors, however, did not identify understanding of adult learning and development theory as a requisite of effective practice. Rather, instructors were confident in their abilities to support students in learning course content and applying that content in real-world contexts. University faculty demonstrated an interest in employing instructional practices that supported students in understanding new content and concepts. Further, instructors identified experiential learning, coupled with real-world problems, as ways adults learn and develop in the undergraduate setting. Such methods were employed by faculty if they perceived themselves as effective in the implementation of those practices. Professional dialogue, critical reflection on teaching experiences, and student feedback were identified as factors that contributed to the design and implementation of lessons in the
undergraduate classroom. Cultivating a professional climate of safety and trust supported adults as they fully engaged in learning experiences. Key recommendations encourage university administrators to examine professional learning structures in K-12 schools. Formalization of learning communities in higher education can support instructors in the deprivitization of practice, engagement in professional discourse, and individual and collective reflection. Investing the time and resources necessary to foster and nurture such conditions can result in institutions of higher education evolving into communities of learners.

*Key words:* adult, development, faculty/instructor, influence, learning, undergraduate
DEDICATION

This dissertation is dedicated to my husband, Tim, and my children, Delaney and TJ.

I am forever grateful for your love and encouragement.
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The last four years have been an incredible journey of growth and self-reflection. I am forever thankful for my colleagues, friends, and family who have supported me through this process.

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# TABLE OF CONTENTS

Abstract ........................................................................................................................... iv
Dedication ......................................................................................................................... vi
Acknowledgements .......................................................................................................... vii
Table of Contents .............................................................................................................. viii
List of Tables .................................................................................................................... x

## CHAPTER ONE: INTRODUCTION

Personal Background .................................................................................................... 1
Statement of the Problem ................................................................................................. 2
Purpose of the Study ......................................................................................................... 7
Definition of Terms .......................................................................................................... 8
Anticipated Contributions to the Field of Education ...................................................... 10
Overview of Literature Review ...................................................................................... 12
Overview of Method ....................................................................................................... 14
Delimitations and Limitations ......................................................................................... 23
Chapter Outline .............................................................................................................. 26

## CHAPTER TWO: REVIEW OF LITERATURE

Introduction ....................................................................................................................... 28
Adult Learning Theory .................................................................................................... 29
Adult Development Theory ............................................................................................. 44
Learning Communities Within Universities .................................................................... 54
Factors and Conditions Influencing Pedagogy ............................................................... 62
Chapter Summary ........................................................................................................... 68

## CHAPTER THREE: METHOD

Introduction ....................................................................................................................... 71
Overview of the Research Design .................................................................................... 75
Participants and Setting ................................................................................................... 77
Development of Instruments ........................................................................................... 80
Data Collection Procedures ............................................................................................ 86
Data Analysis Processes ................................................................................................. 89
Delimitations and Limitations ......................................................................................... 99
Chapter Summary .......................................................................................................... 103

## CHAPTER FOUR: RESULTS

Introduction ...................................................................................................................... 105
Demographic Information ............................................................................................... 108
Research Question One .................................................................................................. 116
Research Question Two ................................................................................................. 138
Research Question Three ............................................................................................... 162
Chapter Summary .......................................................................................................... 181

## CHAPTER FIVE: SUMMARY, DISCUSSION, FUTURE RESEARCH AND FINAL REFLECTIONS

Introduction ...................................................................................................................... 183
Study Summary ................................................................................................................ 183
Discussion of Finding One ............................................................................................... 185
Discussion of Finding Two ............................................................................................... 191
Discussion of Finding Three........................................................................................................197
Discussion of Finding Four...........................................................................................................206
Discussion of Finding Five............................................................................................................213
Discussion of Finding Six...............................................................................................................219
Future Research............................................................................................................................225
Final Reflections............................................................................................................................228
REFERENCES.................................................................................................................................234
APPENDICES................................................................................................................................253
  Appendix A: Letter Requesting Participation: Survey.................................................................253
  Appendix B: Participant Consent Form: Survey...........................................................................254
  Appendix C: Letter of Consent for Participation: Interview.........................................................255
  Appendix D: Participant Survey....................................................................................................256
  Appendix E: Interview Protocol.....................................................................................................266
  Appendix F: Narrative Participant Profiles....................................................................................270
LISTS OF TABLES

Table 2.1  Three Ways of Knowing ................................................................. 50
Table 3.1  Adult Learning and Development Scores for Survey Participants .......... 90
Table 3.2  Most commonly identified emic codes in interview transcripts .......... 96
Table 4.1  Primary Site Affiliation ................................................................. 109
Table 4.2  Primary Department Affiliation ..................................................... 110
Table 4.3  Professional Rank of Survey Participants ....................................... 111
Table 4.4  Highest Degree Earned by Survey Participants ............................... 112
Table 4.5  Years of Teaching Experience by Survey Participants ....................... 113
Table 4.6  Adult Learning and Development Scores for Survey Participants .......... 114
Table 4.7  Demographic Information for Pseudonymous Participants .................. 115
Table 4.8  Participants’ Reported Levels of Confidence .................................... 118
Table 4.9  Participants’ Described Understanding of Adult Learning and Development Theory ................................................................. 119
Table 4.10 Direct References by Participants ................................................. 120
Table 4.11 Indirect References by Participants ............................................... 121
Table 4.12 Participants’ Familiarity with Adult Learning and Development Theory .... 122
Table 4.13 Participants’ Training in Adult Learning and Development Theory ....... 123
Table 4.14 Participant Descriptions of Adult Learners ..................................... 124
Table 4.15 Theoretical Citations in Interview Transcripts ................................. 125
Table 4.16 Descriptions of Learning and Development Theories in Interview Transcripts ......... 127
Table 4.17 Major Categories and Exemplifying Statements for Guiding Research Question #1 ................................................................. 129
Table 4.18 Participants’ Reported Frequency of Implementation of Instructional Practices .... 140
Table 4.19 Average Reported Frequency of Implementation of Instructional Practices by ALDT Score ................................................................. 141
Table 4.20 Other Frequently-Implemented Instructional Practices ...................... 143
Table 4.21 Participants’ Reported Efficacy in Instructional Practice Implementation .... 144
Table 4.22 Participants’ Perceived Importance of Instructional Practices .......... 145
Table 4.23 Factors and Conditions Inhibiting Instructional Practice ................. 146
Table 4.24 Theoretical Influences on Lesson Planning and Instruction ............... 148
Table 4.25 Instructional Methods Used to Facilitate Student Learning .............. 150
Table 4.26 Experiences Influencing Instructor Practice .................................... 164
Table 4.27 Factors and Conditions Instructors Report Guided Their Choice of Teaching Methods ................................................................. 165
Table 4.28 Additional Information About Participants’ Teaching and Learning ...... 167
Table 4.29 Participants’ Descriptions of Key Developmental Moments ............... 169
Table 4.30 Factors and Conditions that Influenced Classroom Practice .......... 171
CHAPTER ONE: INTRODUCTION

Personal Background

In my twenty-two years as an educator, my primary vision of self has been one of a learner. As a young public elementary school teacher, I was a learner among my fellow teaching faculty. In my former role as a school principal, I viewed myself as the lead learner in the school community. Now, as an assistant professor in the School of Education at Endicott College, I remain invested in my learning and development as an educator and leader of adult learning.

My early years as a teacher shaped my perception of my role as a learner. The school principal fostered a culture of professional learning among the faculty. Additionally, my participation in an educational leadership program founded on the principles of learning communities solidified my commitment to ongoing professional growth and development.

Years of undergraduate and graduate education, professional development and training, and former teaching experiences, have informed my work with undergraduate learners. Formal scholarship in the field of teaching and learning have heavily influenced my planning and instructional practice with baccalaureate students. As both a teacher and a school leader, weekly critical friends group meetings, de-privatization of practice, and intensive individual and group reflection have been regular elements of my practice. While participating in these experiences, I reflected upon my strengths and areas for growth as a learner. And I realized that my training and professional background were not shared by all.

Conversations with colleagues across departments and universities have revealed that, while many instructors are experts in their respective fields, few have cultivated pedagogical methods or best practices through formal scholarship. I’ve often wondered what informed the
planning and instruction of my colleagues who have had no formal training in how their students learn and develop.

Depending upon their developmental stage, adult learners required different supports and challenges in the classroom (Breidenstein et al., 2012; Drago-Severson, 2009, Kegan, 1982, 1994, 2000). University faculty’s understanding of adult learning and development theory impacted how undergraduate candidates were supported in their learning and mentored in their field experiences. This study examined ways university instructors in Northeastern Massachusetts described their conceptual understanding of adult learning and development. Additionally, the study investigated factors and conditions that contributed to the development of university instructors’ pedagogical practice.

The remainder of Chapter One is organized into the following major sections: (1) statement of the problem, (2) purpose of the study, (3) definition of terms, (4) anticipated contributions to the field, (6) overview of the literature reviewed, (7) overview of the method, (8) identification of delimitations and limitations, (9) and a chapter outline.

**Statement of the Problem**

Some scholars have asserted that instructors in higher education have demonstrated a limited understanding of adult learning and developmental theory (Boyer Commission, 1998; Cross, 1990). Layne et al. (2002) suggested that professional development for university faculty has narrowly focused on developing teaching strategies and has neglected to ensure instructor understanding of the learning science of pedagogical methods. Efforts to support instructors in developing a repertoire of instructional methods have been made, often, as a tactic to enhance institutional productivity (Layne et al., 2002). Researchers, however, have found that a lack of theoretical understanding may limit the pedagogical practice of faculty in the undergraduate
In the absence of formal pedagogical training, some instructors have developed practices based on their assumptions about how undergraduate students learn (Smith & MacGregor, 1992). Assumptions about student learning were formed based on theoretical understanding as well as by one’s prior experiences as a learner (Boyer Commission, 1998). When instructors designed pedagogical practices based solely on their own experiences as learners, they often defaulted to a passive, lecture-based approach (Werner, et al., 2018). In a study conducted on university faculty’s use of lecture versus other more active classroom learning approaches, Werner et al. (2018) found that lecture was the predominant methodology used to instruct courses (p. 10). These findings held true across a range of variables, including professor tenure, age, gender, and department affiliation (Werner et al., 2018). Lecture made up 47.4% of course experiences as reported by study participants.

Researchers have endorsed student-centered, active-learning approaches to teaching undergraduate students rather than passive, lecture-based pedagogy (Bodner, 1986; Boyer Commission, 1998; Smith, Sheppard, Johnson, & Johnson, 2005; Kolb, 2015; Knowles, 1980). Smith and MacGregor (1991) described the limits of lecture-based pedagogy in the college classroom as contributing to an “educational culture that reinforces student passivity, high rates of student attrition, and a reward system that gives low priority to teaching” (as cited in Goodsell, Maher & Tinto, 1992, p. 10). Active-learning strategies like experiments and simulations prompted instructors to facilitate collaborative and cooperative learning among students. According to researchers at the National Center on Postsecondary Teaching, Learning, and Assessment (NCTLA) at Syracuse University (1992), there was much evidence to suggest
that collaborative and cooperative learning strategies benefitted both students and teaching faculty. Active learning strategies supported students in developing thinking skills and communication skills (Goodsell et. al., 1992). Cooperative and collaborative learning supported students in mastering challenging content (Auerbach & Andrews, 2018; NCTLA, 1992). Additionally, undergraduate professors gained insight into student learning through their observations of collaborative work (Goodsell et al., 1992).

Auerbach and Andrews (2018) have argued that the ability to engage undergraduate students in active-learning instruction required more from university faculty than mere knowledge of content. Professors also needed a deep understanding of pedagogy; and yet, many undergraduate instructors have not experienced such training (Auerbach & Andrews, 2018). One’s pedagogical knowledge greatly influenced their approach to lesson design and facilitation of learning, and even “small decisions about how to implement a teaching strategy can have substantial impacts on student learning” (Auerbach & Andrews, 2018, p. 2). Professional development in higher education has not “emphasized the importance of attending to students’ affective thinking to improve learning” (Auerbach & Andrews, 2018, p. 20), even though preparing college instructors to do so was important to the implementation of active-learning pedagogy.

Clarke and Gabert (2004) examined the problem of teacher preparation in higher education:

The state of faculty preparation to teach content areas is highly variable at best, and inadequate at worst, leaving many young faculty members to develop methods experientially, by trial and error. Although this may result
in successful practices in time, the basic model of preparation is based on replication of the status quo. (p. 31)

Research about adult learners has raised questions about the developmental capacities of undergraduate students (Drago-Severson, 2004, 2008, 2009; Kegan, 1982, 1994, 2000; Magolda, 1987; Perry, 1970). With various levels of learners in a given classroom, instructors were often challenged to identify and attend to multiple developmental needs, offering support and challenging learners to grow (Drago-Severson, 2004, 2008, 2009; Kegan, 1982, 1994, 2000; Magolda, 1987; Perry, 1970). Faculty pedagogy influenced the development of self-directed learners (Knowles, 1980); however, university instructors typically had limited pedagogical training (Auerbach & Andrews, 2018; Boyer Commission, 1998; Clarke & Gabert, 2004; Werner et al., 2018).

As learners have developed, they naturally have moved from a place of dependency toward self-directedness (Knowles, 1980, p. 44). Brown (2004) described self-directed learning as the process by which adults take control of their own learning through goal setting, resource acquisition, content exploration, and progress self-evaluation (p. 82). Researchers have affirmed, however, that faculty instructors did not have adequate training in supporting adult learners in advancing along that continuum of self-directed learning (Auerbach & Andrews, 2018; Cahn, 1978; Cross, 1990; Werner et al., 2018; Boyer Commission, 1998). Knowles (1980) found that not all students arrived at their undergraduate studies prepared with a mindset to shift to self-directed learning. Knowles asserted that adults have an inherent psychological need to be self-directing and that instructors were responsible for promoting this movement towards self-directedness (p. 44).
Self-directed and experiential learning supported students in a constructivist approach to making meaning of their worlds (Brown, 2004; Kolb, 2015; Piaget, 1954). Through the work of Piaget (1954, 1963, 1972) and Vygotsky (1978), educators have come to identify cognitive development and deep understanding as the goals of instruction. According to Bodner (1986), “active students learn more than passive students” (p. 4). This assumption stood in opposition to previous held notions that simply training students to engage in specific behaviors or skills served as evidence of learning in schools (Fosnot & Perry, 1996, p. 10). University instructors who designed active learning experiences, supported students in gradually modifying and expanding their existing schemes (Bodner, 1986). Student engagement in the learning process was an essential element to constructing meaning. Therefore, students were less likely to construct deep conceptual understanding participating in passive, lecture-based instruction. (Auerbach & Andrews, 2018; Kolb, 1984)

Considering the preceding literature, it seems clear that lecture-based instruction at the undergraduate level fell short of providing adult learners with the kinds of support and challenge needed to foster self-directed learning. Instead, instructors who employed more active, experiential, and context-dependent pedagogical moves promoted adult development rather than simply content retainment. Understanding the needs of self-directed adult learners, Knowles (1980) argued that instructors take an andragogical stance when teaching adults. The literature suggested, however, that faculty working with undergraduate students may not have acquired the theoretical understanding nor the pedagogical training to effectively facilitate instructional experiences that encouraged movement towards self-directed learning (Auerbach & Andrews, 2018; Boyer Commission, 1998; Clarke & Gabert, 2004; Werner et al., 2018). For some instructors, formal training in adult learning and development has guided their pedagogical
practice. Other faculty have received no formal training in these fields. For individuals lacking formal training, it remains unclear what influences their instructional planning and teaching methodology. What follows is an articulation of a study that investigated university instructors’ understandings of adult learning and development and their application of those understandings to classroom practice.

**Purpose of the Study**

The major purpose of this study was to explore ways in which instructors in Northeastern Massachusetts described their understanding of ways adults learn and develop in the undergraduate setting. Additionally, the study endeavored to understand the theoretical and related factors and conditions that influenced the design and implementation of instructor pedagogy.

There exists an abundance of literature related to the growth and development of adult learners that is available to researchers and practitioners alike. It is important to understand that the adult development literature is situated within the broader context of research on human development and learning starting from birth. Literature pertaining to learning and development theory for children, adolescents, and adult learners was reviewed. Additionally, studies of the application of theory across a variety of educational contexts were examined. Study findings have indicated that university instructors have not consistently applied effective pedagogical practice in the context of undergraduate instruction (Auerbach & Andrews, 2018; Boyer Commission, 1998; Clarke & Gabert, 2004; Werner et al., 2018). The reasons why undergraduate instructors have not employed effective pedagogical strategies in their classrooms was unclear. This study aimed to clarify these unknowns.
Through this study, I investigated the influence of conceptualizations of adult learning and development on the instructional practice of college professors in Northeastern Massachusetts. To guide this research, three questions were put forth:

1. How do university instructors in Northeastern Massachusetts describe their understanding of the ways in which adults learn and develop?
2. How do university instructors in Northeastern Massachusetts describe their understanding of how adult learning and development theory informs their approach to lesson planning and facilitation of adult learning in the undergraduate classroom?
3. Beyond an understanding of adult learning and development theory, what factors and conditions do university instructors in Northeastern Massachusetts report influence the design and implementation of classroom practice with undergraduate learners?

**Definition of Terms**

**Adult** – US Legal defined an “adult” as “a person who has attained the age of majority. The age of majority is the legally defined age at which a person is considered an adult, with all the attendant rights and responsibilities of adulthood. The age of majority is defined by state laws, which vary by state, but is 18 in most states” (airSlate Legal Forms, Inc., 2019). For the purposes of this study, the term “adult” referred to learners 18 years of age or older, having completed their K-12 education and enrolled in undergraduate coursework at an institution of higher education. This study focused primarily on the pedagogical practice of instructors serving undergraduate students, therefore, the term “adult learner” will refer to students participating in undergraduate studies.

**Adult Learning and Development** – For the purpose of this study, “adult learning and development” refers to ways in which adults acquire knowledge and come to understand the
world around them. Adult learning and development are situated within the broader context of research on human development and learning starting from birth.

**Development** - For the purpose of this study, the term “development” referred to Kegan’s (1982, 1994, 2000) notion of constructive-developmentalism, which asserted that individuals made meaning of their worlds in qualitatively different ways. Humans engaged with each other and the environment and, through experiences, constructed their understanding of the world. As people developed, their meaning-making systems shifted and evolved over time.

**Faculty / Instructor** - Although position, rank, and tenure were described and defined in different ways across institutions of higher education, this study used the terms “faculty” and “instructor” interchangeably and included those who held full-time positions with teaching responsibilities that included teaching at least two 3-credit undergraduate courses each semester.

**Influence** - Merriam-Webster defined “influence” in noun form as “the power or capacity of causing an effect in indirect or intangible ways” (Merriam-Webster, Inc., 2019). In this study, I explored university instructors’ perceptions of factors and conditions that they identified as impacting their pedagogical decision making and practice.

**Learning** - For the purpose of this study, “learning” was understood as the process by which individuals interacted with content, their environment, more knowledgeable others (like instructors), and each other to acquire knowledge and make meaning of their worlds. Learning was concerned with how students interpreted their educational experiences (Perry, 1970). Engaging in critical reflection on one’s assumptions and beliefs “can lead to significant personal transformations” (Mezirow, 1997).
Undergraduate - For the purpose of this study, an “undergraduate” was “a student at a college or university who has not received a first and especially a bachelor's degree” (Merriam-Webster, Inc., 2019).

**Anticipated Contributions to the Field**

This study has the potential to benefit six groups in the field of education. They include (a) university instructors; (b) undergraduate students; (c) higher education administration; (d) higher education faculty preparation programs; (e) professional development coordinators; and (f) researchers and other academic professionals.

Study findings could positively impact instructor practice in higher education. Formalizing learning communities within universities would support adult and organizational learning and development. Instructors who collaborate to share artifacts, engage in professional dialogue, and observe the practice of others strengthen their pedagogical repertoires. Furthermore, the deprivitization of practice that is characteristic of learning communities, offers professional models to new teaching faculty as well as to instructors with limited training and understanding of ways adults learn and develop. Observing models of successful practice can contribute to feelings of self-efficacy among instructors, as can positive appraisal of one’s own practice. Establishing learning communities within higher education could provide faculty with a safe space to develop their understanding of adult learning, expand their instructional repertoire, and reflect on the efficacy of their teaching practice.

This study has the potential to positively impact undergraduate students. Instructors who enhance their understanding of ways adults learn and develop in the undergraduate classroom are likely to expand their repertoire of instructional skills. With a newfound understanding of adult learning and development, instructors could abandon lecture-based teaching in favor of more
constructivist and experiential approaches to lesson design. Undergraduate students could benefit from pedagogical approaches that encourage active learning, student-to-student discourse, and application to real-world problems. Students could benefit from greater participation in field-based experiences and internships where they can apply course knowledge and skills in real-world contexts.

Administrators in higher education have the potential to benefit from the findings of this study; but more importantly, administrators are the people in higher education who are in the position to enact the greatest change through the implementation of these study findings. This study has the potential to influence the way department administrators identify instructors’ strengths and needs in the areas of pedagogical practice in an effort to support adult learners. The research conducted in this study could encourage department administrators to formalize communities of practice, mentoring programs, and other supports and interventions that nurture the development of pedagogy for university instructors. As faculty develop in their knowledge and practice, undergraduate students benefit from stronger instructional experiences. Administrators benefit from greater departmental capacity and a satisfied clientele. It is the administrator, however, who has the capability and the responsibility to support the learning and development of the students, faculty, and staff within their department. Administrators can provide individuals with the time needed to engage in professional development and allocate monies to fund trainings and materials. Administrators can cultivate a climate of safety and trust within their departments and model the qualities of vulnerability and risk-taking, both of which are necessary for learning and growth. It is administrators who need to establish learning communities within their departments to support student, faculty, and organizational learning.
Through the illumination of the lack of pedagogical understanding and expertise, higher education could examine existing policies that impact instructor preparation programs. Those who monitor, supervise, or govern institutions of higher education could make recommendations and adaptations for improved standards for instructional practice. The reformation of graduate programs that support the development of instructional pedagogy for university instructors could be a positive consequence of this study. It is reasonable to expect that this study could influence the creation of faculty training programs, supporting university instructors in their development of pedagogical practice.

This study called for a critical examination of the design of appropriate support programs to address the development of pedagogical practice for faculty members within institutions of higher education. It has significant implications for site-based human resources and faculty development programs at colleges and universities, specifically, considering new faculty onboarding practices. Human resources may consider opportunities for offering instructional coaching, mentoring programs, and professional development to new instructors who do not have training and experience in teaching and learning.

An intention of this study was to change the way instructor pedagogy in undergraduate education was viewed by researchers and in academia. A potential outcome of this study is a renewed interest in the exploration of research that explores faculty pedagogy in higher education.

**Overview of the Literature Review**

The following section offers a brief delineation of four bodies of literature that were reviewed to provide a theoretical foundation for the study. They include (a) adult learning theory,
Adult Learning Theory

Three epistemological models served as a conceptual framework for exploring adult learning in this study: Perry’s (1970) Scheme of Intellectual and Ethical Development, Belenky et al.’s (1986), Women’s Ways of Knowing, and Magolda’s (1987) Epistemological Reflection Model. This research held significant implications for college professors, as understanding how undergraduate students interpreted their educational experiences informed the methods instructors employed when planning and executing class lessons (Illeris, 2009).

Two constructivist theories described ways learners explored their environments to build new knowledge. Piaget’s (1954) Theory Cognitive Constructivism and Vygotsky’s (1978) Theory of Social Constructivism to plan and implement classroom lessons were examined.


Constructive-Developmental Theory

Pertinent literature examined different ways Vygotsky (1978) and Kegan (1982, 1994) viewed the discipline of adult development. That review explored how college professors conceptualized their understanding of constructive-developmental theory and their perception of how that knowledge of adult development informed one’s lesson planning and instruction. Kegan’s Constructive-Developmental Theory and Vygotsky’s Zone of Proximal Development were reviewed.
Learning Communities Within Universities

People make greater meaning of new content and concepts when learning within community than when engaged in individual study (Vygotsky, 1978). Research has been conducted on the benefits of formalizing learning communities across various educational settings (Atteberry & Bryk, 2010; Bryk et al., 2017; DuFour et al., 2008; Senge, 1990). Literature pertaining to the development of professional learning communities to support undergraduate students in the university classroom was reviewed. This study also reviewed literature related to the cultivation of network improvement communities in higher education and their influence on instructor pedagogy.

Factors and Conditions that Influence Pedagogy

The final area of literature explored identified factors and conditions that supported the development of faculty pedagogy. The literature indicated an absence of pedagogical training for college instructors in their graduate and doctoral program experiences (Boyer Commission, 1998; Cahn, 1978; Cross, 1990; Milton, 1972; Robinson & Hope, 2013). Yet, there was consensus among researchers that teaching and learning in higher education would benefit from better trained college professors (Boyer Commission, 1998; Cross, 1990; Milton, 1972; Robinson & Hope, 2013). Cahn (1978) reported that most college and university instructors received minimal or no training in educational theory and methodology as compared with their primary and secondary teaching colleagues (as cited in Robinson & Hope, 2013).

Overview of Method

The following section provides an overview of the study’s methodology. It includes the following five subsections: (a) overview and rational for the research design, (b) selection of participants and site description, (c) development of instruments, and (d-e) procedures used to
collect and analyze data. Three areas to increase trustworthiness have been integrated into specific subsections: (1) increasing validity, (2) reducing researcher bias, and (3) ensuring confidentiality.

**Overview and Rationale for Design**

This study employed an explanatory sequential mixed methods research design to address three guiding research questions (Creswell & Creswell, 2018). Quantitative data were gathered and analyzed to guide purposeful sampling of participants for a primarily qualitative study. Those data informed the development of the interview protocol (Creswell, Clark, Gutmann, & Hanson, 2003). The theoretical orientations of social constructivism and pragmatism influenced the design of this study (Creswell & Poth, 2018). The qualitative aspect of an explanatory sequential mixed methods approach was necessary to better understand how university instructors described their understanding of the connection between adult learning and development and their own pedagogical choices. A purely quantitative methodology would not have supported the determination of this relationship.

**Selection of Participants and Site Description**

Participants in this study included university instructors in Northeastern Massachusetts, representing a range of disciplines, years of teaching, and levels of education. All participants held full-time positions at their respective institutions, having earned a terminal degree, and instructed at least one undergraduate course each semester. An online survey was distributed (see Appendix D) to 692 university instructors using email addresses found on public websites for three institutions of higher education in Northeastern Massachusetts. In all, 102 university instructors participated in the survey, with 95 respondents completing the survey in full. Survey data were exported to an Excel spreadsheet in the form of individual responses with numerical
value. Composite scores were used to inform the selection of follow-up interview participants. Each respondent was assigned a composite score, rating their familiarity with and confidence in applying adult learning and development theory (ALDT) in the undergraduate classroom. Respondents were then sorted according to ALDT scores. Fifteen survey respondents, drawn from the three sites, were invited to participate in a follow-up interview. The ten survey respondents who agreed to participate in a follow-up interview were primarily associated with Sites B and C and demonstrated a range in professional rank, years of teaching, and academic disciplines.

Research was conducted at three area colleges, located in Northeastern Massachusetts. One state university and two private colleges were chosen as sites for this study. The sites selected for this study were similar in size, student enrollment, and program offerings. Site A was classified as a Baccalaureate College: Arts and Sciences Focus, according to The Basic Classification descriptive framework (Carnegie Commission on Higher Education, 1970). This classification signaled that at least 50 percent of the degrees conferred were baccalaureate or higher, but less than 50 master’s and 20 doctoral degrees were conferred in the classification update year (2017). Sites B and C were each classified as M1: Master’s Colleges and Universities – Larger Programs. The designation of M1: Master’s Colleges and Universities – Larger Programs indicated that Sites B and C awarded at least 50 master’s degrees and fewer than 20 doctoral degrees in the classification update year (2017).

Each institution selected offered between 33 and 43 undergraduate programs across multiple schools and divisions. Full-time undergraduate enrollment ranged from 1,507 to 5,434 students across the three institutions. The number of full-time instructional faculty ranged from
85 to 325 across sites. The names of the sites as well as the study participants have been given pseudonyms to protect participant privacy and confidentiality.

**Instrumentation**

This study met the parameters of an explanatory sequential mixed methods design (Creswell & Creswell, 2018). First quantitative data were collected via an online survey. The survey data were numerically coded and scored and subsequently used to inform the selection of subjects for qualitative data collection, through participation in a follow-up interview. Moreover, survey data helped to narrow and refine the types of interview questions that were asked of individual participants (Creswell & Poth, 2018).

**Online Survey**

An online survey (see Appendix D) gathered demographic and initial perceptual data. Survey questions were developed based on the three guiding research questions, and divided into four main sections. The survey first prompted respondents to reflect on their classroom pedagogy as it related to twelve different instructional practices. Questions then asked respondents to reflect on their knowledge of adult learning and development theory. Survey questions went on to ask respondents to reflect on how their understanding of adult learning and development theories informed their instructional practice. The survey then prompted respondents to identify factors and conditions that contributed to the development of their pedagogical practice. Demographic data about participants were collected at the end of the survey. The survey was developed using the SurveyMonkey platform, following an online review of other professional demographic surveys and questionnaires administered to faculty and staff in higher education. The instrument was tested in a small pilot study, involving nine undergraduate instructors in
Massachusetts. Feedback received from pilot participants informed survey revisions prior to sharing with instructors across the three study sites.

Survey data were used to identify participants for follow-up interviews based on a shared set of three criteria: (1) full-time teaching status, (2) terminal degree, and (3) instruct at least one undergraduate course each semester.

**Follow-up Interviews**

The second instrument used in this study was a follow-up interview. Participants were first given a letter of informed consent to participate in the interview (see Appendix C). Interview questions probed respondents’ thinking and reflections about their understanding of adult learning and development theory. During the interview, participants were asked about their familiarity with adult learning and development theories and shared examples of ways adult learning and development theory informed their planning and lesson implementation.

Participants answered questions designed to uncover factors and conditions that contributed to their understanding of adult learning and development and classroom pedagogy.

The interview protocol was tested in a small pilot study. Two of the nine pilot survey completers participated in an interview, simulating identical conditions as outlined in the study method design. Feedback received from the pilot interview participants informed protocol revisions prior to interviewing actual study participants.

**Validity**

Creswell and Creswell (2018) endorsed the use of multiple validity procedures in a study to “enhance the researcher’s ability to assess the accuracy of findings as well as convince readers of that accuracy” (p. 200). Pilot testing was conducted to address researcher bias and reactivity, two specific threats to validity (Maxwell, 2013). Gathering feedback through a pilot study and
making appropriate revisions based on pilot participant feedback served to minimize threats to validity and increase the credibility of conclusions drawn (Maxwell, 2013).

**Data Collection**

This subsection describes the sequence of data collected for this study. What follows is a review of the processes used to (a) collect survey data, (b) secure participants for follow-up interviews, and (c) collect interview data. Additionally, this subsection addresses measures taken to ensure confidentiality and data security.

**Collecting Survey Data**

Survey data were collected and stored using the online platform SurveyMonkey. This secure site uses a single sign-on to maintain user identity and employs account verification from its users.

The link to the online survey was embedded in a Letter of Request for Study Participation (see Appendix A) sent to 692 university instructors in Northeastern Massachusetts. A reminder email was sent to the potential survey respondents at the end of the first week of the survey launch. At the end of the survey, completers were asked about their interest in participating in an online interview, using the Zoom web conferencing platform. Willing respondents provided their contact information for interview scheduling.

**Collecting Interview Data**

Ten of the sixty respondents who indicated their interest in participating in a follow-up interview were selected and notified via email. Included in the email was an agreement to participate in the online interview (see Appendix C) and a link to an online Calendly scheduler. Interview participants signed and returned the agreement to participate and signed up for a one-hour interview appointment.
Video and audio documentation of participant interviews were recorded through Zoom and saved to a password-protected laptop. Audio recordings were uploaded to and transcribed using the Sonix transcription service. Transcripts were reviewed and downloaded as Microsoft Word documents and sent out to individual participants for member checking (Creswell & Miller, 2000). Participants were invited to make any revisions or additions that more accurately reflected their thoughts, ideas, and intended meaning of statements made during the interview and returned these edits prior to data analysis.

Data Analysis

The following subsection describes all manual and computational approaches and tools used to analyze survey and interview data. What follows is a discussion of the manner in which the data were organized and analyzed quantitatively and qualitatively to answer the three guiding research questions. Measures taken to reduce issues of trustworthiness are addressed in this subsection.

Quantitative Data Analysis

After the survey window had closed, all data were exported to an Excel spreadsheet in the form of individual responses with numerical value. Survey items were grouped and coded with numerical value according to participants’ self-ratings and open-ended responses. Respondents’ ratings of their familiarity with adult learning and development theory and their confidence in supporting students in learning and applying course content were assigned numerical value and contributed to a composite score.

Composite adult learning and development theory (ALDT) scores were calculated for all completers using Magnitude Coding (Saldaña, 2018). Participants were assigned an ALDT score
of high, medium, or low based on their self-ratings. Scoring survey data in this way helped to inform the selection of interview participants for the qualitative portion of the study.

Survey questions were aligned with the guiding research questions and bundled into three sections to aid with quantitative analysis. Mean scores were analyzed for survey questions, providing key insights to address the guiding research questions. Responses to these survey items also informed the development of follow-up questions for individual participant interviews.

**Qualitative Data Analysis**

The analysis of qualitative interview data followed systematic procedures consistent with a phenomenological research approach, moving from narrow units of analysis to broader units (Creswell & Poth, 2018). Consistent with recommended data analysis procedures for phenomenological studies, transcripts were analyzed for significant statements and sorted by conceptual phrases (Creswell & Poth, 2018; Moustakas, 1994). Concept codes were categorized and themed to develop textural description of participants’ experiences. Structural descriptions of participants’ experiences were developed to convey an overall essence of participants’ experiences. In addition to the recommended phenomenological data analysis procedures (Moustakas, 1994; Creswell & Poth, 2018), a set of etic codes, or conceptual phrases that represent the researcher’s interpretation of participants’ experiences, were generated from the guiding research questions and used in a second coding cycle analysis.

**Coding the Data**

Initial analysis of qualitative data began with reading all interview transcripts. Emic codes, or participants’ verbatim words and phrases, were captured using an In Vivo Coding scheme in the form of significant statements (Creswell & Poth, 2018). Significant statements were recorded, sorted, and analyzed as “extended thematic statements rather than a shorter
code”, a process called Theming the Data (Saldaña, 2018, p. 198). Thematic statements were synthesized during later stage analysis to identify larger themes and describe the essence of participants’ experiences.

During the second cycle of coding, interview transcripts were coded using a Structural Coding scheme. A list of etic codes was generated based on the guiding research questions. Etic codes were framed as analytic questions, developed to support Structural Coding in which data were both coded and initially categorized to examine commonalities, differences, and relationships among comparable segments (Saldaña, 2018).

A third cycle of coding employed Simultaneous Coding, aimed to identify data that applied to multiple codes. Simultaneous Coding “applies two or more different codes to a single qualitative datum, or the overlapped occurrence of two or more codes applied to sequential units of qualitative data” (Saldaña, 2018, p. 94). All interview data were revisited and analyzed for multiple meanings that justified the assignment of more than one code.

**Interpreting Major Categories from the Data**

The methods employed to guide this explanatory sequential mixed methods study aligned with the recommendations of experts in the field of qualitative research. First, second, and third cycle codes were examined and categories were formed to create “clusters of meaning” in an effort to answer the guiding research questions (Creswell & Poth, 2018, p. 79). Data analysis procedures were typical of an empirical, transcendental phenomenology. Data were collected from multiple individuals who had experienced a common phenomenon. The data were then reduced to significant statements and combined into “clusters of meaning,” a process Creswell and Poth (2018) referred to as “horizontalization” (p. 79).
The code frequency report generated as part of the structural coding scheme served to identify categories and broader themes (Saldaña, 2018). Analytic memos captured emergent themes and textural and structural descriptions were drafted to further describe participants’ experiences. A composite description of the common experiences of the participants was developed, to “convey an overall essence of the experience”, thus answering the research questions guiding the study (Creswell & Poth, 2018, p. 78).

**Delimitations and Limitations**

This section outlines measures taken to delimit the scope of the study. An explanation of possible limitations of the study is also included in this section.

**Delimitations**

What follows is a discussion of steps taken to delimit the study according to the participants, the setting, researcher bias, and ethical considerations.

**Participants**

Study participants consisted of the respondents to my initial survey and the individuals selected for a follow-up interview. An online survey was sent to 692 college faculty at three institutions in Northeastern Massachusetts. Of the possible 692 respondents, 95 instructors completed the survey in full. Ten respondents were selected to participate in a follow-up interview. Six of the ten interview participants were affiliated with Site B, while four participants were affiliated with Site C.

All interview participants held a terminal degree. The years of professional teaching experience, professional rank, and academic department with which the respondent primarily associates were not limiting factors in participation for this study. Instead, comparative data were gathered, analyzed, and contributed to the textural description of participants’ experiences.
Study participants were assigned an ALDT score of high, mid, or low, based on respondent self-ratings of their knowledge of and training in adult learning and development theory. Five interview participants were assigned to the low ALDT category and five interview participants were assigned to the high ALDT category.

Setting

This study was also delimited with regard to the setting. Online surveys were sent to full-time faculty across three different institutions. The three institutions were similar in student enrollment, faculty size, and programs offered. Each institution selected offered between 33 and 43 undergraduate programs across multiple schools and divisions. Full-time undergraduate enrollment ranged from 1,507 to 5,434 students across the three institutions. The number of full-time instructional faculty ranged from 85 to 325 across sites.

Possible Researcher Biases

The study was delimited to address personal researcher biases. Withholding assumptions, asking many clarifying and follow-up questions, and remaining open to various presentations and manifestations of active and self-directed learning were critical components to preventing researcher bias. As an additional measure to reduce researcher bias, interview transcripts were sent out to individual participants for member checking prior to analysis (Creswell & Creswell, 2018). Participants were invited to make any revisions or additions that more accurately reflected their thoughts, ideas, and intended meaning of statements made during the interview.

Ethical Considerations

University instructors are not typically considered part of a vulnerable population. The purpose of the research was disclosed to all participants at the start of the study to determine any special provisions needed for vulnerable populations. Additionally, the interview protocol
included an opening script that discussed the study’s purpose, the interview procedures, and opt-out measures for participants.

This study was conducted at sites outside of my own institution so as to reduce the incidence of any potential “power concerns” within the research environment (Creswell & Poth, 2018, p. 152).

Limitations

There were four main limitations of this study. The primary limitation was that data collection took place in the Summer and Fall of 2020, during the COVID-19 pandemic. Due to the highly contagious nature of this virus, schools across the state of Massachusetts had closed down to visitors and government restrictions limited in-person access to study participants and site locations. All interviews were conducted online using the Zoom web conferencing platform.

A second limitation was the 15% response rate to the online survey. This study was conducted in July and August, months that university faculty were not typically under contract. Instructors may not have been checking their email accounts on a regular basis. A larger sample size would have provided more accurate mean values in the survey data and expanded selection options for interview participants.

A third limitation was that interview participants included instructors at only two of the three study sites. Invitations were sent to respondents across all three sites; yet, only respondents from Sites B and C elected to participate in the interviews.

A fourth limitation involved a single coder in the analysis of qualitative data. Involving multiple coders in data analysis not only improves efficiency within a study, but “working in a team can also be helpful to increase comprehensibility, to support intersubjectivity, and to provide sound interpretation of the data” (Burla et al., 2008).
Chapter Outline

Chapter One introduced the study. It included a personal statement about the topic, a statement of the problem to be addressed, the purpose of the study with guiding research questions, definition of terms relevant to the study, a description of expected contributions to the field, a summary of the literature to be examined, an overview of the methodology employed, identified delimitations and limitations, and a chapter outline.

Chapter Two consists of a review of relevant literature. The four areas examined include adult learning theory, adult development theory, learning communities with universities, and factors and conditions that influence instructor pedagogy.

Chapter Three details the methodology employed in conducting the study. The chapter introduces the design of the study, including a description of and rationale for the use of explanatory sequential mixed methods design approach. Information pertaining to the study setting and selection of participants is described. Explanations about the development of the survey instrument and interview protocol are included, as well as descriptions of the data collection and data analysis procedures. In addition, the chapter explores issues of trustworthiness: insuring participant confidentiality, reducing biases held by the researcher, and increasing measures of validity.

Chapter Four presents and analyzes data that were collected from the online survey and follow-up interviews. The guiding questions were used to organize quantitative and qualitative data. Tables of results of the data from the surveys and descriptive excerpts from interviews are included. Findings pertaining to each guiding question are articulated as declarative statements followed by delineations that offer minimal interpretation.
Chapter Five concludes the dissertation. It includes a brief summary of the study, discussion of the findings, and delineation of recommendations for future research. The chapter concludes with final reflections concerning major learnings and an articulation of how study findings are to be disseminated.
CHAPTER TWO: REVIEW OF LITERATURE

Introduction

Formal training and preparation in the field of adult learning and development varies among instructors in higher education. Literature has suggested that university instructors often demonstrate a lack of understanding of adult learning and developmental theory (Boyer Commission, 1998; Cross, 1990). Instructors’ pedagogy may be limited by the absence of theoretical knowledge (Auerbach & Andrews, 2018; Boyer Commission, 1998; Cahn, 1978; Cross, 1990; Werner, Scovotti, Cummings, & Bronson, 2018). Teachers generally build their instructional practice based on the assumptions held about how undergraduate students learn (Smith & MacGregor, 1992). These assumptions are informed by learning and development theory or by one’s prior experiences as a learner (Boyer Commission, 1998). Instructors who have not experienced formal training in the field of learning and development are left to defer to their personal learning experiences to inform classroom practice (Werner, et al., 2018).

Instructors who engage in continuous learning, advance the learning of their students (Breidenstein et al., 2012; Fahey & Ippolito, 2014; Mizell, 2010). School leaders who focus improvement efforts on adult and organizational learning and reflect on their own professional growth have a positive impact on student outcomes (Goleman et al., 2002; Kolb, 1984; Mezirow, 1998; Roberts, 2008; Schon, 1983; Senge, 1990). According to DuFour and Mattos (2013), “schools need learning leaders who create a schoolwide focus on learning both for students and the adults who serve them” (p. 40). Education management models that place leaders in the position to “figure it all out at the top” are antiquated and ineffective (Senge, 1990, 462). Instead, school leaders who cultivate collaborative work environments where faculty learn with and from
Based upon the preceding research, it stands that if universities are to improve the quality of instruction and services rendered in higher education, instructors and administrators must continue to view themselves as learners and engage in ongoing reflection and professional development.

Chapter Two reviews literature concerned with the applications of adult learning theory, constructive-developmental theory, and communities of practice in university settings designed to support the growth and development of undergraduate learners. Analysis of these bodies of literature serves to answer the question: How do university instructors convert their conceptual understanding of adult learning and developmental theory to support the learning and development of undergraduate students? A review of various conceptual frameworks about ways adults come to know their world guides an examination of how individuals interpret their formal educational experiences. In addition, the chapter examines factors that influence instructors’ teaching.

This chapter is organized into four major sections: (a) adult learning theory, (b) adult development theory, (c) learning communities within universities, and (d) factors that influence instructor pedagogy. The chapter ends with a summary. Each major section concludes with a reflection on the application of related learning theories by university instructors in undergraduate education.

**Adult Learning Theory**

The following section reviews literature designed to frame adult learning theory. This section is organized into seven subsections: (a) defining adult learning, (b) three models of
epistemological development, (c) constructivist learning theory, (d) self-directed learning, (e) Mezirow’s (1990, 1991, 1998) transformative learning theory, (f) experiential learning theory, (g) adult learning theory in the undergraduate classroom.

Defining Adult Learning

Educational theorists, psychologists, neuroscientists, behaviorists, and scholars across other fields have not reached consensus regarding how to define learning (Baron et al., 2015). Learning is complex. Professionals across multiple disciplines have generally subscribed to the notion that learning is “the processing of information derived from experience” to update existing frames of reference (Baron et al., 2015, p. 405). Educational theorist and college professor, Knud Illeris (2009) defined learning as “any process that in living organisms leads to permanent capacity change and which is not solely due to biological maturation or aging” (p. 3). Kolb (2015), characterized learning as a process whereby knowledge is created through the transformation of experience (p. 61). According to these definitions, learning is a process, requiring the learner to be active and engaged in said process. Learner engagement and activity, therefore, necessitate experiences.

Regarding adult learners, scholars have not achieved universal understanding of ways in which adults learn. Brookfield (1986) called for greater definitional clarity in reference to the term “learning” and cited a need to distinguish between cognitive development and behavioral change (Brookfield, 1995). Researchers have, however, identified certain learning processes as unique to adult learners. Adult learners are described as self-directed and capable of critical reflection, interrogating their deeply held assumptions and ideas (Brookfield, 1986; Mezirow, 1990, 1991). Adult learners used their accrued life experiences to make sense of new information
and adapted through processes of learning to learn (Brookfield, 1986; Dewey, 1938; Knowles, 1980; Kolb, 2014; Lindeman, 1926).

Adult educational models tended to assume a high degree of independence and responsibility on the part of the adult learner. Knowles’s (1980) Theory of Andragogy assumed that adults were self-directed in their learning, advancing from a place of dependency toward self-directedness, at an individual learning pace. Self-directed learners took control of their learning through setting academic goals, seeking out resources, determining learning methods, and monitoring their growth and progress (Brookfield, 1995). Self-direction has been explained as one’s interest and capacity to pursue their own education, in formal and natural settings (Candy, 1991 as cited in Brown, 2004). Self-directed learning is further explored in subsequent subsections of this chapter.

Critical reflection was noted as a hallmark of adult learners within the literature. The ability to think contextually and critically, using embedded logic, dialectical thinking, and reflective judgment was recognized as a trait unique to adult learners (Brookfield, 1995). As situations changed, adults employed a kind of “tacit judgment to move toward a way of thinking or behaving” that was more appropriate for a given situation (Mezirow, 1998, p. 5); a process Mezirow (1998) referred to as assimilative learning. Mezirow recognized that the ability to use imagination to pursue alternative realities was characteristic of adult learners and fundamental for critical reflection. Transformational thinking through critical reflection is examined in more detail later in this chapter.

Experiential learning was identified among researchers as a defining feature of adult learning processes. Adults learned through experience (Dewey, 1938; Knowles, 1980; Kolb, 2014; Lindeman, 1926). A distinguishing factor among children and adult learners were the
number of accrued life experiences (Brookfield, 1995). Adults’ lived experiences were not value neutral (Brookfield, 1995). Experiences were framed and shaped by one’s sociocultural context and served as a resource to the learner (Brookfield, 1995; Knowles, 1980). Lindeman (1926) described adult learning as a continual process of evaluating those constructed experiences (p. 4). Models of teaching and learning in higher education that actualized experiential learning included apprenticeships, laboratory experiments, internships, work/study programs, case studies, simulation exercises, studio arts, and field projects (Knowles, 1980; Kolb, 2014). Experiential learning methods engaged learners directly with the realities being studied rather than merely discussing ideas (Keeton & Tate, 1978 as cited in Kolb, 2014). Experiential learning was a principle concept within Knowles’s (1980) andragogical framework and is discussed in greater depth in this chapter.

Another principle identified as unique to adult learners was the concept of learning to learn (Brookfield, 1995; Kitchener & King, 1990). Researchers described the phenomenon of learning to learn as a self-conscious awareness of how one comes to acquire knowledge (Kitchener & King, 1990). Beyond simply understanding one’s preferred learning style, learning to learn required adults to be skilled at learning across contexts and through a range of different styles (Brookfield, 1995).

Adult learning has been differentiated from that of children, by researchers in the field of learning and development. Adult learners were characterized as self-directed with a capacity for critical reflection (Brookfield, 1995; Mezirow, 1998). Further, adult learners have been described as capable of leveraging their accrued life experiences to make sense of new information (Brookfield, 1995; Knowles, 1980; Kolb, 2014). Adults adapted through learning to learn and examined their assumptions and underlying beliefs to discern their truths (Brookfield, 1995;
Kitchener & King, 1990) The processes that transformed thinking and capacity change have been widely researched and reported upon. Hofer and Pintrich (1997) presented three epistemological models that examined learning processes in college-aged men and women.

**Three Models of Epistemological Development**

Epistemology was described as a philosophical idea concerned with the study of the nature of knowledge. Educators and psychologists have grown increasingly interested in the processes by which individuals acquired knowledge and how one’s epistemological theories and beliefs influenced thinking and reasoning (Belenky, Clinchy, Goldberger, & Tarule, 1986; Hofer, 2001; Hofer & Pintrich, 1997; King & Kitchener, 1994, 2002; Magolda, 1987, 1992, 1999, 2002, 2010; Moser, Mulder, & Trout, 1997; Perry, 1970, 1981; Piaget, 1954, 1963; Schommer, 1990, 1998). This topic held significant implications for college instructors, as understanding how undergraduate students interpreted their educational experiences informed the methods faculty employed when planning and executing class lessons.


The authors first presented Perry’s (1970) Scheme of Intellectual and Ethical Development, a developmental scheme that illustrated the “abstract structural aspects of knowing and valuing (p. 14)” (as cited in Hofer & Pintrich, 1997, p. 90) among college students. Perry’s scheme included a hierarchy of “positions,” organized into four sequential categories reflective of Piaget’s (1954) developmental scheme. Perry’s categories - dualism, multiplicity, relativism, and commitment within relativism - demonstrated a developmental progression in the learner.
Perry asserted that the earliest positions, found within the category of dualism, suggested that the learner thought in dualistic and absolutist terms, believing the role of the teacher was to know the truth and convey this truth to the learners. As individuals progressed through the stages, they came to view themselves as active makers of meaning and saw knowledge as relative and contextual (Perry, 1970).

Hofer and Pintrich (1997) reviewed a second epistemological theory constructed by Belenky, Clinchy, Goldberger, and Tarule (1986). Women’s Ways of Knowing was an epistemological theory constructed in response to the perceived limitations of Perry’s work, which was criticized for primarily including male subjects in his study. Belenky et al. were interested in understanding what epistemological themes were particularly relevant to women.

The research team’s study resulted in the development of a five-perspective model “from which women view reality and draw conclusions about truth, knowledge, and authority (p. 3)” (as cited in Hofer & Pintrich, 1997, p. 94). Like Perry’s model, Belenky et al. proposed a hierarchical developmental model. The Women’s Ways of Knowing model included five “epistemological perspectives from which women view the world” (Belenky et al., 1986, p. 15) - silence, received knowledge, subjective knowledge, procedural knowledge, and constructed knowledge. At the earliest stage of development, “women experience a passive, voiceless existence, listening solely to external authority” (p. 95). However, it was at the second stage of development, and with each subsequent stage, that parallels to Perry’s positions within his Scheme of Intellectual Development were observed. Like Perry’s “dualism,” Belenky et al.’s second perspective, received knowledge, was a position of either-or thinking in which the individual believed there to be only one right answer and the woman saw knowledge as originating outside of herself. Like Perry’s Scheme, as women developed through the
perspectives, they began to demonstrate reason and reflection, understanding that all knowledge was constructed and contextual with the knower. Additionally, the individual believed that frames of reference mattered and that those frames of reference were subject to change based on experiences and reflection (Hofer & Pintrich, 1997, Mezirow, 1991).

The final epistemological model considered in this cluster was developed by Marcia Baxter Magolda (1987), who was most interested in how one’s epistemological assumptions affected the interpretation of their educational experiences. Magolda’s Epistemological Reflection Model, outlined four “ways of knowing” - absolute, transitional, independent, and contextual - each with corresponding epistemological assumptions (as cited in Hofer & Pintrich, 1997). Magolda’s Ways of Knowing were aligned with Perry’s (1970) positions and Belenky et al.’s (1986) perspectives, in that those at the lowest level of the hierarchical model, the “absolute knowers,” viewed knowledge as certain and believed that those in positions of authority had all of the answers. Like Perry’s and Belenky et al.’s models, Magolda asserted that as individuals progressed through the ways of knowing, one discovered that authorities were not all-knowing and that the self was “capable of constructing an individual perspective by judging evidence in its context” (as cited in Hofer & Pintrich, 1997, p. 98). Findings for both Perry and Magolda’s research indicated that very few of the college-aged participants achieved the highest levels of knowing, as defined by their respective epistemological models.

Perry (1970) and Magolda’s (1987) findings raised a question about the developmental capacities of undergraduate students and whether an instructor’s pedagogical approach had any bearing on supporting the development of baccalaureate students at the highest epistemological levels. Hofer and Pintrich (1997) described applications for Belenky et al.’s (1986) Women’s Ways of Knowing model, suggesting that teachers assume the role of “participant-observers,”
taking time to model their thinking processes, and cultivating classroom cultures accepting of students who take academic risks and voice uncertainties. Knowledge was created through consensus and, therefore, instructors had a unique opportunity to build capacity among their students through enlisting participants in co-constructing course conditions and contributing to designing standards for student evaluations (Hofer & Pintrich, 1997). Engaging undergraduate students in active learning experiences supported the construction of knowledge.

**Constructivist Learning Theory**

Constructivism was described an approach to learning grounded in the belief that people “actively construct or make their own knowledge and that reality is determined by the experiences of the learner” (Elliott et al., 2000, p. 256). Central to constructivism was the idea that learners built new knowledge upon the foundation of previous learning. This prior intellectual framework influenced what knowledge an individual constructed from new learning experiences (Phillips, 1995). Ausubel (1968) contended that “the most important factor influencing learning is what the learner already knows” (p. 46). The goals of constructivist teaching were deep learning and cognitive development (Fosnot & Perry, 2005). Principles of Cognitive Constructivism and Social Constructivism were employed by instructors who sought to support students in making sense of new information.

Piaget’s (1954) Theory of Cognitive Constructivism held some basic assumptions about learning and development. Piaget asserted that all children were born with basic mental structures upon which all subsequent learning and knowledge was based. According to Piaget, individuals came to understand their world and make sense of new information through experience and interaction with their environments. Piaget posited that children experienced discrepancies between what they already knew and what they discovered in their environments.
These discrepancies created a sense of cognitive disequilibrium that an individual endeavored to resolve. Disputing the idea that intelligence was a fixed trait, Piaget regarded cognitive development as a process that occurred due to biological maturation and interaction with the environment (McLeod, 2020).

Like Piaget, Vygotsky (1978) argued that knowledge was constructed through experience, integrating new information to an existing intellectual framework. However, Vygotsky viewed learning as a social process whereas Piaget viewed knowledge construction as an individual endeavor. Vygotsky’s Theory of Social Constructivism stressed the role of social interaction as fundamental to the development of cognition (McLeod, 2020). According to Vygotsky, the community was central to one’s process of making meaning of new information. Students worked in relation with instructors and other students to co-construct their understanding of information.

Vygotsky (1978) explained that individuals made sense of new information when learning was guided, or scaffolded, by more expert collaborators. Educators were, therefore, critical contributors to supporting student development. Collaborative learning experiences through which learners coconstructed knowledge were missing from the undergraduate experience as, “fundamental changes in teaching and learning are rare in higher education…the lecture still reigns supreme” (Lueddeke, 1999, pp. 240-241). Instructors who designed learning experiences that allowed for students to engage with more knowledgeable others and receive appropriate levels of support from the teacher were more likely to stimulate those internal developmental processes within individual students, thus promoting a greater capacity for continued learning (Amineh & Asl, 2015; Guzey & Aranda, 2017; Vygotsky, 1978). As learners
developed, they naturally moved from a place of dependency toward self-directedness (Knowles, 1980, p. 44).

**Self-Directed Learning**

Kathleen Brown (2004) described self-directed learning as learning, which focused on the process by which adults took control of their own learning, set their own goals, located appropriate resources, decided on which methods to use to support their learning, and evaluated their own progress (p. 82). According to Malcolm Knowles (1980), not all students arrived at their undergraduate studies prepared with a mindset to shift to self-directed learning in contemporary society:

> it is no longer functional to define education as a process of transmitting what is known; it must now be defined as a lifelong process of continuing inquiry. And so the most important learning of all - for both children and adults - is learning how to learn, the skills of self-directed inquiry. (p. 41)

In Knowles’s reflections on the societal demands of the learner, we saw that Perry’s (1970) position of dualism, Belenky et al.’s (1986) perspective of received knowledge, and Magolda’s (1987) absolute way of knowing fell short of what was expected of an individual to fully participate in a democratic society and compete in today’s global economy. Knowles stated that, for the most part, adults had an inherent psychological need to be self-directing and that it was our responsibility as adult educators to promote this movement towards self-directedness (p. 43).

Considering this literature, continuing in the tradition of the lecture-based university classroom risks inhibiting growth among our students. Further, lecture-based pedagogy promoted the idea that the instructor was the keeper of knowledge and that authorities had all the answers. Understanding the needs of self-directed adult learners, Knowles (1980) suggested that
instructors take an andragogical stance when facilitating adult learning. As undergraduate students developed skills in critical reflection and assessing their own assumptions, they grew in their ability to transform their thinking (Mezirow, 1990, 1991; Roberts, 2006).

**Mezirow’s Transformative Learning Theory**

Mezirow (1990, 1991) argued that the purpose of adult development was to realize one’s agency through critical reflection and an ever-expanding self-awareness (Brown, 2004). Through transformative learning and development people questioned and changed their worldviews (Mezirow, 1991).

One of the critical dimensions of adult learning was the individual’s ability to recognize and reassess the structure of assumptions and expectations which framed their thinking, feelings, and actions, or what Mezirow deemed as “frames of reference” (as cited in Illeris, 2009, p. 90).

This transformation of self-occurred in four ways - through the elaboration of existing frames of reference, through learning new frames of reference, through transforming one’s points of view, and through transforming one’s habits of mind (Brown, 2004). This act of transformative learning changed the ways individuals saw themselves and made sense of their world (Franz, 2007; Mezirow, 1990, 1991; Roberts, 2006).

Kegan (1982, 1994) described this epistemological change as transformative learning and distinguished it from informational learning, indicating that at the heart of “form” was the ways of knowing (as cited in Illeris, 2009, p. 41). According to Kegan, transformative learning changed not only what we knew, but how we knew (as cited in Illeris, 2009, p. 42). Kegan’s (1994) theory of subject-object relationship encouraged adults to hold as object what was taken for granted, such as our assumptions, rather than be subjected to them; a transformative process that advanced socializing knowers to self-authoring knowers (as cited in Illeris, p. 50). The
process of transformation called for adults to reflect critically on the source and nature of their assumptions, determine truth through empirical research methods, use informed and continuing discourse to arrive at more justified beliefs, and take actions on their transformed perspectives (as cited in Illeris, 2009, p. 94). Nurturing the growth of adult learners required instructors to provide different forms of support and challenge to their students.

Leaders of adult learning considered the role of the learners’ experiences when designing classroom lessons. Active learning experiences supported greater construction of meaning for the learner than did passive learning experiences (Auerbach & Andrews, 2018; Knowles, 1980; Kolb, 2015). Engaging adult learners in experiences organized around real-life tasks and problems supported generalization of knowledge and motivated adult learners, who have made the shift from seeing themselves as full-time learners to full-time doers or producers (Knowles, 1980).

Kolb (2015) described context-dependent learning as the translation of the abstract ideas of academia into the concrete practical realities of people’s lives (p. 26). Methods that combined work and study or theory and practice provided a familiar learning environment to students and supported motivation and productivity (Kolb, 2015, p. 27). Examples of these context-dependent learning experiences included internships, field-based experiences, and work/study programs.

Undergraduate instructors created classroom conditions that promoted authentic learning experiences, encouraged the immediate application of new learnings, and fostered classroom communities that were performance-centered (Knowles, 1980). Learning to learn required university faculty to support students in developing their metacognitive skills, promoting epistemological development (Brown, 2004).

**Experiential Learning Theory**
Instructional methods that promoted “learning by doing” were experiential in nature and deeply rooted in the progressive philosophy of John Dewey. Kolb (2015) contended that learning was best conceived as a process rather than in terms of outcomes (p. 51). Instructors interested in determining the extent to which learning has taken place were more interested in the student’s engagement in active learning experiences than in the finished product. Kolb’s experiential learning theory aligned well with Perry (1970), Belenky et al., (1986) and Magolda’s (1987) epistemological theories, that suggested the higher students progressed through developmental stages, the more they understood the role of self in meaning-making and construction of knowledge (Hofer & Pintrich, 1997).

University instructors who engaged students in experiential learning supported students’ development of a practical understanding of the world (Brown, 2004). Participating in legitimate, generative work was motivating for adult learners, requiring them to draw on their prior experiences and solve real-world problems (Brown, 2004; Knowles, 1980). According to Auerbach and Andrews (2018), faculty hoped for students to belong to a community of learners, engaged in the practices and discourse of the discipline, demonstrating deep levels of understanding (p. 5).

For students to realize these goals, instructors established interactive classroom experiences which engaged students in constructing meaning (Auerbach et al., 2018). Auerbach et al. (2018) explained that to effectively prepare and support active-learning, instructors rejected the idea that students developed deep understanding by receiving content as they listened to lectures (p. 18). In fact, learning required students to engage with their environment and acquaint themselves with the holistic process of adapting to one’s world (Kolb, 2015, p. 51).
University faculty considered the unique needs of adult learners as they designed curriculum and planned for classroom learning experiences. Undergraduate students were better served by faculty who replaced traditional, didactic content delivery with pedagogical approaches that included experiential learning and reflective of the needs of adult learners (Auerbach et al., 2018; Werner et al., 2018). College faculty recognized the needs of their adult learners to be self-directing, self-managing, and able to immediately apply new learnings in personal and professional contexts (Knowles, 1980).

**Adult Learning Theory in the Undergraduate Classroom**

Engaging undergraduate students in active-learning instruction required more from university faculty than merely knowledge of content (Auerbach & Andrews, 2018). Scholars found that professors must also possess a deep understanding of pedagogy, yet many undergraduate instructors lacked this training (Auerbach & Andrews, 2018). One’s pedagogical knowledge greatly influenced their approach to lesson design and facilitation of learning, and even “small decisions about how to implement a teaching strategy [had] substantial impacts on student learning” (Auerbach & Andrews, 2018, p. 2).

In a study conducted on university faculty’s use of lecture versus other more active classroom learning approaches, Werner et al. (2018) discovered that lecture was the predominant methodology used to instruct courses, across a range of variables, including professor tenure, age, gender, and department affiliation (p. 10). In fact, lecture made up 47.4% of course experiences as reported by study participants. Werner et al. did find some evidence of implementation of pedagogical practices across Kolb’s (2015) four learning modes, including general discussion (10.5%), small group activities (9.9%), working on problems (8.5%), case discussion (6.3%), student presentations (6.3%), audiovisual content (4.6%), individual
reflections (3%), and simulations (2%).

Auerbach and Andrews (2018) argued that university instructors required training to feel competent in their pedagogical knowledge. Pedagogy was described as knowledge of learning theories, principles and approaches to instruction and assessment, lesson structure and classroom management, and student motivation, and considered to be “generalizable across topic and even discipline” (Auerbach & Andrews, 2018, p. 2). Professional development in higher education, however, has not necessarily “emphasized the importance of attending to students’ affective thinking to improve learning”, (Auerbach & Andrews, 2018, p. 20) even though preparing college instructors to do so was identified as important to the implementation of active-learning pedagogy.

Instructors who employed constructivist pedagogy, assisting learners in assimilating new information and enabling students in making appropriate accommodations to existing intellectual frameworks (Elliott et al., 2000; Piaget, 1954; Phillips, 1995; Vygotsky, 1978). Piaget posited that children experience discrepancies between what they already know and what they discover in their environments. These discrepancies created a sense of cognitive disequilibrium that individuals tried to resolve (Franz, 2007; Mezirow, 1998; Roberts, 2006). Constructivist pedagogues elevated their instructional methods through the facilitation of learning experiences that provoked cognitive disequilibrium within students (Elliott et al., 2000; Piaget, 1954; Phillips, 1995). When learners “encounter an experience or a situation that challenges the way we think, a state of disequilibrium or imbalance is created. We must then alter our thinking to restore equilibrium or balance” (Amineh & Asl, 2015, p. 10). Restoring equilibrium or balance was achieved through engaging more knowledgeable others, supporting the assimilation and accommodation of new information (Amineh & Asl, 2015).
Metacognition was positively associated with student outcomes. William Perry (1968) attributed man’s sophistication as a species to his ability to meta-reason – “to conceptualize about concepts, to think about his thoughts” (p. 37). However, many undergraduates have not adequately developed their metacognitive skills, certainly not to the level needed to internalize certain conceptual knowledge (Wang et al., 1990, as cited in Auerbach & Andrews, 2018, p. 21). Instructors prompted metacognition through exercises that promoted individual reflection, like quick-writes and journaling (Darling-Hammond et al., 2013; GSI, 2016).

Teacher noticing was a technique developed by van Es and Sherin (2008). Instructors who used teacher noticing attended to, reasoned about, and then responded to students and events in real-time while teaching (Auerbach & Andrews, 2018). This instructional move supported students in building their metacognitive awareness and informed instructor practice, enabling reflection in action and reflection on action (Schon, 1983). As university faculty considered how best to promote adult learning, they considered the importance of adult developmental processes.

**Conceptual Frameworks of Adult Development**

Educational theorists and psychologists were not in consensus regarding the relationship between learning and development (Vygotsky, 1978). To distinguish these terms, scholars conceptualized learning as “any process that in living organisms leads to permanent capacity change and which is not solely due to biological maturation or aging” (Illeris, 2007, p. 3); whereas, human development addressed evolving biological processes, occurring on their own independent of school-based influences (Vygotsky, 1978). Evolving biological processes included maturation of the nervous, as well as “deduction and understanding, evolution of notions about the world, interpretation of physical causality, and mastery of logical forms of thought and abstract logic” (Vygotsky, 1978, p. 79).
As discussed in the previous section, learning processes centered the acquisition and assimilation of knowledge. A constructive-developmental view of adult development, however, was described as a stage theory that examined the regular and progressive changes in how adults made meaning of their experiences (Eriksen, 2006; Kegan 1982, 1994). Vygotsky (1978), Kegan (1982, 1994), and Mezirow (1990, 1991, 1998) viewed the discipline of adult development through different lenses, each expounding upon the interdependent nature of learning and development.

The following section reviews literature designed to frame adult development theory. This section is organized into three subsections: (a) Vygotsky’s Zone of Proximal Development, (b) Kegan’s Constructive-Developmental Theory, and (c) adult development theory in the undergraduate classroom.

**Vygotsky’s Zone of Proximal Development**

Vygotsky (1978) outlined three theoretical positions espousing the conceptions held about the relationship between learning and development. The first theory assumed that the processes of one’s development were independent of their learning. This theory suggested that “learning is considered a purely external process that is not actively involved in development” (p. 79); but rather, learning employed developmental feats of an individual with no bearing on their subsequent maturation, as in Piaget’s theoretical principles. Vygotsky cited the work of Binet (1907) and other psychologists as examples of this theory, which assumed that human development was a prerequisite for learning, suggesting that no amount of instruction proved useful if a child’s intellectual capacities had not yet developed to a certain extent.

The second theoretical position explored by Vygotsky (1978) was one that viewed learning as development, such as the concept of reflex, whereby learning was reduced to the
notion of habit formation. The assumptions present in this theoretical position were that “learning and development coincide at all points in the same way that two identical geometrical figures coincide when superimposed” (p. 81). From an educational standpoint, this theory called on theorists to view learning to read, write, and calculate as a series of mastered conditioned reflexes (Vygotsky, 1978).

The third theoretical position considered by Vygotsky (1978) attempted to combine principles of the first two positions, as in Koffka’s (1928) assertion that “development is based on two inherently different but related processes [maturation and learning], each of which influences the other” (as cited in Vygotsky, 1978, p. 81). According to Vygotsky’s interpretation of Koffka’s theory, the process of maturation prepared a particular set of processes, enabling learning, while the learning process stimulated and advanced the maturation process. This theory supported a perennial philosophy of curriculum planning, in recognizing that although the study of such subjects as classical languages and art history had little bearing on activities of daily living, the Western classics held great value for a student’s cognitive development (p. 82).

Vygotsky, ultimately, rejected all three of these proposed theoretical positions and through his examination of each, construed his own view of the relationship between learning and development (Vygotsky, 1978).

Vygotsky (1978) theorized that children begin learning far before they ever reach school age. Through environmental and social experiences, children imitated others and assimilated new information into preexisting cognitive structures (Amineh & Asl, 2015; Fosnot & Perry, 2005; McLeod, 2019). An example of such imitation was language learning (Vygotsky, 1978). Children acquired knowledge of their world through the asking and answering of many questions. According to Vygotsky, “learning and development are interrelated from the child’s
very first day of life” (p. 84). Formal instruction, however, introduced a systematic nature to the presentation of content and concepts, allowing educators to consider the zone of proximal development for every student.

Vygotsky (1978) distinguished between an individual’s “actual” and “potential” developmental level. One’s actual developmental was described as the level of an individual’s cognitive functions that had been cultivated as the result of completed developmental cycles (Vygotsky, 1978). The potential developmental of an individual was described as the level of an individual’s mental development that can be realized with the assistance of a more knowledgeable other, such as a teacher (Vygotsky, 1978). The distance between the actual developmental level of a student as determined by independent problem solving and the level of potential development as determined through problem-solving with guidance from a teacher or in collaboration with more capable peers is what Vygotsky referred to as the “zone of proximal development” (p. 86).

Vygotsky’s theoretical position asserted that learning was a requisite aspect of the process of developing “culturally organized, specifically human, psychological functions” (p. 90). Learning stimulated internal developmental processes, which were engaged through social interactions and cooperative experiences (Amineh & Asl, 2015; McLeod, 2019; Vygotsky, 1978). Once internalized, these processes existed as part of the individual’s developmental actualization, affirming that learning was not development, but suggested that when “properly organized, learning results in mental development and sets in motion a variety of developmental processes that would be impossible apart from learning” (Vygotsky, 1978, p. 91). Constructive-developmental theory challenged instructors to recognize how students made meaning and came to know their world.
Kegan’s Constructive-Developmental Theory

Robert Kegan (1982, 1994) regarded humans as organizers of experience and considered the act of knowing as a process far beyond cognition. Kegan’s model of an evolving consciousness extended Piaget’s (1954) stages of development into adulthood (Eriksen, 2006). A series of basic tenets shaped the framework of Kegan’s constructive-developmental theory of adult development. The first of which was the acknowledgement that the primary function of humans was to make meaning of their experiences (Kegan, 1982, 1994).

Kegan (1982, 1994) has described the phenomenon of human evolution as “the evolving of systems of meaning” and recognized that individuals are subject to their meanings, often at a subconscious level. This act of developmental change can be distressing to an individual, as one experiences loss of the way in which they used to make meaning of the world and their experiences (Heifetz & Linsky, 2002).

Additionally, meaning systems shaped our experiences and gave rise to our behavior. As such, human behavior was not random or irrational, but was best understood when “viewed through the perspective of the actor’s constitution of reality” (Kegan, 1982, p. 374). Understanding the defining features and behaviors across systems of meaning making helped instructors determine how to best support their students at any given stage (Drago-Severson, 2009; Drago-Severson et al., 2009).

Kegan (1984, 1994) explored the concept of “knowing,” beyond the frame of thinking processes, and considered an individual’s meaning-making and meaning-organizing capacities that psychologists have traditionally associated with the “ego” or the “self” (Kegan, 1994, p. 29). Foundational to Kegan’s theory was the subject-object relationship. According to Kegan, “object” referred to the elements of one’s knowing or organizing that they can reflect on, handle,
look at, take control of, or otherwise operate upon. The element of knowing, therefore, was not the whole of an individual, but was distinct enough for one to do something with it (Kegan, 1994, p. 32). “Subject,” on the other hand, referred to those elements of one’s knowing or organizing that they were identified with, tied to, or embedded in, and that which one cannot take control of or reflect upon (Kegan, 1994, p. 32). Kegan described this concept in more simplistic terms, explaining “we have object; we are subject” (Kegan, 1994, p. 32). In Kegan’s proposed hierarchy of principles of mental organization, what is subject and what is object differs. Kegan put forth that the principles of mental organization were intimately related, not a culmination of skills, rather, “the relation is transformative, qualitative, and incorporative” with each successive principle subsuming the previous principle - that which was subject became object to the next principle (Kegan, 1994, p. 33). This unselfconscious development of complex principles for organizing experiences was what Kegan has deemed as psychological growth (Kegan, 1994).

Table 2.1

Three Ways of Knowing

<table>
<thead>
<tr>
<th>Ways of Knowing</th>
<th>Characteristics of Knower</th>
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<tr>
<td>Instrumental</td>
<td>Thinks in concrete terms&lt;br&gt;Rule-oriented&lt;br&gt;Concerned with “right” answers&lt;br&gt;Prefers direct guidance and advice from authorities&lt;br&gt;Greater capacity for reflection&lt;br&gt;Thinks in the abstract and generalize ideas across contexts&lt;br&gt;Is other-focused&lt;br&gt;Concerned with gaining approval from the group and from authorities</td>
</tr>
<tr>
<td>Socializing</td>
<td>Generates internal values and standards&lt;br&gt;Integrates and prioritize competing values and beliefs&lt;br&gt;Appreciates the perspective of authority but decide for self what is best&lt;br&gt;Manages interpersonal conflict</td>
</tr>
<tr>
<td>Self-Authoring</td>
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According to Drago-Severson’s (2008) interpretation of Kegan’s theory, instrumental knowers understood their experiences in concrete terms and were concerned with following rules. In search of the right way, instrumental knowers often felt most supported when they received specific advice and guidelines during task completion. Instrumental knowers had a “What do you have that can help me? What do I have that can help you?” orientation to leading, teaching, leadership, and life (Drago-Severson, 2008, p. 61).

Socializing knowers, however, developed a greater capacity for reflection, were able to think abstractly, generalized from one context to another, and reflected on others’ actions. According to Drago-Severson, socializing knowers were concerned with gaining the approval of authorities and valued peers (Drago-Severson, 2008, p. 61). Socializing knowers were collaborative and reflective but were at risk of placing the group’s needs before their own. Socializing knowers sometimes struggled with conflicting opinions, values, and behaviors (Breidenstein, et al., 2012).
Finally, self-authoring knowers generally had the developmental capacity to generate internal values and standards and prioritized and integrated competing values. They were able to live with ambiguity and were often able to stand in opposition to a group (Breidenstein et al., 2012). Self-authoring knowers generally had the developmental capacity to reflect on their actions and their context and regulated interpersonal relationships (Drago-Severson, 2009; Breidenstein et al., 2012). While they appreciated an authority’s perspective, self-authoring knowers ultimately decided for themselves what direction they would take, assessing others’ expectations and values in relation to their own (Drago-Severson, 2008, p. 61).

Regardless of their orientation, adult learners required different forms of support and challenge from their instructors or supervisors to effectively participate within the organization and develop personally and professionally (Drago-Severson et al., 2013, p. 941). Having reviewed the literature concerning constructive-developmental theory, it is clear to me that university faculty who understand the ways of knowing among their students were better able to adjust their approach to instruction, thus supporting students’ development in the classroom. The following subsection examines the application of adult developmental theory in the university classroom.

**Adult Development Theory in the Undergraduate Classroom**

In undergraduate classroom settings, university faculty were faced with the challenge of supporting adult learners at various stages of intellectual development and maturation. Depending on one’s way of knowing, an adult learner approached coursework and responded differently to learning. Research has demonstrated that instructors in educator preparation programs do not adequately employ adult learning and development theory in their instructional practice (Auerbach & Andrews, 2018; Boyer Commission, 1998; Werner et al., 2018).
Kegan (1982) advised that adult educators interested in promoting transformational learning among their students needed to better understand their students’ epistemologies (as cited in Illeris, 2009, p. 41). Knowles (1980) suggested that adult learners, by nature, had a tendency toward self-directed learning, however, Kegan cautioned adult educators to not make assumptions about one’s students.

University faculty were cautioned to take time to assess a learner’s readiness for release to self-directed learning, as not all adult students were “automatically self-directing merely by virtue of being adults” (Kegan, 1994, p. 51). For undergraduate students to effectively participate in their learning, to grow in their content understanding and change their frames of reference, university instructors employed pedagogical and andragogical approaches that engaged students in collaborative learning experiences, integrating new knowledge and generalizing learning across contexts (Boyer Commission, 1998).

Instrumental knowers tended to feel most supported in settings where they received instruction and content delivery from expert sources and understood specific and explicit advice and guidelines (Breidenstein et al., 2012). Lecture, which was the dominant method of instruction received by university-level students, appealed to the instrumental knower as one who looked to an authority as the keeper of truth and “right” answers (Werner et al., 2018).

Inviting guest speakers to present in their fields of expertise also satisfied the needs of instrumental knowers (Drago-Severson, 2008, 2009). As research suggested, however, student outcomes tended to improve through more experiential, rather than lecture-based classes (Werner et al., 2018). Instructors were advised to consider how to challenge instrumental knowers to advance to the next stage in their development. University instructors designed classroom conditions that promoted small group discussion, peer feedback, and collaborative learning
experiences in which instrumental knowers were exposed to, and could consider, perspective of others (McLaughlin & Talbert, 2006 as cited in Fahey & Ippolito, 2014). Collective examination of case studies, in-class exercises and presentations, and engaging in reflective dialogue about field-based experiences supported instrumental knowers in expanding their thinking and exposed them to new insights and perspectives (Werner et al., 2018).

Socializing knowers were able to collaborate and reflect with other adult learners, but some experienced discomfort when faced with conflicting values and behaviors, especially if those conflicting perspectives are held by instructors or valued others (Breidenstein et al., 2012). Faculty supported the growth of their socializing knowers by constructing classroom conditions that offered students the chance to engage in individual and group reflection, share their thinking with others, and collaborate with classmates (Fahey & Ippolito, 2014). Think-Pair-Share, quick writes, chalk-talk, journaling, and small group discussions were ways in which faculty encouraged socializing learners to consider their own ideas on an issue prior to sharing more expert points of view (Breidenstein et al., 2012). In addition to activating prior knowledge, these pedagogical methods allowed for adult learners to try out their ideas and receive some informal feedback on their thinking from their peers before resigning themselves to accepting the instructor’s perspective as truth (Breidenstein et al., 2012, Fahey & Ippolito, 2014).

According to Kegan (1994), few at the undergraduate level entered school “do so with the hope or intention of personally growing from being in school” (p. 293). Instead, students were more concerned with practical outcomes and professional goals (Kegan, 1994). As such, fewer university faculty found themselves instructing self-authoring knowers in the classroom (Drago-Severson, 2008, 2009; Kegan, 1994). Subscribing to the belief that a combination of support and challenge was the key to facilitating growth and development in adult learners, as
suggested by Vygotsky’s (1978) zone of proximal development and Kegan’s (1982) orders of consciousness, undergraduate instructors designed classroom conditions which cultivated psychological growth. Faculty supported and challenged self-authoring knowers through posing questions and offering alternative ideas, challenging students to reconsider their own perspectives and adopt different and opposing points of view through reflective writing assignments and group forums (Breidenstein et al., 2012; Drago-Severson, 2008, 2009; Drago-Severson et al., 2009; Fahey & Ippolito, 2014). Drago-Severson (2009) referred to reflective group forums as “convenings,” collaborative discussion groups in which students convened to reflect upon problematic or puzzling cases from their own practice after safe participatory norms had been established.

In addition to challenging the self-authoring learner, there existed multiple benefits to promoting a classroom environment in which students learned in the context of community (Drago-Severson, 2009; Drago-Severson et al., 2009). Professional literature described the benefits of cultivating professional learning communities and networked improvement communities in educational organizations.

**Learning Communities Within Universities**

Social learning theorists have contended that people made greater meaning of new content and concepts when learning within community than they did when engaged in individual study. Instructors who promoted a sense of community in the classroom imparted an essential element of a high-quality undergraduate education (Boyer Commission, 1998). Vygotsky (1978) asserted that social interactions influenced how individuals thought and that learning was supported by more knowledgeable others within the zone of proximal development. Educators have assembled in *communities of practice*, defined by Wenger (1998) as a group of people
informally bound together by shared expertise, a passion for a joint enterprise, and learning through a mutual engagement in such activities. Numerous research studies have been conducted that substantiate the organizational learning benefits of formalizing learning communities across various educational settings.

In considering how to best support the learning and development of undergraduate students in the university classroom, literature was reviewed concerning (a) the development of professional learning communities, (b) network improvement communities, and (c) learning within community in the undergraduate classroom.

**Professional Learning Communities**

The concept of professional learning communities has traditionally been associated with the development of professional educators in K-12 schools, however, Senge (1990) examined learning organizations in private industry, identifying principles of learning within community that aligned well with practices present in some contemporary school systems. The “learning leader” was a concept touted by Senge, who suggested that leaders who view themselves as designers, teachers, and stewards of their learning organizations achieved greater success and productivity than those of more traditional organizations, for “over the long run, superior performance depends on superior learning” (p.462)

DuFour et al. (2008) defined a professional learning community as “educators committed to working collaboratively in ongoing processes of collective inquiry and action research to achieve better results for the students they serve” (p. 14). The defining characteristics of professional learning communities defied the traditional view of teaching in isolation, in which an educator was the king or queen of their classroom fiefdom, operating independent of the rest of the school community (Breidenstein et al., 2102; DuFour et al., 2008). Instead, teachers
practicing within a professional learning community, held a shared mission and vision for their organization and shared goals focused on student learning (DuFour et al., 2008; Wenger, 1998). Assembling teams of educators to engage in collaborative practice did not, on its own, yield positive student learning outcomes (Supovitz, 2002). Communities of practice that resulted in increased student performance shared certain characteristics.

Supovitz (2002) identified three attributes of communities of instructional practice that promoted student learning. First, instructors used their time in communities of instructional practice to develop their understanding of curriculum standards and instructional approaches that supported student learning. Second, instructors gave and received feedback on their teaching methods. Collaborative learning time was dedicated to observing colleagues’ instructional practice, as a mechanism for learning new teaching methods as well as to share suggestions for professional growth. Finally, faculty identified and leveraged their professional strengths to meet the collective needs of students and the greater community. Through their deliberate engagement in communities of instructional practice, educators examined their teaching methods in relation to educational standards and student needs (Supovitz, 2002).

According to DuFour et al. (2008), members of a professional learning community contributed to a collaborative culture, maintained an unwavering focus on student learning, and engaged in collective inquiry into best practice. Teachers participating in learning communities were action-orientated, results-oriented, and committed to continuous self- and organizational improvement (DuFour et al., 2008). When functioning as a professional learning community, educators assumed a collective responsibility for the learning of all students and for others within the organization (Breidenstein et al., 2012; DuFour et al., 2008).

Fahey and Ippolito (2015) described Intentional Learning Communities (ILCs) as “places
where educators work together to learn the skills of reflecting, collaborating, deprivatizing practice, and exposing and exploring fundamental assumptions” (p. 1). Intentional Learning Communities assembled on a regular basis, operating under the assumption that adult learning leads to improved student learning (Breidenstein et al., 2012). Educators engaged in discussions of shared text, student work, and professional dilemmas, led by an expert facilitator (Breidenstein et al., 2012). Using discussion-based protocols to cultivate a climate of safety and trust within the group, expert facilitators supported adult and organizational learning with the goal of improving teaching and student learning (Fahey & Ippolito, 2015).

In deprivatizing one’s practice, individuals learned with and from each other and shared the role of the more knowledgeable other (Vygotsky, 1978). Educators who engaged in collaborative learning, deprivitized their practice, and participated in ongoing reflection improved their practice and promoted student learning (DuFour et al., 2008; Fahey & Ippolito, 2015; Newmann & Wehlage, 1995). The belief that individuals can accomplish more together than they can accomplish on their own was a central principle of networked improvement communities (Bryk et al., 2017).

**Networked Improvement Communities**

Networked improvement communities aimed to support individual and organizational learning to achieve targeted improvement in K-12 schools (Bryk et al., 2017). Developed in response to ineffective reform efforts, network improvement communities “unite the conceptual and analytic discipline of improvement science with the power of networked communities to [enable practitioners to] innovate and learn together” (Bryk et al., 2017, p. 7). The organizational conditions of networked improvement communities “enable effective collective action” (p. 11), allowing for greater problem-solving in the field of education.
Bryk et al. (2017) described social learning in networks across three levels. Level-A learning involved knowledge acquisition at an individual level, achieved through experiential learning in one’s professional context. Level-B learning occurred among individuals within a professional context. An example of Level-B learning included individuals collaborating to collectively acquire knowledge in a school-based learning community. Level-C learning engaged individuals in learning with others outside of their organizational context, offering opportunities for teaming across institutions.

The rationale for learning within community, according to Bryk et al. (2017), was that pooling individual insights enhanced the collective capacity of the organization. The greater the number of perspectives and prior experiences that existed within the community, the more an individual’s learning was informed and enriched. Undergraduate students did not necessarily arrive to their freshman year with the skills needed to effectively participate in, nor meaningfully contribute to, a networked classroom community (Chan, 2000; Guzey & Aranda, 2017; Pendergast et al., 2014). It was incumbent upon the instructor to create classroom conditions that supported these collaborative learning behaviors (Cooper et al., 2010).

**Learning Within Community in the Undergraduate Classroom**

In their study of active-learning instructional pedagogy in undergraduate Science, Technology, Engineering, and Math (STEM) courses, Auerbach and Andrews (2018) found that faculty had a desire to promote a sense of belonging and community among their students. Further, instructors wished to design classroom experiences that were perceived as safe and welcoming (p. 13). To achieve this learning climate, Auerbach et al. (2018) offered concrete suggestions for classroom practices that encouraged learning within community.
First, instructors created a holding environment (Kegan, 1982; Heifetz & Linsky, 2002), providing high levels of support while also challenging individual and collective growth. Using students’ names, moving position throughout the classroom during instruction, and ensuring equity of voice during whole-class discussion were some ways in which faculty cultivated a sense of belonging and safety within the classroom (Auerbach & Andrews, 2018). Engaging students in the development of class norms and monitoring for adherence to agreed-upon norms was another way that instructors fostered holding environments (DuFour et al., 2008). Once faculty have developed a safe learning environment, they shifted their attention to supporting students in realizing their agency as self-directed learners and contributors to the community (Brown, 2004).

Atteberry and Bryk (2010) asserted that in schools with strong professional community, leaders cultivated a professional culture in which teachers were viewed as active agents of change (p. 361). In such schools, attention was drawn to what the individual agent contributed to the learning of others within the community (Atteberry & Bryk, 2010). As such, teachers were more willing to innovate and perceived their roles as having influence on organizational outcomes (Atteberry & Bryk, 2010).

Bryk et al. (2017) posited that members of a networked community were more likely to adopt the thinking of their colleagues and test and refine that thinking in their own contexts once they knew and respected one another (p. 146). Deviating from lecture-based pedagogy, in which the teacher was the expert and keeper of all knowledge, was an important first step. In their study of active-learning instruction with undergraduate math and science majors, Auerbach and Andrews (2018) noted that university faculty viewed small workgroups as potential settings for
students to practice their ability to communicate their understanding, learning something from their peers, and yet their thinking in a safe context (p. 12).

Discussion-based protocols were tools used to support educators in sharing practice. Such protocols were also adapted for use in the undergraduate classroom, promoting a climate of collaboration and trust (Breidenstein et al., 2012; Fahey & Ippolito, 2015). University instructors structured class sessions using discussion-based protocols, such as “convenings” (Drago-Severson, 2009) or those offered by professional organizations such as the School Reform Initiative. Highly structured discussion-based protocols supported the development of holding environments (Breidenstein et al., 2012; Fahey & Ippolito, 2015). Many discussion-based protocols were structured to ensure that discussion remained focused and within time constraints, that participants shared leadership and facilitation roles, and that speaking time was equitably allocated among participants (Breidenstein et al., 2012; Fahey & Ippolito, 2015). The norms developed within professional learning communities enhanced feelings of safety and security for participants (Breidenstein et al., 2012).

Although traditionally applied to K-12 educational settings, the characteristics of professional learning communities and networked communities suggested application for supporting adult learning and development in a higher education classroom. Ensuring the learning of every student was the purpose of a professional learning community, which aligned with the aim of university instructors (Cooper et al., 2010). Among the primary characteristics of professional learning communities was an action orientation toward learning (DuFour et al., 2008). In professional learning communities, adults learned by doing. Kolb’s (2015) experiential learning theory and Knowles’s (1980) assumptions of andragogy confirmed, engaging adult
learners in experiences organized around their real-life tasks and problems supported the
generalization of knowledge and motivated adult learners.

Working together in communities of practice enhanced individual and organizational
capacity in schools (Breidenstein et al., 2012; DuFour et al., 2008; Fahey & Ippolito, 2015). A
culture of collaboration was inherent in the practice of professional learning communities
(DuFour et al., 2008). DuFour et al. (2008) proffered that members of professional learning
communities worked interdependently to achieve common goals and held one another
accountable for supporting the learning and development of all. In a study of adult women
learners, Drago-Severson et al. (2009) found that collaboration stimulated learning and
leadership development among participants. In the university classroom, students and instructors
worked together to support the learning of all. Because adults had a natural tendency toward self-
directed learning (Knowles, 1980), instructors leveraged their students’ developmental capacity
and employed principles of professional learning communities in their classroom design.

Soliciting students’ ideas and participatory decision-making were instructional moves
that enhanced a sense of ownership among learners (Drago-Severson, 2009; Drago-Severson et
al., 2009). Like professional learning communities, networked communities were “intentionally
designed social organizations, and participants have distinct roles, responsibilities, and norms for
membership” (Bryk et al., 2017, p. 144). Developing group norms at the start of each semester
promoted mutual accountability among adult learners. Presenting clearly defined student
learning outcomes for the semester and at the start of every class session bolstered a shared
understanding of the mission and goals for the course (DuFour et al., 2008). Involving students
in the development of course experiences and assessments was another way faculty applied the
principles of professional learning communities and networked communities within their
classrooms to foster a sense of ownership and self-directed learning among undergraduate students (Brown, 2004).

Drago-Severson et al. (2009) found that through the development of a collaborative learning environment, university instructors were better able to facilitate social-learning experiences than if they had taken a lecture-based approach to pedagogy (p. 142). Students that worked together in groups were active participants in their learning experiences and enhanced their abilities to solve problems (Drago-Severson et al., 2009; Kegan et al., 2001). Further, students considered new ideas and perspectives offered by classmates in collaborative learning environments (Drago-Severson et al., 2009; Kegan et al., 2001). Lecture-based instruction, however, reinforced the view of instructors as the authority in classrooms. As the authority, instructors were the “keepers” of information and answers, disseminating their knowledge to students (Perry, 1970). The final section of this literature review examines factors and conditions that have influenced instructor pedagogy in higher education.

**Factors and Conditions that Influence Pedagogy**

Undergraduate instructors coupled their discipline-specific expertise with an understanding of how adults learn and develop in an effort to support students in constructing new knowledge (Bain, 2004; Mattheis & Jensen, 2014). Henderson and Dancy (2014) argued effective teaching of math and sciences required undergraduate instructors to develop a skillful pedagogy in addition to their content expertise (Mattheis & Jensen, 2014). Studies have indicated that undergraduate students achieved greater learning gains through active-learning methodologies, yet instructors continue to employ lecture-based pedagogies (Gess-Newsome et al., Grunspan et al., 2018; 2003; Henderson et al., 2011; Henderson and Dancy, 2011).
The final area of literature explored identifies factors and conditions that support the development of instructor pedagogy. The literature depicts an absence of pedagogical training for university instructors in their graduate and doctoral program experiences (Boyer Commission, 1998; Cahn, 1978; Cross, 1990; Milton, 1972; Robinson & Hope, 2013). Yet, there is consensus among researchers that teaching and learning in higher education could improve with better training for college professors (Boyer Commission, 1998; Cross, 1990; Milton, 1972; Robinson & Hope, 2013). An overview of literature that addresses factors and conditions influencing instructor pedagogy is organized into five subsections: (a) instructors’ sense of self-efficacy, (b) the need for instructor training in classroom pedagogy; (c) how instructor values shape classroom practice; (d) instructors’ personal learning experiences as influencing factors; and (e) the influence on-the-job learning has on instructor pedagogy.

Instructors’ Sense of Self-efficacy

Bandura (1994) defined self-efficacy as one’s “beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives” (p. 71). The beliefs instructors hold regarding their abilities to impact students’ learning were identified as important indicators of teaching effectiveness and determined how people feel, think, motivate themselves, and behave (Bandura, 1994; Fong et al., 2019; Fong, Gilmore, Pinder-Grover, & Hatcher, 2019). Instructors derived their sense of self-efficacy from four sources: mastery experiences, positive appraisal, models of successful practice, and limited affective responses to teaching experiences (Bandura, 1994; Grunspan et al., 2018).

A sense of self-efficacy among teachers was achieved through mastery experiences (Bandura, 1994; Fong et al., 2019). Realizing professional successes led instructors to believe that they could positively impact student learning, whereas perceived failures undermined
instructors’ sense of efficacy (Bandura, 1994). The ease with which instructors implemented certain instructional practices was deemed as a strong predictor of pedagogy in the undergraduate classroom (Ertmer 2005; Long, 2017; Ottenbreit-Leftwich et al. 2010; Spotts 1999).

Bandura (1994) asserted that instructors’ feelings of self-efficacy were also strengthened through vicarious experiences provided by social models. According to Bandura, “people seek proficient models who possess the competencies to which they aspire” (p. 72). Instructors new to university teaching positions often employed instructional methodologies modeled and endorsed by respected colleagues (Grunspan et al., 2018; Henrich & Gil-White, 2001; Henrich & McElreath, 2003; Oleson & Hora, 2014).

Positive appraisals of instructors’ work contributed to perceptions of effective practice, a phenomenon regarded as social persuasion (Bandura, 1994; Morris & Usher, 2001). Social persuasion presented as positive feedback from students, colleagues, and supervisors (Bandura, 1994). Positive appraisal contributed to increased confidence among instructors (Bandura, 1994).

Mastery experience, models of successful practice, and social appraisal all contributed to instructors’ elevated sense of self-efficacy (Bandura, 1994; Grunspan et al., 2018). There remained a need, however, for faculty training in learning and development theory and pedagogy.

The Need for Instructor Training

Studies have demonstrated a need for greater pedagogical training among university instructors (Boyer Commission, 1998; Cahn, 1978; Cross, 1990; Mattheis & Jensen, 2014; Milton, 1972; Robinson & Hope, 2013). Cahn (1978) reported that most college and university professors received minimal or no training in educational theory and methodology as compared
with their primary and secondary teaching colleagues (as cited in Robinson & Hope, 2013). Often, undergraduate courses were taught by instructors who were experts in their disciplines but lacked formal training in teaching methodologies (Davis et al., 2011; Mattheis & Jensen, 2014; Momsen et al., 2010). Instructors with expert content knowledge and minimal educational training tended to prioritize the memorization of facts over conceptual understanding and higher-order thinking (Mattheis & Jensen, 2014; Momsen et al., 2010).

New university instructors have benefitted from induction programs that have included postgraduate courses on teaching in higher education, mentoring programs, and research capacity building (Boyd & Harris, 2010; Murray & Male, 2005). Professional development that most appealed to instructors were those opportunities that provided practical ideas and strategies proven to enhance student learning (Guskey, 2002). Successful instructor training programs provided continuous professional support and opportunities to adjust practice as needed (Guskey, 2002; Mattheis & Jensen, 2014). However, Grunspan et al. (2018) contended that “neither providing data nor engaging faculty in teaching workshops has proven sufficient to effect widespread pedagogical change among faculty toward active learning (Sunal et al., 2001; Ebert-May et al., 2011; Henderson et al., 2011; Andrews & Lemons, 2015)” (p. 1). The value instructors placed on specific instructional practices often influenced classroom pedagogy.

**Instructor Values Shape Classroom Practice**

Instructors in higher education viewed the role of teacher in varied ways. Studies revealed that some instructors saw their work as imparting content knowledge to undergraduates while others regarded their role as a facilitator of learning, supporting students in constructing knowledge (Kember & Kwan 2000; Postareff & Lindblom-Ylänne, 2011; Prosser et al., 1994;
Samuelowicz & Bain 1992, 2001). How an instructor conceived of their function, was shown to influence their classroom practice (Postareff & Lindblom-Yläne, 2011).

Literature demonstrated a connection existed between the pedagogical beliefs of instructors and their use of teaching methods (Long et al., 2017). Instructors’ beliefs about teaching and learning influenced whether or not they included authentic, student-centered practices in their instruction (Ertmer 2005; Ertmer & Ottenbreit-Leftwich 2013; Hermans et al. 2008; Overbay et al. 2010; Sang et al. 2010). Research conducted by Postareff and Lindblom-Yläne (2011) indicated that, “approaches to teaching were greatly influenced by conceptions of teaching” (e.g. Kember & Kwan 2000; Postareff & Lindblom-Yläne 2008; Trigwell et al., 1994), and that instructors tended to be either teacher-focused or learner-focused, depending on how they viewed the role of a teacher (p. 799). Recent studies on technology integration in the higher education classroom revealed that instructors were more likely to incorporate technology into their practice if they saw the method as relevant, useful, and easy to implement (Ertmer 2005; Long, 2017; Ottenbreit-Leftwich et al. 2010; Spotts 1999).

An instructor’s tenure status was also an influencing factor in lesson design and implementation. Research-focused institutions tended to place more emphasis on instructors’ research products than on their teaching experience when hiring for tenure-track positions (Fleet et al., 2006; Grunspan et al., 2018). For instructors struggling to meet tenure and promotion requirements, they had to decide “how much effort to allot to teaching versus research” (Grunspan et al., 2018, p. 6). Managing one’s time and expectations for tenure and promotion took away from instructors’ capacity to develop teaching practices (Grunspan et al., 2018; Hardré et al., 2010; Robert and Carlsen, 2017). Without sufficient training and time to attend to
developing instructional practice, undergraduate faculty often defaulted to teaching as they were taught (Grunspan et al., 2018).

**Instructors Teach as they were Taught**

Faculty with expert content knowledge and little to no instructional training resorted to lecture-style teaching, as this was the instructional format with which they were most familiar (Baldwin, 2009; Henrich & Gil-White, 2001; Henrich & McElreath, 2003; Lueddeke, 1999; Mattheis & Jensen, 2014). Studies concluded that pretenured faculty made pedagogical decisions based on their prior experiences, personal opinions, and beliefs (Feldman, 2000; Andrews and Lemons, 2015; Lund and Stains, 2015).

Grunspan et al. (2018) referred to this phenomenon as cultural transmission, whereby “individuals within academic institutions adopt and update their cultural variants, such as use of lecture, based on personal experience and social interactions throughout their academic careers” (p. 3). The cultural transmission model presented by Grunspan et al. contended that undergraduate students most often learned content via lecture-based delivery formats. These undergraduate students internalized lecture as the normative pedagogical style in higher education. Grunspan et al. asserted that in the absence of formal pedagogical training, undergraduate students passively accepted lecture as the optimal way to teach, later applying that enculturated view to their future teaching practice (Cox, 2014; Grunspan et al., 2018; Kensington-Miller et al., 2013; Oleson & Hora, 2014; Phelps & Lee, 2003; Richardson, 1996).

Research indicated that instructors with limited teaching experiences in graduate school, often due to research fellowships, tended to revert to the instructional styles of their undergraduate experiences (Grunspan, 2018). New faculty members may have also relied upon guidance from departmental colleagues and mentors “copy[ing] behaviors of these same peers
when the time does come to teach” (Grunspan et al., 2018, p. 6). Other factors that influenced instructor pedagogy emerged from daily experiences in the workplace.

**On-the-Job Learning**

Informal, on-the-job learning was characterized as critical to the success of new faculty as they oriented themselves to the school community (Boyd & Harris, 2010; Eraut, 2000; Lave & Wenger, 1991; Wenger, 1998). Interactions with experienced faculty, formal training experiences, and departmental leadership contributed to the learning and development of instructor pedagogy (Boyd & Harris, 2010; Fuller et al., 2005; Trowler & Knight, 2000; Knight et al., 2006).

Corbo et al. (2016) explained that cultural transmission occurred within instructors’ departments and social contexts. New faculty often relied on collegial advice from veteran instructors and benefitted from replicating the practices they perceived as working well for others (Grunspan et al., 2018; Henrich & Gil-White, 2001; Henrich & McElreath, 2003; Oleson & Hora, 2014).

**Chapter Summary**

Chapter Two reviewed literature concerned with the applications of adult learning theory, constructive-developmental theory, communities of practice in university setting, and factors that influenced pedagogy.

A variety of conceptual frameworks were reviewed concerning ways adults acquired knowledge and understanding and how individuals interpreted their formal educational experiences. In addition to exploring theories of adult learning and development, the chapter investigated ways in which adults learn within community and the presence of communities of
learning in higher education. It concluded with an exploration of factors and conditions found to influence instructor pedagogy in the undergraduate classroom.

The review of literature began with an examination of the theoretical frameworks of adult learning. Adult learning was defined and an investigation was conducted regarding three models of epistemological development and their applications within a university context. A case was made for the application of constructivist learning theory, self-directed learning, transformative learning theory, and experiential learning theory in the undergraduate classroom.

The conceptual frameworks of adult development theory were explored next. The literature examined centered Vygotsky’s Zone of Proximal Development and Kegan’s Constructive-Developmental Theory. This section discussed the merits of tailoring instruction based on ways adult learners come to understand course content and the integral role of instructors in supporting undergraduate learning.

Literature was reviewed regarding ways to support the learning and development of undergraduate students and faculty in the university classroom. The section examined the benefits of professional learning communities and network improvement communities as K-12 classroom design structures that could be generalized to the university setting to promote adult learning and development.

The final area of literature reviewed investigated factors and conditions that supported the development of instructor pedagogy. Studies revealed limited pedagogical training for university instructors in their graduate and doctoral program experiences (Boyer Commission, 1998; Cahn, 1978; Cross, 1990; Milton, 1972; Robinson & Hope, 2013). Yet, studies found that teaching and learning in higher education improved with better instructor training (Boyer Commission, 1998; Cross, 1990; Milton, 1972; Robinson & Hope, 2013). In addition to reviewing literature
regarding the need for instructor training in classroom pedagogy, this section discussed instructor values and personal learning experiences as factors that shaped classroom practice. The section concluded with an investigation of the influences on-the-job learning has had on instructor pedagogy.

The preceding literature endorsed a student-centered approach to teaching, positioning undergraduate students as active participants in learning experiences rather than passive receivers of knowledge. Study findings have indicated that conceptions of teaching greatly influenced instructor practice, and that instructors tended to be either teacher-focused or learner-focused, depending on how they viewed the role of a teacher (Postareff & Lindblom-Ylänne, 2011). University instructors generally lacked learning and development training and pedagogical expertise (Auerbach & Andrews, 2018; Werner et al., 2018; Boyer Commission, 1998). Study findings have indicated, however, that new instructors have benefitted from induction programs that included postgraduate courses on teaching in higher education, mentoring programs, and research capacity building (Boyd & Harris, 2010; Murray & Male, 2005). Establishing communities of learning in higher education was also a solution faculty and administration leveraged to support adult and organizational learning (Bryk et al., 2017; DuFour et al., 2008; Senge, 1990; Wenger, 2000, 2004). Chapter Three delineates the research methodology employed in this study.
CHAPTER THREE: METHOD

Introduction

The primary purpose of this explanatory sequential mixed methods study was to explore how university instructors in Northeastern Massachusetts described their understanding of adult learning and development. Additionally, the study investigated how instructors chronicled the influence that their understanding of theory has on their instructional practice in the undergraduate classroom. Beyond knowledge of adult learning and development theory, this study sought to examine the factors and conditions that instructors in higher education reported influenced their pedagogy, especially for those practitioners who have had no formal training in the field of learning and development.

As an undergraduate instructor in the School of Education at Endicott College, I am acutely aware of how my training and former teaching experiences have informed my work with undergraduate students. Formal scholarship in the field of teaching and learning have heavily influenced my planning and instructional practice with undergraduate students. As a candidate for a Bachelor of Arts in Early Childhood Education, I learned about Lev Vygotsky’s principles of Social-Constructivism and Jean Piaget’s theory of Cognitive Development. Years later, I would discover the application of each theory in the undergraduate classroom, whether designing lessons that emphasize small-group discussion or including the use of analogies to promote conceptual understanding. While pursuing my Master of Education in Educational Leadership, I was introduced to Malcolm Knowles’s adult learning theory; a theory of learning so impactful that I consistently apply his principles of andragogy to my weekly lesson preparation at Endicott College.
My entire professional life has been spent in schools. The seventeen years of professional experience as a teacher and school principal prior to transitioning to higher education, as well as the countless hours of professional development focused on best practices in teaching and learning, have influenced how I plan lessons and facilitate learning in the undergraduate setting. I realize that my training and professional background are not shared by all.

In conversations with colleagues across departments it is clear that not all instructors have been formally trained to facilitate learning. Many instructors are experts in their respective fields, having transitioned to higher education from clinical or corporate settings. These professionals are masters of their content. Few instructors, however, have engaged in coursework addressing pedagogical methods or best practices. Yet every day, undergraduate students arrive at their classrooms ready to learn. I’ve often wondered what informs the planning and instruction of my colleagues who have no formal training in how their students learn and develop.

Although much has been published on the subject of adult learning and development theory and classroom methods, research has indicated that university instructors rarely apply what is purported to be effective pedagogical practice in the context of undergraduate instruction (Auerbach & Andrews, 2018; Boyer Commission, 1998; Clarke & Gabert, 2004; Werner et al., 2018). The reasons why undergraduate instructors are not employing effective pedagogical strategies in their classrooms is unclear. Additionally, there is a dearth of research identifying what factors and conditions do influence the pedagogy of instructors at the undergraduate level. This study has endeavored to clarify those unknowns.

Literature has suggested that university instructors generally demonstrate a lack of understanding of adult learning and developmental theory (Boyer Commission, 1998; Cross, 1990). This lack of theoretical understanding has limited the pedagogical practice of faculty in
the undergraduate classroom (Auerbach & Andrews, 2018; Boyer Commission, 1998; Cahn, 1978; Cross, 1990; Werner, Scovotti, Cummings, & Bronson, 2018). Instructors build pedagogical practice based on the assumptions held about how undergraduate students learn (Smith & MacGregor, 1992). These assumptions are informed by learning and development theory or by one’s prior experiences as a learner (Boyer Commission, 1998). In the absence of formal training in the field of learning and development, instructors defer to their personal learning experiences (Werner, et al., 2018).

When instructors build their pedagogical practice based solely on their own experiences as learners, they often default to a passive, lecture-based approach (Werner, et al., 2018). Research has found that an active-learning approach to teaching undergraduate students is favored over a passive, lecture-based pedagogy (Bodner, 1986; Smith, Sheppard, Johnson, & Johnson, 2005; Kolb, 2015; Knowles, 1980). The Boyer Commission report (1998) endorsed a student-centered approach to teaching, in which undergraduate students are active participants in learning experiences rather than passive receivers of knowledge (p. 29). Smith and MacGregor (1991) described the limits of lecture-based pedagogy in the college classroom as contributing to an “educational culture that reinforces student passivity, high rates of student attrition, and a reward system that gives low priority to teaching” (as cited in Goodsell, Maher & Tinto, 1992, p. 10).

Active-learning strategies call for instructors to facilitate collaborative and cooperative learning among students. For some professors, formal training in adult learning and development has guided their pedagogical practice. Other college professors, however, have received no formal training in these fields. For individuals lacking formal training, it is unclear what influences their instructional planning and teaching methodology. This study sought to identify
factors and conditions that influence the instructional practice of those who support undergraduate learners.

An explanatory sequential mixed methods design (Creswell & Creswell, 2018) was used as the primary research design method in this study. This design methodology began with quantitative data collection and analysis. This analysis informed the design of the qualitative research, in particular, the selection of participants for the follow-up interviews as well as development of the interview protocol. This study investigated how university instructors acquire theoretical understanding of adult learning and development and the influence those understandings, and related factors and conditions, have on their pedagogical practice. Three research questions guided this study:

1. How do university instructors in Northeastern Massachusetts describe their understanding of the ways in which adults learn and develop in the undergraduate classroom setting?

2. How do university instructors in Northeastern Massachusetts describe their understanding of how adult learning and development informs their approach to lesson planning and facilitation of student learning in the undergraduate classroom setting?

3. Beyond understanding of adult learning and development theory, what other factors or conditions do university instructors in Northeastern Massachusetts report influence the design and implementation of their classroom practice with undergraduate learners?

Following the introduction, Chapter Three is organized according to the following sections: (a) overview of the research design, including prevailing worldview; (b) study participants and setting; (c) development of instruments; (d) data collection procedures; (e) data analysis procedures; and (f) delimitations and limitations of the study. Issues of trustworthiness – increasing the validity of the study design, ensuring participant confidentiality, and reducing
researcher bias – are integrated into pertinent sections. The chapter ends with a summary of its key features.

**Overview of the Research Design**

The following section describes the worldview in which the study was grounded and provides a rationale for the design approach and strategies used in the study.

**Worldview and Philosophical Underpinnings**

Creswell and Creswell (2018) explained that research approaches are often differentiated by the worldview held by the inquirer. Quantitative approaches, qualitative, approaches, and mixed methods approaches are associated with postpositivist, constructivist, and pragmatic knowledge claims, respectively (Creswell & Creswell, 2018; Subedi, 2010). Pragmatic assumptions guided the design of this mixed methods research approach. Collecting multiple forms of data, through surveys and individual interviews, provided a comprehensive understanding of the research problem (Creswell & Creswell, 2018). Data collected through the survey not only informed the selection of individual interview participants but also influenced the development of open-ended interview questions. The objectivity of the quantitative survey data lent itself to researcher bracketing throughout the study, while the subjectivity of the qualitative interviews promoted a “best understanding” of the research problem (Creswell & Creswell, 2018, p. 11).

Mixed-methods research studies were characterized by Hanson et al. (2005) through a variety of procedural guidelines. Such markers included deciding on the purpose of the study, developing research questions, determining the type of data to be collected, and settling on an explicit theoretical lens through which to consider findings (p. 226). The term theoretical lens “refers to the philosophical basis, or paradigm, that underlies a researcher’s study and subsequent
methodological choices (Crotty, 1998)” (Hanson et al., 2005, p. 226). Hanson et al. (2005) argued that explanatory sequential research designs “do not use an explicit advocacy lens” (p. 229). This study was informed by the theoretical orientations of both social constructivism and pragmatism (Creswell & Poth, 2018).

**Rationale for Research Design**

This study was conducted using an explanatory sequential mixed methods research design. Creswell and Creswell (2018) described explanatory sequential mixed methods as one of three primary research design methods utilized by contemporary researchers in the social and health sciences (p. 15). Mixed methods research design is the “combining or integration of qualitative and quantitative research data in a research study” (Creswell & Creswell, 2018, p. 14). Multiple forms of data were collected, including qualitative data gathered through open-ended interview questions, and quantitative data collected using a closed-item response survey (Creswell & Creswell, 2018). Analysis of survey responses was used in two ways: (1) to assign a quantitative score to each respondent for the purpose of interview participant selection, and (2) to inform the design of the qualitative interview questions in an effort to further understand the quantitative data and the essence of the study participants’ experiences (Creswell & Creswell, 2018).

The explanatory sequential mixed methods design (Creswell, 2018) was used to investigate answers to three guiding research questions. Creswell et al. (2003) described explanatory sequential design as “the collection and analysis of quantitative data followed by the collection and analysis of qualitative data” (p. 178). Although priority is typically given to the quantitative data in explanatory sequential mixed methods studies (Creswell et al., 2003), the
design priority of this investigation was given to qualitative data in order to understand the pedagogical influencers reported by the participants.

The qualitative aspect of the explanatory sequential mixed methods approach served to better illustrate how university instructors in Northeastern Massachusetts viewed connections between adult learning and development and their own pedagogical choices. A purely quantitative methodology would not have provided as nuanced descriptions of participants’ views. The selection of study participants and study setting are described in the following section.

Participants and Setting

The following section provides information pertaining to study participants and research sites. A description of the target population for this study and details of how participants were selected are outlined. Additionally, this section provides an overview of demographic data for the range of research sites used in this study.

Selection of Participants

This study was designed to place the university instructor at the center of the research as the primary subject. Participants of this study, particularly those who engaged in individual interviews, were not considered members of a vulnerable population. The purpose of the study was disclosed, in writing, to all participants. Methods for ensuring the safety and confidentiality of contributors were outlined in the survey introduction.

The target population of study participants included university instructors in Northeastern Massachusetts. As intended with the study design, survey respondents represented a range of disciplines, years of teaching, and levels of education.
The study focused on soliciting data from university instructors holding full-time positions at their respective institutions, having earned a terminal degree, and teaching at least one undergraduate course each semester. The years of professional teaching experience held by a respondent, the field of expertise, and academic department in which the respondent teaches were not limiting factors in participation for this study. In fact, I had hoped to engage instructors with a range of professional experiences in individual interviews to gather comparative data.

To identify participants for this study, a letter requesting survey participation (see Appendix A) was sent to 704 university instructors using email addresses found on public websites across three institutions of higher education in Northeastern Massachusetts. Several email invitations were returned due to inactive email accounts or instructors responding with news of their retirement from the field. Once these data were sorted, the number of viable survey respondents dropped to 692 instructors across three institutions.

Of the 692 possible respondents, 102 university instructors participated in the survey, with 95 respondents completing the survey in full. Demographic data were provided by 91 of the survey participants. The number of respondents who completed the survey in full varied by site. Site A drew 10 survey completers, Site B yielded 31 survey completers, and Site C produced 50 survey completers.

Survey participants associated themselves with a range of academic departments. All three sites (A-C) attracted participants from the schools of Biology and Education, while Site C included respondents from a wide variety of academic departments.

Each study site attracted participants across a range of professional rank. Full professors, associate professors, and assistant professors completed the survey from Sites A, B, and C.
Adjunct lecturers from sites A and C, and professor emeriti from Site C, participated in the survey as well.

The level of education achieved by survey completers across all sites was fairly consistent. The majority of survey respondents at each site held a Ph.D., and a few respondents from each site had attained another type of professional doctorate.

The survey attracted instructors with a greater number of years of service at Sites A and C, with 70% of respondents and 62% of participants reporting 16-plus years of teaching experience respectively. Site B differed in that the greatest number of respondents reported teaching for 7-10 years.

Survey data were scored to inform the selection of follow-up interview participants. Data were exported to an Excel spreadsheet as individual responses with numerical values assigned. Each respondent was assigned a total score, rating their familiarity with and confidence in applying adult learning and development theory (ALDT) in the undergraduate classroom. Respondents were then sorted according to ALDT scores from highest to lowest.

Fifteen survey respondents were invited to participate in a follow-up interview. Participants across all three sites were invited to interview, however, only respondents from Sites B and C elected to engage in an individual interview. Given the unusual nature of the COVID-19 pandemic and organizational challenges posed to institutions, it was not surprising that participants from all sites were not able to participate in the study beyond the initial survey. Ten survey respondents who agreed to participate in a follow-up interview demonstrated a range in professional rank, years of teaching, and academic disciplines.
Site Description

I am an assistant professor at a college in the Northeast region of Massachusetts. As such, I have elected to not conduct my research within my own institution so as to reduce the incidence of any potential “power concerns” within the research environment (Creswell & Poth, 2018, p. 152).

Research was conducted at three area colleges, located in Northeastern Massachusetts. The sites were originally selected based on their geographic location, as each institution is in driving distance to conduct on-site participant interviews. However, in-person accessibility to interview participants was not an option, due to safety concerns relating to the COVID-19 pandemic. In-person meeting restrictions resulted in all follow-up interviews being conducted via the Zoom web conferencing platform.

One state university and two private colleges were chosen as sites for this study. Each institution selected for this study offers between 33 and 43 undergraduate programs across multiple schools and divisions. Full-time undergraduate enrollment ranged from 1,507 to 5,434 students across the three institutions. The number of full-time instructional faculty ranged from 85 to 325 across sites. The names of the sites as well as the study participants have been given pseudonyms to protect participant privacy and confidentiality. What follows is an explanation of the development of the instruments used in conducting the study.

Development of Instruments

This section describes the development of the instruments used to conduct the study. In addition to details related to the development of the closed response survey and follow-up interview, it delineates the pilot investigation conducted to increase validity of the study.
In an explanatory sequential mixed-methods study, the researcher “first conducts quantitative research, analyzes the results and then builds on the results to explain them in more detail with qualitative research” (Creswell & Creswell, 2018, p. 15). The methodology in this study was “sequential” in that first quantitative data were collected via an online survey. The survey data were numerically coded and scored and subsequently used to inform the selection of subjects for qualitative data collection, through participation in a follow up interview. Moreover, survey data helped to narrow and refine the types of interview questions that were asked of individual participants (Creswell & Poth, 2018).

Collecting “‘mixed’ forms of data, including quantitative survey data and qualitative open-ended interview data” (Creswell, Clark, Gutmann, & Hanson, 2003, p. 162), allowed for the identification of emergent trends from survey data, which were then further explored through subsequent interviews.

**Survey**

A survey served to gather demographic and initial perceptual data. Full-time undergraduate instructors at three area colleges in Northeastern Massachusetts were sent an email with a letter of informed consent (Appendix A). The letter included a link to an online survey using the Survey Monkey platform (Appendix D). Survey questions were divided into four main sections: (a) instructional pedagogy, (b) knowledge of adult learning and development theory, (c) influences on instructional pedagogy, and (d) participant information.

The content of the survey was developed based on the three research questions that guided this study. The survey allowed participants to reflect via a mixture of closed and open response items. The questions first gathered initial perceptual data, asking respondents to reflect on their classroom pedagogy as it relates to twelve different instructional practices. Questions
then asked respondents to reflect on their knowledge of adult learning and development theory. Survey questions went on to ask respondents to reflect on how their understanding of adult learning and development theories informs their instructional practice. The survey then prompted respondents to identify factors and conditions that contribute to the development of their pedagogical practice. The survey concluded with questions that gathered demographic data about participants.

The survey was developed following an online review of other professional demographic surveys and questionnaires administered to faculty and staff in higher education. The three major sections of the survey were developed based on the three research questions that guided the study. The first section asked respondents to reflect on their instructional practice as it relates to twelve different instructional practices. Twelve instructional practices were included: lecture, labs and experiments, small group discussions, case studies, fieldwork, simulations, films and videos, problem sets, open-ended and essential questions, journaling and reflective writing, discussion-based protocols, and peer feedback and critique. Each instructional method was paired with a brief definition to support a shared understanding of terms among survey participants (Leong & Austin, 2005). A four-point Likert scale enabled participants to indicate the frequency with which they employed these instructional pedagogies, rate their perceived efficacy when employing these instructional pedagogies, and rate the importance placed on including these instructional pedagogies in their undergraduate classrooms. Rating was completed using the following four-point Likert scale: 1 = never; not at all effective; not at all important; 2 = sometimes; somewhat effective; somewhat important; 3 = often; moderate effective; moderately important; 4 = always; extremely effective; extremely important. Two open-ended questions were posed in this section as well. The first encouraged respondents to list
additional teaching methods employed in their undergraduate classrooms. The second inquired about factors and conditions that inhibited the implementation of instructional practices.

The second section of the online survey required completers to reflect on their knowledge of adult learning and development theory and consider how that knowledge influenced their classroom pedagogy. Again, a Likert scale was selected for the questions in this section. The scale designed for each question had an associated action, rather than simply rating the respondent’s levels of agreement or disagreement. A Likert scale with associated actions as response options helped to reduce the cognitive load for the participant. One open-response question was posed in this section, inviting respondents to share an example of how their familiarity with adult learning and development theory has influenced their instruction.

The third section of the survey asked participants to indicate the types of experiences they felt had prepared them to lead adult learning in the undergraduate classroom and the level of influence those experiences have had on their instructional practice. Once again, rating was completed using a four-point Likert scale: 1 = not at all influential; 2 = somewhat influential; 3 = very influential; 4 = extremely influential. Two open-ended questions concluded this section of the survey. The first question asked respondents to consider factors and conditions that guide their choices about teaching methods. The final question invited participants to share any information about their teaching or professional learning that I had not asked them about during the survey.

The final section of the survey collected demographic data on participants. Data collected for respondents included the number of years of teaching experience, the institutions where they teach, the number of undergraduate classes taught each semester, their present academic ranks
and tenure status, their levels of education, and the departments or schools with which they primarily associate.

The survey was tested in a small pilot study, involving nine undergraduate instructors in Massachusetts. Feedback received from pilot participants informed survey revisions prior to sharing with instructors across the three study sites. Following the pilot study, the survey introduction was revised to include a more precise definition of “adult learner” as an undergraduate student between the ages of 18 and 22 years. Based on feedback from pilot participants, a progress bar was added to the bottom of each page of the online survey.

The survey identified participants for follow-up interviews based on a shared set of criteria. Three criteria included instructors holding full-time teaching status at their respective institutions, those who have earned a terminal degree, and those who teach at least one undergraduate course each semester. The years of professional teaching experience held by a respondent, field of expertise, and academic department in which the respondent taught were not limiting factors in participation for this study. In fact, participants demonstrating a range of professional experiences were intentionally selected for a follow up interview.

**Follow-up Interviews**

The second instrument used in this study was a follow-up interview. Participants were first given a letter of informed consent to participate in the interview. Interview questions were designed to further understand respondents’ thinking and reflections about their understanding of adult learning and development theory. During the interview, participants shared information and insights about why they responded the way they did on the survey. Participants were asked about their familiarity with adult learning and development theories, shared examples of ways in which adult learning and development theory informs their planning and lesson implementation,
described techniques and methodologies used in their instructional practice, and reflected on the extent to which they are satisfied with their instructional pedagogy. Participants answered questions designed to uncover factors and conditions that contributed to their developing understandings of adult learning and development and classroom pedagogy.

The interview protocol was tested in a small pilot study. Two of the nine pilot survey completers were selected to participate in an interview, simulating identical conditions as outlined in the study method design. Feedback received from the pilot interview participants informed protocol revisions prior to interviewing actual study participants. Following the pilot interviews, prompts inquired about the influence of adult learning on instructional practice and adult development on instructional practice were combined. Additionally, the prompt “Tell me the story of your development as an instructor in higher education” was revised to “What are some key moments in your development as an instructor in higher education?” as a result of feedback received during pilot interviews.

Validity

Qualitative validity refers to “the correctness or credibility of a description, conclusion, explanation, interpretation, or other sort of account” (Maxwell, 2013, p. 122). Maxwell (2013) encourages qualitative researchers to identify specific threats to the validity of a study and then design ways to minimize those threats. Creswell and Creswell (2018) have endorsed the use of multiple validity procedures in a study to “enhance the researcher’s ability to assess the accuracy of findings as well as convince readers of that accuracy” (p. 200). Researcher bias and reactivity are two specific threats to validity (Maxwell, 2013).

Maxwell (2013) referred to the influence the researcher has on the setting or individuals studied as reactivity (p. 124). Like bias, researcher influence cannot be fully eliminated from a
study. It is important for a researcher to understand the influence held within the study, as in the context of an interview (Maxwell, 2013). Avoiding leading questions may curtail researcher influence in the context of an in-depth interview (Maxwell, 2013). As mentioned, a pilot-test of the survey and follow-up interview questions was conducted. A benefit of conducting the pilot was gathering “feedback from others on how they think the questions (and the interview guide as a whole) [would] work” (Maxwell, 2013, p. 101). Revisions to survey and interview questions were made in response to pilot-test participant feedback. Gathering feedback through a pilot study and making appropriate revisions based on pilot participant feedback served to minimize threats to validity and increase the credibility of conclusions drawn (Maxwell, 2013). Employing multiple validity procedures aids both the researcher and the reader in assessing the accuracy of study findings (Creswell & Creswell, 2018). The next section describes how data were collected during the study, how researcher bias was reduced, and how participant confidentiality was ensured.

**Data Collection Procedures**

This section describes the sequence of data collection for this study. What follows is a review of the processes used to (a) collect survey data, (b) secure participants for follow-up interviews, and (c) collect follow-up interview data. Additionally, this section addresses measures taken to ensure confidentiality and data security.

**Collecting Survey Data**

Closed response survey data were collected and stored using the online platform SurveyMonkey. This secure site uses a single sign-on to maintain user identity and employs account verification from its users. According to data security and compliance information available on the SurveyMonkey (2020) site, respondent data were securely stored in the
platform’s accredited data centers, and SurveyMonkey used a secure HTTPS connection to ensure safe transmission of collected data. SurveyMonkey user logins are protected and data at rest are encrypted using industry standard encryption algorithms and strength (surveymonky.com).

The link to the online survey was embedded in a letter of informed consent (see Appendix A) sent to 704 university instructors, using email addresses found on public websites across three institutions of higher education in Northeastern Massachusetts. As previously stated, several email invitations were returned due to inactive email accounts or instructors responding with news of their retirement from the field. Once these data were sorted, the number of viable survey respondents dropped to 692 instructors across three institutions.

A reminder email was sent to the 692 potential survey respondents at the end of the first week of the survey launch. During the two weeks that the online survey was live, 102 instructors participated in the online survey, 95 of whom completed the survey in full. At the end of the survey, completers were asked about their interest in participating in an online interview, using the Zoom web conferencing platform. Willing respondents were asked to provide their contact information for interview scheduling. The final question of the survey invited participants to indicate their interest in being added into a drawing for an Amazon gift card, in appreciation of their participation in the study.

**Collecting Interview Data**

Ten of the sixty respondents who indicated their interest in participating in a follow-up interview were selected and notified via email. Creswell and Creswell (2018) recommended “a range of 3 - 10” individuals as an appropriate sample size for a phenomenological study (p. 186). Ten interview participants satisfied the criteria for the qualitative portion of this study. Included
in the email was an agreement to participate in the online interview (see Appendix C) and a link to an online Calendly scheduler. Interview participants were asked to sign and return the agreement to participate and to sign up for a one-hour interview appointment. Upon registering for an appointment time through Calendly, a Zoom link was automatically generated and participants were given the option of adding the event to their personal calendars using Google or iCal.

Video and audio documentation of participant interviews were recorded through Zoom and saved to a password-protected laptop. Audio recordings were uploaded to and transcribed using the Sonix transcription service. Transcripts were reviewed and downloaded to Microsoft Word documents for easy sharing with study participants. Interview transcripts were shared with study participants for member checking, a method of systematically soliciting feedback about data collected as a way to rule out the misinterpretation of “the meaning of what participants say and do and the perspective they have on what is going on” (Maxwell, 2013, pp.126-127). Once all transcripts had been reviewed and returned by study participants, interview data were separated into three separate categories for analysis. Each section of data aligned with a particular guiding research question.

Researcher bias emerges when the inquirer’s existing preconceptions, values, and beliefs influence their behaviors, decisions, and interpretations of findings within a study (Maxwell, 2013). Researcher subjectivity cannot be altogether removed from the study so it is imperative that a researcher understand how their perceptual lens may influence their conduct and take measures to reduce bias (Maxwell, 2013). Peer debriefing is a procedure used to reduce researcher bias when gathering rich and significant data (Creswell & Creswell, 2018). A peer researcher reviews and asks questions about the survey and follow-up interview data to involve
interpretation beyond the researcher, thus adding validity to the findings (Creswell & Creswell, 2018).

Following the transcription of each recorded interview, word documents were sent out to individual participants for member checking, a process described by Creswell & Miller (2000) as taking data and interpretations back to study participants so that they can confirm the credibility of the information and narrative account (p. 127). Participants were invited to make any revisions or additions that more accurately reflected their thoughts, ideas, and intended meaning of statements made during the interview and return these edits prior to data analysis. This process ensured that “interpretations of the informant’s reality and meanings [would] ensure the truth value of the data” (Creswell & Creswell, 2018, p. 208). The next section outlines the manual and computational approaches and tools used to analyze the data collected in this study. Those data were organized and analyzed according to the three guiding research questions.

Data Analysis Processes

The following section describes all manual and computational approaches and tools used to analyze survey and interview data. What follows is a discussion of the manner the data were organized and analyzed quantitatively and qualitatively to answer the three guiding research questions.

Quantitative Data Analysis

Closed-item response survey data were collected using the SurveyMonkey platform. Once the survey window had closed, all data were exported to an Excel spreadsheet in the form of individual responses with numerical value. Survey items were grouped and coded with numerical value according to participants’ self-ratings and open-ended responses. Respondents’ ratings of their familiarity with adult learning and development theory and their confidence in
supporting students in learning and applying course content were assigned a numerical value. Ratings indicating greater familiarity and confidence received higher numerical value. Numerical values were assigned to participants’ experiences with formal training in the areas of adult learning and development, contributing to the composite score. Open-ended item responses were also coded, with references to specific learning and development theories and theorists receiving higher numerical value.

Composite adult learning and development theory (ALDT) scores were calculated for all completers in order to qualitatively distinguish between participants with high, medium, and low levels of familiarity with adult learning and development theory. Saldaña (2018) described this method of analysis as Magnitude Coding, a scheme that “applies numbers or other symbols to data and even to codes themselves that represent values on a scale, such as 3 = HIGH, 2 = MEDIUM, and 1 = LOW” (p. 72).

Respondents were assigned the classification of high ALDT (13 to 18), mid ALDT (7 to 12), or low ALDT (2 to 6) based upon their cumulative ALDT score. Scoring survey data in this way helped to inform the selection of interview participants for the qualitative portion of the study. Table 3.1 summarizes ALDT scores for the 95 survey participants.

Table 3.1

Adult Learning and Development Scores for Survey Participants (n=95)

<table>
<thead>
<tr>
<th>ALDT Score</th>
<th>Number of Respondents</th>
<th>ALDT Score Range</th>
<th>Mean ALDT Score</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>High ALDT</td>
<td>12 (13%)</td>
<td>13 – 18</td>
<td>15.2</td>
<td>1.59</td>
</tr>
<tr>
<td>Mid ALDT</td>
<td>29 (30%)</td>
<td>7 – 12</td>
<td>9.1</td>
<td>1.54</td>
</tr>
<tr>
<td>Low ALDT</td>
<td>54 (57%)</td>
<td>2 – 6</td>
<td>2.9</td>
<td>1.49</td>
</tr>
</tbody>
</table>
Table 3.1 shows that more than half of survey participants, or 57%, indicated through self-rating scales their lack of familiarity with and formal training in adult learning and development theory. The fewest number of survey completers fell into the high ALDT group, with only 13% of all respondents assigned to this category. Table 3.1 shows a standard deviation of <2 for each ALDT score grouping, indicating that the data are clustered closely around the mean and thus more reliable. Survey questions were bundled into three sections, aligned with the guiding research questions, to aid with quantitative analysis.

**Research Question One**

The first of three research questions guiding this study is: How do university instructors in Northeastern Massachusetts describe their understanding of the ways in which adults learn and develop in the undergraduate setting? With regard to this question, participants rated their familiarity with adult learning theory and familiarity with adult development theory using a 5-point Likert scale. Numerical data were provided for this question, with a score of 5 indicating extremely familiar. Participants’ ratings provided insight into how well instructors believe they understand adult learning and development theory. These data were examined in the aggregate and also offered insights regarding respondents from varying institutions, associated departments and schools, years of teaching, and professional rank.

**Research Question Two**

The second guiding research question states: How do university instructors in Northeastern Massachusetts describe their understanding of how adult learning and development theory informs their approach to lesson planning and facilitation of adult learning in the undergraduate classroom setting? To address this research question, an open-response survey item asked participants to provide examples of how their familiarity with adult learning and
development theory has influenced their practice. Participants’ responses to this question indicated explicit and implicit ways in which theoretical knowledge and understanding of adult learning and development informs their pedagogy.

One closed-response survey item asked participants to rate the frequency with which they employ various instructional practices, using a 4-point Likert scale with an option to select not applicable. Numerical data were provided for this question, with a score of 4 indicating the participant always employs the practice. Another closed-response item asked the participants to rate the importance placed on those same instructional practices, using a 4-point Likert scale with an option to select not applicable. Numerical data were provided for this question, with a score of 4 indicating an instructional practice is extremely important in a higher education setting. Data from these questions provided insights into instructional methods most often used, and considered most important, by instructors with high, mid, and low familiarity of adult learning and development theory.

**Research Question Three**

The last of the three guiding research questions asks: Beyond their understanding of adult learning and development theory, what factors or conditions do university instructors in Northeastern Massachusetts report influence the design and implementation of their classroom practice with undergraduate learners? With regard to this question, respondents rated eleven learning experiences on a 4-point Likert scale, indicating the level of influence each had on their instructional practice. Participants had the option to select not applicable for any given instructional practice. Numerical data were provided for this question, with a score of 4 yielding a rating of extremely influential. This question offered perspective on the learning experiences
that instructors found to be most helpful in preparing them to lead adult learning and design classroom instruction.

An open-response question invited participants to discuss factors and conditions that guide their decisions regarding which teaching methods to employ in the undergraduate classroom. Responses to these survey questions informed the development of follow-up questions for individual follow-up interviews.

**Qualitative Data Analysis**

Survey data were quantified to inform the selection of follow-up interview participants. Data from the survey were exported to an Excel spreadsheet as individual responses with numerical values assigned. Self-rated familiarity and confidence levels, along with information gathered about instructors’ formal training in the fields of adult learning and development, were assigned numerical values and totaled to provide an overall Adult Learning and Development Theory (ALDT) score for each survey participant. Respondents were then sorted according to ALDT scores from highest to lowest and categorized with a high, mid, or low ALDT score.

Fifteen survey respondents representing a range of study sites, academic departments, and ALDT scores were invited to participate in a follow-up interview. Ten survey respondents agreed to participate in a follow-up interview. Only respondents from Sites B and C elected to engage in an individual interview. Four participant volunteers had ALDT scores of high, one participant had a mid ALDT score, and five participants scored as low ALDT. Although one participant’s self-rating scores placed her in the mid ALDT subgroup, the participant’s ALDT score was reassigned as high following the interview. The change in ALDT score was made based upon the participant’s responses to interview questions. The participant’s knowledge and understanding of adult learning and development theory was indistinguishable from other
participants identified in the high ALDT subgroup. The ten interview participants demonstrated a range in professional rank, years of teaching, and academic disciplines.

Survey data were also used to inform the development of the interview protocol. Specifically, follow up questions were tailored to individual participants based on their closed-item and open-ended responses. Participants were asked to elaborate on their responses and provide additional context to their survey item selections.

The follow-up interview was designed as a tool to support the development of a composite description of the essence of the lived experience of the interview participants (Creswell & Poth, 2018). Aligned with a phenomenological approach to qualitative research design, the interview aimed to surface not only what participants experienced, but how they experienced it (Moustakas, 1994, as cited in Creswell & Poth, 2018). The analysis of qualitative interview data followed systematic procedures, moving from narrow units of analysis to broader units (Creswell & Poth, 2018).

Moustakas (1994) described a set of data analysis procedures appropriate for qualitative studies that employ a phenomenological approach (as cited in Creswell & Poth, 2018):

1. Reduce collected information to significant statements or quotes.

2. Combine significant statements into themes.

3. Develop a textural description of participants’ experiences.

4. Develop a structural description of participants’ experiences.

5. Combine the textural and structural descriptions to convey an overall essence of the experience (pp. 79-80).
In addition to the recommended phenomenological data analysis procedures (Moustakas, 1994; Creswell & Poth, 2018), a set of etic codes were generated from the guiding research questions and used in a second coding cycle analysis.

**Coding the Data**

Initial analysis of qualitative data began with reading all interview transcripts and emic codes were captured in the form of significant statements. Significant statements are “sentences, or quotes that provide an understanding of how the participants experienced the phenomenon” (Creswell & Poth, 2018, p. 79). These statements were captured using an *In Vivo Coding* scheme, whereby “actual language found in the qualitative data record [interviews]” (Saldaña, 2018, p. 105) were recorded and sorted into broader categories before extrapolating broader themes.

Saldaña (2018) advised significant statements could be analyzed as “extended thematic statements rather than a shorter code,” a process called *Theming the Data* (p. 198). Thematic statements were recorded using participants’ verbatim language during first cycle analysis and synthesized during later stage analysis to identify larger themes and describe the essence of participants’ experiences.

During the second cycle of coding, a list of etic codes was generated based on the guiding research questions. Etic codes were framed as analytic questions, developed to support *Structural Coding* in which data were both coded and initially categorized to examine commonalities, differences, and relationships among comparable segments (Saldaña, 2018).

Five analytical questions, which were developed based on the guiding research questions, are listed below.

1. How do participants define adult learning?
2. What are the various ways participants use adult learning and development theory when developing lesson plans?

3. What instructional methods do participants use to facilitate learning based on their understanding of learning and development theory?

4. What do participants describe as key moments in their development as instructors in higher education?

5. What factors and conditions do participants describe as influencing their instructional practice?

Interview transcripts were coded using a *Structural Coding* scheme. Saldaña (2018) described structural coding as collecting and categorizing content-based interview responses for more detailed coding or analysis. As such, a code frequency report was generated to identify categories and subsequent themes that emerged from the content and concepts captured during the structural coding cycle (Saldaña, 2018). Table 3.2 delineates the most frequently recorded emic codes from participants during the follow up interviews.

**Table 3.2**

*Most commonly identified emic codes in interview transcripts*

<table>
<thead>
<tr>
<th>Code</th>
<th>Number of Occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Reflect(ion)”</td>
<td>41</td>
</tr>
<tr>
<td>“Question(s)”</td>
<td>33</td>
</tr>
<tr>
<td>“Experience(s)”</td>
<td>30</td>
</tr>
<tr>
<td>“Engage”</td>
<td>29</td>
</tr>
<tr>
<td>“Topic”</td>
<td>27</td>
</tr>
<tr>
<td>“Colleagues”</td>
<td>25</td>
</tr>
<tr>
<td>“Tenure”</td>
<td>22</td>
</tr>
<tr>
<td>“Evaluation(s)”</td>
<td>22</td>
</tr>
<tr>
<td>“Discussion”</td>
<td>21</td>
</tr>
<tr>
<td>“Community”</td>
<td>17</td>
</tr>
</tbody>
</table>
Table 3.2 presents the ten emic codes that emerged as the most frequent significant statements made by participants during follow up interviews. Further analysis of these and other concept codes are discussed in Chapter Four.

A third cycle of coding employed *Simultaneous Coding*, aimed to identify data that applied to multiple codes. Simultaneous Coding “applies two or more different codes to a single qualitative datum, or the overlapped occurrence of two or more codes applied to sequential units of qualitative data” (Saldaña, 2018, p. 94). All interview data were revisited and analyzed for multiple meanings that justified the assignment of more than one code.

**Interpreting Major Categories from the Data**

First, second, and third cycle codes were examined and categories were formed to create “clusters of meaning” in an effort to answer the guiding research questions (Creswell & Poth, 2018, p. 79). Data analysis procedures typical of empirical, transcendental phenomenology include collecting data from multiple individuals who have experienced the phenomenon, reducing the data to significant statements, and then combining the statements into “clusters of meaning”, a process Creswell and Poth (2018) referred to as “horizontalization” (p. 79).

The code frequency report generated as part of the structural coding scheme served to identify categories and broader themes (Saldaña, 2018). Analytic memos captured emergent themes and textural and structural descriptions were drafted to further describe participants’ experiences. A composite description of the common experiences of the participants was developed, to “convey an overall essence of the experience”, thus answering the research questions guiding the study (Creswell & Poth, 2018, p. 78).

A specific explanation of the analysis of data for this study is outlined in eight main steps, as recommended by Creswell and Poth (2018):
1. Data were organized and prepared for analysis. Audio files from Zoom recordings were transcribed using the Sonix automated transcription software platform. Transcriptions were reviewed for accuracy and downloaded as Microsoft Word documents.

2. Transcribed word documents were sent to individual participants for member checking (Creswell & Creswell, 2018). Participants were invited to make any revisions or additions that more accurately reflected their thoughts, ideas, and intended meaning of statements made during the interview and return these edits prior to data analysis.

3. All interview data were read and emic codes were identified in the form of “significant statements.” Emic codes were recorded using an In Vivo Coding scheme and thematic statements were identified and sorted. Initial thoughts, ideas, and questions were captured into research memos.

4. In a second coding cycle, etic codes were framed as analytic questions. Content-based or conceptual phrases were recorded using a Structural Coding scheme. A code frequency report was generated to identify categories and examine commonalities, differences, and relationships among comparable segments.

5. A third cycle of coding employed Simultaneous Coding, aimed to identify data that applied to multiple codes.

6. Codes were organized into categories of data, which were then used as headings for the findings section (Chapter Four).

7. Categories of data were used to write analytic memos in an effort to answer the guiding research questions.

8. Themes emerged from analytic memos and these meaning units were interpreted to describe the essence of lived experience of participants.
The methods employed to guide this explanatory sequential mixed methods study aligned with the recommendations of experts in the field of qualitative research. However, delimitations and limitations were present in this study, and their potential influences on the study are worth noting.

**Delimitations and Limitations**

This section outlines measures taken to delimit the scope of the study. An explanation of possible weaknesses of the study is also included in this section.

**Delimitations**

What follows is a discussion of steps taken to delimit the study according to the participants, the setting, researcher bias, and ethical considerations.

**Participants**

Study participants consisted of the respondents to my initial survey and the individuals selected for a follow up interview. Ninety-five instructors completed an online survey that was sent to 692 college faculty across three institutions in Northeastern Massachusetts. Ten respondents were selected to participate in a follow up interview. Six of the ten interview participants were affiliated with Site B, while four participants were affiliated with Site C.

All interview participants held a terminal degree. The type of degree (Ph.D., Ed.D., M.D., or J.D.) was not a limiting factor, rather, it was more important that all participants have achieved the same level of education. The intention behind standardizing the level of education attained by study participants was to limit the incidence of degree variation (for example, Masters level versus Doctoral level) as a potential factor contributing to the pedagogical expertise of the university instructors.
The years of professional teaching experience held by a respondent was not a limiting factor in participation for this study. I intend to gather comparative data across years of teaching experience to discover multiple factors and conditions which influence pedagogy across a range of years of experience.

The professional rank and academic department with which the respondent primarily associates were not limiting factors in participation for this study. Instead, comparative data were gathered across departments and years of teaching experience. These data were analyzed and contributed to the textural description of participants’ experiences. Three interviewees held the rank of assistant professor, four were associate professors, and three held the rank of full professor. Eight fields of study were represented among participants: art and design, computer and data science (2), education (2), history, math, music technology, philosophy, and psychology.

Study participants were assigned an Adult Learning and Development Theory (ALDT) score of high, mid, or low, based on respondent self-ratings of their knowledge of and familiarity with adult learning and development theory. Score calculations also accounted for formal and informal training in the areas of learning and development theory, as reported by participants. Five participants were classified as low ALDT and five participants were classified as high ALDT. Comparative data gathered from the two classifications were analyzed and contributed to the textural description of participants’ experiences.

**Setting**

This study was also delimited with regard to the setting. Online surveys were sent to full-time faculty across three different institutions of higher education to allow for a viable sample pool. The three institutions were similar with respect to student enrollment, faculty size, and
programs offered. Each institution selected as a site for this study offers between 33 and 43 undergraduate programs across multiple schools and divisions. Full-time undergraduate enrollment ranged from 1,507 to 5,434 students across the three institutions. The number of full-time instructional faculty ranged from 85 to 325 across sites.

All institutions are located in the northeast region of Massachusetts and are within driving distance. This delimitation was important to the study at the time of its design, when in-person interviews were a viable research method. At the time of participant interviews, the COVID-19 pandemic was an impediment to in-person research in Northeastern Massachusetts universities and all interviews were conducted online using the Zoom web conferencing platform. This fact is further discussed in the Limitations subsection.

**Possible Researcher Biases**

The study was delimited to address personal researcher biases. I am well-versed in adult learning theory and development and an experienced instructor in higher education. Through my graduate studies, review of professional literature, and 21-years of field experience, I have cultivated a deep understanding of the teachings of thought leaders in the field. Each semester I instruct undergraduate courses using an active-learning approach to inform my lesson design and pedagogy as well as to promote the advancement of a self-directed orientation toward learning among my students. As such, I have a strong vision of what effective andragogy may look like in university classrooms. Withholding assumptions, asking many clarifying and follow-up questions, and remaining open to various presentations and manifestations of active and self-directed learning were critical components to preventing researcher bias.

As an additional measure to reduce researcher bias, interview transcripts were sent out to individual participants for member checking prior to analysis (Creswell & Creswell, 2018).
Participants were invited to make any revisions or additions that more accurately reflected their thoughts, ideas, and intended meaning of statements made during the interview.

**Ethical Considerations**

This study was designed to place the university instructor at the center of the research as the primary subject. Faculty members are not typically considered part of a vulnerable population. The purpose of the research was disclosed to all participants at the start of the study to determine any special provisions needed for vulnerable populations. Additionally, the interview protocol included an opening script that discussed the study’s purpose, the interview procedures, and opt-out measures for participants.

I am a full-time college professor at a college in the Northeast region of Massachusetts. As such, I elected to not conduct this study within my own institution so as to reduce the incidence of any potential “power concerns” within the research environment (Creswell & Poth, 2018, p. 152). What follows is an examination of the limitations of this study.

**Limitations**

For this study there were four main limitations, the primary limitation being that data collection took place in the Summer and Fall of 2020, during the COVID-19 pandemic. Due to the highly contagious nature of this virus, schools across the state of Massachusetts had closed down to visitors and government restrictions limited in-person access to study participants and site locations. As such, all interviews were conducted online using the Zoom web conferencing platform.

A second limitation to this study was the 15% response rate to the online survey. An invitation was emailed to university instructors in July. The link to the online survey was embedded in a letter of informed consent (see Appendix A) and sent to 704 university instructors
using email addresses found on public websites across three institutions of higher education in Northeastern Massachusetts. Several email invitations were returned due to inactive email accounts or instructors responding with news of their retirement from the field. Once these data were sorted, the number of viable survey respondents dropped to 692 instructors across three institutions. University faculty are not under contract in July and August, and many may not have been checking their email accounts on a regular basis. A reminder email was sent to the 692 potential survey respondents at the end of the first week of the survey launch. During the two weeks that the online survey was live, 102 instructors participated in the survey, 95 of whom completed the survey in full.

A third limitation to the study was that interview participants were instructors at only two study sites. Invitations were sent to respondents across all three sites, however, only respondents from Sites B and C elected to participate in the interviews. Throughout the interviews, some themes emerged from participants from common sites. The study is limited by the absence of interview participants representing Site A.

A fourth limitation to this study involved a single coder in the analysis of qualitative data. Involving multiple coders in data analysis not only improves efficiency within a study, but “working in a team can also be helpful to increase comprehensibility, to support intersubjectivity, and to provide sound interpretation of the data” (Burla et al., 2008). Follow up studies on this subject will include multiple coders.

**Chapter Summary**

Chapter Three outlined the method used to conduct this study. The chapter began with an exploration of the philosophical underpinnings and worldview supporting the explanatory
sequential mixed methods design of this study. A rationale for the design was presented, addressing the major purpose of the study and guiding research questions.

Details concerning the study participants and setting were explored in Chapter Three. Demographics and selection of study participants were discussed and site descriptions were provided in this subsection. An examination of participants who engaged in the online survey and participants who elected to participate in a follow-up interview was included.

This chapter explored the steps taken to develop the online survey and the interview protocol. Details of the pilot test conducted for this study were delineated in the fourth subsection of Chapter Three. Additionally, a description of how pilot test data informed instrument development was included. Measures taken to ensure participant confidentiality and to enhance the credibility and dependability of the study were addressed in this chapter.

Chapter Three outlined the steps taken to collect and analyze participant data. Details were provided regarding the administration of the online survey via SurveyMonkey and the follow-up interviews using the Zoom web conferencing platform. Qualitative data were analyzed in three cycles, using coding schemes that align with phenomenological research methods. Steps to enhance study validity and reduce researcher bias, such as member checking, were discussed in the Data Collection and Data Analysis subsections.

Chapter Three concluded with an examination of the intentional steps taken to delimit the scope of the study, with regard to the participants, the setting, and the professional experiences of the researcher. This final subsection also considered the possible weaknesses of the study and reflected on the limits imposed by a global health crisis at the time of data collection. Chapter Four presents an analysis of the quantitative and qualitative data as they relate to the guiding research questions.
CHAPTER FOUR: RESULTS

Introduction

The purpose of this explanatory sequential mixed methods study was to explore how university instructors in Northeastern Massachusetts described their understanding of adult learning and development and how instructors recounted the influence that their understanding of theory has on their instructional practice in the undergraduate classroom. Beyond knowledge of adult learning and development theory, this study aimed to identify factors and conditions that instructors in higher education reported as influencing their pedagogy, especially for those practitioners who have had no formal training in the field of learning and development. Three research questions guided this study:

1. How do university instructors in Northeastern Massachusetts describe their understanding of the ways in which adults learn and develop in the undergraduate classroom setting?

2. How do university instructors in Northeastern Massachusetts describe their understanding of how adult learning and development informs their approach to lesson planning and facilitation of student learning in the undergraduate classroom setting?

3. Beyond understanding of adult learning and development theory, what other factors or conditions do university instructors in Northeastern Massachusetts report influence the design and implementation of their classroom practice with undergraduate learners?

Chapter Three described how the guiding research questions were addressed. The survey portion of the study served to gather demographic information and initial perceptual data from university instructors in Northeastern Massachusetts. Tables 4.1 – 4.6 provide demographic data of survey participants. The online survey (see Appendix D) collected demographic information for respondents including the number of years of teaching experience, the institutions where they
teach, the number of undergraduate classes taught each semester, their present academic ranks and tenure status, their levels of education, and the departments or schools with which they primarily associate.

Survey questions also gathered initial perceptual data, asking respondents to reflect on their classroom pedagogy as it relates to twelve different instructional practices. Other questions invited respondents to reflect on their knowledge of adult learning and development theory and how their understanding of adult learning and development theory informs their instructional practice. The survey also prompted respondents to identify factors and conditions that contribute to the development of their pedagogical practice. Survey questions were bundled into three sections, aligned with the guiding research questions, to aid with quantitative analysis. Closed-response survey data were collected using the SurveyMonkey platform and exported to an Excel spreadsheet in the form of individual responses with numerical value. Descriptive statistics were calculated to summarize the mean, median, and standard deviation of data collected from questions addressing instructional pedagogy and familiarity with adult learning and development theory.

Participants were categorized into three subgroups based on self-perceptions of their familiarity with adult learning and development theory (ALDT) as well as their confidence in using that understanding of learning and development to inform instructional practice. Quantifying survey data in this way helped to inform the selection of interview participants for the qualitative portion of the study. Additionally, survey data influenced the design of the interview protocol, especially in developing follow up questions for specific interviewees.

The survey identified participants for follow-up interviews based on a shared set of criteria. Three criteria included instructors holding full-time teaching status at their respective
institutions, those who have earned a terminal degree, and those who teach at least one undergraduate course each semester. Qualifying respondents were invited to participate in an online interview via the Zoom web conferencing platform. Table 4.7 provides demographic information about interview participants.

An interview protocol (see Appendix E) was used for each interview. Participants were provided with an overview of the interview process and reminded that they could withdraw their participation in the study at any time. Interview questions were designed to further probe into respondents’ thinking and reflections about their understanding of adult learning and development theory. During the interview, participants shared information and insights about why they responded the way they did on the survey. Participants were asked about their familiarity with adult learning and development theories, shared examples of ways in which adult learning and development theory informs their planning and lesson implementation, described techniques and methodologies used in their instructional practice, and reflected on the extent to which they are satisfied with their instructional pedagogy. Participants answered questions designed to uncover factors and conditions that contribute to their developing understanding of adult learning and development and classroom pedagogy. Interviews were recorded and transcribed using the Sonix transcription service.

Interview transcripts were shared with study participants for member checking, a method of systematically soliciting feedback about data collected as a way to rule out the misinterpretation of “the meaning of what participants say and do and the perspective they have on what is going on” (Maxwell, 2013, pp.126-127). Once all transcripts had been reviewed and returned by study participants, interview data were separated into three separate categories for analysis. Each section of data aligned with a particular guiding research question.
All interview data were read and emic codes were identified in the form of “significant statements.” Emic codes were recorded using an In Vivo Coding scheme and thematic statements were identified and sorted. Initial thoughts, ideas, and questions were captured into research memos. In a second coding cycle, etic codes were framed as analytic questions. Content-based or conceptual phrases were recorded using a Structural Coding scheme. A code frequency report was generated to identify categories and examine commonalities, differences, and relationships among comparable segments. A third cycle of coding employed Simultaneous Coding, aimed to identify data that applied to multiple codes. Codes were organized into categories of data and used to write analytic memos in an effort to answer the guiding research questions. Themes emerged from analytic memos and these meaning units were interpreted to describe the essence of lived experience of participants.

The results of this study are organized into four major sections. The first section details demographic data about study participants. Data are then presented and analyzed according to the three guiding research questions, leading to findings for each question. Chapter Four concludes with a chapter summary:

**Demographic Information**

What follows is a brief overview of the demographic data for online survey participants as well as more detailed demographic information for each pseudonymous participant. Survey data are presented in two tables: (1) an overview of demographic data for the 93 survey completers, and (2) information about ALDT scores for 95 survey respondents. Tables 4.1 – 4.6 provide a synopsis of the demographic data for the pseudonymous participants in the study. Additionally, narrative profiles for each interview participant provide a brief description of the
subjects’ familiarity with adult learning and development theory, as determined by participants’ self-ratings and reported training in the field of learning and development.

**Survey Demographic Data**

Surveys were emailed to 692 potential participants across three institutions of higher education in Northeastern Massachusetts. Participation across the three study sites indicated that 102 university instructors started the survey, with 95 respondents completing the survey in full. Demographic data were provided by 93 of the survey participants. Information about survey participants’ site and department affiliations, professional rank, level of education, and years of teaching in higher education are presented in tabular form in the following subsections. Table 4.1 presents the number of participants affiliated with each study site.

**Table 4.1**

*Primary Site Affiliation (n=93)*

<table>
<thead>
<tr>
<th>Site</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>10</td>
</tr>
<tr>
<td>B</td>
<td>31</td>
</tr>
<tr>
<td>C</td>
<td>50</td>
</tr>
<tr>
<td>Not identified</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 4.1 shows that the majority of survey respondents were primarily affiliated with Site C. The fewest number of respondents were affiliated with Site A. Two respondents did not identify their institutional affiliation.

Table 4.2 presents data about the departments with which participants primarily affiliate at their respective study sites.
Table 4.2

*Primary Department Affiliation (n=93)*

<table>
<thead>
<tr>
<th>Department</th>
<th>Participants, Site A</th>
<th>Participants, Site B</th>
<th>Participants, Site C</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art and Design</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Biology</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Business, Management and Economics</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>6*</td>
</tr>
<tr>
<td>Chemistry and Biochemistry</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Communication</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Computer and Data Science</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Criminology and Criminal Justice</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Education</td>
<td>2</td>
<td>4</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>English</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Geography</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>History</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics</td>
<td>-</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Music and Music Technology</td>
<td>3</td>
<td>-</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Nursing and Health Sciences</td>
<td>-</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Philosophy</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Physics</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Political Science</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Psychology</td>
<td>-</td>
<td>5</td>
<td>1</td>
<td>7*</td>
</tr>
<tr>
<td>Social Work</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Sociology</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sport and Movement Science</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>World Languages and Cultures</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10</strong></td>
<td><strong>31</strong></td>
<td><strong>50^</strong></td>
<td><strong>93^</strong>*</td>
</tr>
</tbody>
</table>

As demonstrated in Table 4.2, the greatest number of participants affiliated with the Education department, with a total of 13 respondents across all three sites. Respondents affiliated
with the Nursing and Health Sciences and Psychology departments also showed higher levels of
survey participation. It should be noted that two survey respondents identified their primary
departments affiliations but did not list an institutional affiliation. Their department affiliations
are included in the total number column (marked with an asterisk) but not assigned to any
particular site in Table 4.2. One survey respondent from Site C did not identify their
departmental affiliation. That participant is accounted for in the total number column (marked
with a carrot) but not assigned to any particular department in Table 4.2.

Table 4.3 presents information about the professional rank of survey participants at each
study site.

Table 4.3

Professional Rank of Survey Participants (n=93)

<table>
<thead>
<tr>
<th>Professional Rank</th>
<th>Participants, Site A</th>
<th>Participants, Site B</th>
<th>Participants, Site C</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Professor</td>
<td>4</td>
<td>5</td>
<td>16</td>
<td>25</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>3</td>
<td>14</td>
<td>20</td>
<td>38*</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>1</td>
<td>12</td>
<td>10</td>
<td>23</td>
</tr>
<tr>
<td>Adjunct Lecturer</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Professor Emeritus</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>4*</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>31</td>
<td>50</td>
<td>93*</td>
</tr>
</tbody>
</table>

Table 4.3 indicates that the greatest number of participants hold the rank of associate
professor, with 38 respondents included in this group. Adjunct lecturers and professors emeriti
represent the least number of survey participants with only three and four participants,
respectively. Two survey respondents identified their professional rank but did not list an
institutional affiliation. Their professional ranks are included in the total number column
(marked with an asterisk) but not assigned to any particular site in Table 4.3.
Table 4.4 presents information about the highest degree earned by survey participants at each study site.

**Table 4.4**

*Highest Degree Earned by Survey Participants (n=93)*

<table>
<thead>
<tr>
<th>Degree</th>
<th>Participants, Site A</th>
<th>Participants, Site B</th>
<th>Participants, Site C</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelors</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Masters</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Terminal Masters</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Doctor of Philosophy</td>
<td>5</td>
<td>28</td>
<td>42</td>
<td>77*</td>
</tr>
<tr>
<td>Professional Doctorate</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10</strong></td>
<td><strong>31</strong></td>
<td><strong>50</strong></td>
<td><strong>93</strong>*</td>
</tr>
</tbody>
</table>

As shown in Table 4.4, by far the greatest number of participants have earned a Ph.D., with 77 respondents included in this group. Adjunct lecturers and professors emeriti represent the least number of survey participants with only three participants in each category. Two survey respondents identified their highest degree held but did not list an institutional affiliation. Their degrees are included in the total number column (marked with an asterisk) but not assigned to any particular site in Table 4.4.

Table 4.5 presents information about the number of years of teaching experience completed by survey participants. Although Table 4.5 delineates this information by participants at each study site, these data account for the total number of years teaching in higher education, regardless of the institution.
Table 4.5

*Years of Teaching Experience by Survey Participants (n=93)*

<table>
<thead>
<tr>
<th>Years of Teaching</th>
<th>Participants, Site A</th>
<th>Participants, Site B</th>
<th>Participants, Site C</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>4-6</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>7-10</td>
<td>1</td>
<td>9</td>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td>11-15</td>
<td>-</td>
<td>5</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>16-20</td>
<td>3</td>
<td>3</td>
<td>11</td>
<td>18*</td>
</tr>
<tr>
<td>More than 20</td>
<td>4</td>
<td>7</td>
<td>20</td>
<td>32*</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10</strong></td>
<td><strong>31^</strong></td>
<td><strong>50</strong></td>
<td><strong>93^</strong>*</td>
</tr>
</tbody>
</table>

Table 4.5 shows that the survey attracted instructors with a greater number of years of service at Sites A and C, with 70% of respondents and 62% of participants reporting 16+ years of teaching experience respectively. Site B differed in that the greatest number of respondents reported teaching for 7-10 years. Respondents who have taught for only 0-3 years represent the least number of survey participants with only two participants in this group. It should be noted that two survey respondents identified their number of years of teaching but did not list an institutional affiliation. Their years are included in the total number column (marked with an asterisk) but not assigned to any particular site in Table 4.5. One survey respondent from Site B did not identify their number of years of teaching. That participant is accounted for in the total number column (marked with a carrot) but not assigned to any number of years of experience in Table 4.5.

Survey data were quantified to inform the selection of follow-up interview participants. Those data were exported to an Excel spreadsheet as individual responses with numerical values assigned. Survey questions 7 - 13 asked participants to self-rate their familiarity and confidence levels in relation to adult learning and development theory. Further, these questions gathered
information about instructors’ formal training in the fields of adult learning and development. Respondents’ self-ratings were assigned numerical values and totaled to provide an overall Adult Learning and Development Theory (ALDT) score for each survey participant. Respondents were then sorted according to ALDT scores from highest to lowest and categorized with a high, mid, or low ALDT score. Table 4.6 summarizes ALDT scores for the 95 survey participants.

**Table 4.6**

*Adult Learning and Development Scores for Survey Participants (n=95)*

<table>
<thead>
<tr>
<th>ALDT Score</th>
<th>Number of Respondents</th>
<th>ALDT Score Range</th>
<th>Mean ALDT Score</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>High ALDT</td>
<td>12</td>
<td>13 - 18</td>
<td>15.2</td>
<td>1.59</td>
</tr>
<tr>
<td>Mid ALDT</td>
<td>29</td>
<td>7 - 12</td>
<td>9.1</td>
<td>1.54</td>
</tr>
<tr>
<td>Low ALDT</td>
<td>54</td>
<td>2 - 6</td>
<td>2.9</td>
<td>1.49</td>
</tr>
</tbody>
</table>

Table 4.6 shows that more than half of survey participants, or 57%, indicated through self-rating scales their lack of familiarity with and formal training in adult learning and development theory. The least number of survey participants fell into the high ALDT group, with only 13% of all respondents assigned to this category. Table 4.6 shows a standard deviation of <2 for each ALDT score grouping, indicating that the data are clustered closely around the mean and thus more reliable. The following subsection delineates demographic data for those participants who engaged in a follow up interview.

**Interview Demographic Data**

This subsection examines information gathered about interview participants in both tabular and narrative form. Table 4.7 presents demographic data for interview participants, grouped by their primary site affiliation. Narrative participant profiles that elaborate on the demographic details presented in Table 4.7 can be found in Appendix F.
Fifteen survey respondents across all three study sites were invited to participate in a follow up interview, however, only respondents from Sites B and C elected to engage in an interview. Invitations were extended to participants with varying ALDT scores, disciplinary expertise, and years of teaching experience. Demographic data provided by the ten pseudonymous interview participants are outlined in Table 4.7. Table 4.7 presents an assigned pseudonym, the ALDT score, the number of years of teaching in higher education, the current academic rank, the highest degree earned, and the departmental affiliation for each interview participant.

Table 4.7

Demographic Information for Pseudonymous Participants

<table>
<thead>
<tr>
<th>Pseudonym Name</th>
<th>ALDT Score</th>
<th>Years Teaching in Higher Education</th>
<th>Current Academic Rank</th>
<th>Highest Degree Earned</th>
<th>Primary Departmental Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>John</td>
<td>High</td>
<td>7-10</td>
<td>Assistant Professor</td>
<td>Ph.D.</td>
<td>Education</td>
</tr>
<tr>
<td>Alexander</td>
<td>Low</td>
<td>More than 20</td>
<td>Professor</td>
<td>Ph.D.</td>
<td>Computer and Data Science</td>
</tr>
<tr>
<td>Henry</td>
<td>Low</td>
<td>11-15</td>
<td>Associate Professor</td>
<td>Ph.D.</td>
<td>Philosophy</td>
</tr>
<tr>
<td>Dylan</td>
<td>High</td>
<td>More than 20</td>
<td>Professor</td>
<td>Ph.D.</td>
<td>Psychology</td>
</tr>
<tr>
<td>Lucas</td>
<td>Low</td>
<td>7-10</td>
<td>Associate Professor</td>
<td>Ph.D.</td>
<td>Computer and Data Science</td>
</tr>
<tr>
<td>Amber</td>
<td>High</td>
<td>7-10</td>
<td>Associate Professor</td>
<td>Psych.D.</td>
<td>Education</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Xavier</td>
<td>High</td>
<td>7-10</td>
<td>Assistant Professor</td>
<td>Terminal Masters</td>
<td>Music Technology</td>
</tr>
<tr>
<td>Casey</td>
<td>Low</td>
<td>More than 20</td>
<td>Professor</td>
<td>Ph.D.</td>
<td>Mathematics</td>
</tr>
<tr>
<td>Charlotte</td>
<td>High</td>
<td>More than 20</td>
<td>Assistant Professor</td>
<td>Ph.D.</td>
<td>Art and Design</td>
</tr>
<tr>
<td>William</td>
<td>Low</td>
<td>11-15</td>
<td>Associate Professor</td>
<td>Ph.D.</td>
<td>History</td>
</tr>
</tbody>
</table>
Table 4.7 shows interview participants varied in their fields of expertise and years of experience, with eight academic disciplines represented and instructional experience ranging from seven to more than twenty years. There was more continuity in the level of education attained by interview participants, with eight of the ten contributors having earned a Ph.D.

What follows is a presentation and analysis of data with resulting findings for three guiding research questions. Subsections for each guiding question include data presented and summarized to address each guiding question and a delineation of findings for each guiding research question.

**Research Question #1: How do university instructors in Northeastern Massachusetts describe their understanding of the ways in which adults learn and develop in the undergraduate setting?**

The following discussion of Research Question #1 includes four subsections: (a) reiteration of the elements of the survey, (b) presentation and analysis of survey data, (c) presentation and analysis of interview data, and (d) delineation of findings for Research Question #1. The analyses of data are presented in both tabular and narrative form.

**Elements of the Survey**

The survey included questions that were divided into four main sections based on the guiding questions of this study: (a) instructional pedagogy, (b) knowledge of adult learning and development theory, (c) influences on instructional pedagogy, and (d) participant information. Seven survey items asked respondents to reflect on their knowledge of adult learning and development theory and to consider how that knowledge influenced their classroom pedagogy.

A 5-point Likert scale was used to gather information about (a) participants’ confidence in their abilities to help students learn the content of their class, (b) participants’ confidence in
their abilities to help students apply class learnings to experiences in the real world, (c) participants’ familiarity with adult learning theory, and (d) participants’ familiarity with adult development theory.

Two multiple choice items invited respondents to indicate where they had learned about adult learning and development theory, selecting from such options as (a) undergraduate program, (b) graduate program, (c) post-graduate program, and (d) workshop(s) or professional development session(s). Participants were also given the opportunity to indicate not applicable or choose other and specifically where they had learned about adult learning and development theories.

One open-response question was posed in this section, inviting respondents to share an example of how their familiarity with adult learning and development theory has influenced their instruction.

**Presentation and Analysis of Survey Data**

What follows is the presentation and analysis of data distilled from the survey. Those data demonstrate participants’ described understanding of adult learning and development in four ways: (a) participants’ reported confidence in their abilities to support students in learning and applying course content, (b) direct and indirect references made to learning and development theories and theorists, (c) participants’ reported familiarity with adult learning and development theory, and (d) participants’ formal training in the field of adult learning and development.

Information gathered from survey questions 7 - 13 are detailed in Tables 4.8 – 4.13. Table 4.8 presents information about participants’ confidence in helping their students learn and apply course content.
Table 4.8

Participants’ Reported Levels of Confidence (n=95)

<table>
<thead>
<tr>
<th>Support Provided</th>
<th>Not at all confident</th>
<th>Not so confident</th>
<th>Somewhat confident</th>
<th>Very confident</th>
<th>Extremely confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helping Students to Learn Content</td>
<td>-</td>
<td>1</td>
<td>10</td>
<td>50</td>
<td>34</td>
</tr>
<tr>
<td>Helping Students to Apply Learned Content to Real World Experiences</td>
<td>-</td>
<td>5</td>
<td>25</td>
<td>44</td>
<td>21</td>
</tr>
</tbody>
</table>

Table 4.8 shows that an overwhelming majority of instructors surveyed reported confidence in their ability to help students learn the course content, with 88% of participants rating themselves as very confident or extremely confident. However, only 68% of respondents reported confidence in helping students apply what they have learned to their experiences in the real world.

Open-response question #11 invited survey completers to provide examples of ways in which their familiarity with adult learning and development theory has influenced their instruction. Of the 95 completers, 57 respondents offered an answer to question #11. Table 4.9 presents ways in which participants described their understanding of how adult learning and development theory informs their practice.
Table 4.9

*Participants’ Described Understanding of Adult Learning and Development Theory (n=57)*

<table>
<thead>
<tr>
<th>Type of Description</th>
<th>Number of Incidences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directly Named a Theorist</td>
<td>8</td>
</tr>
<tr>
<td>Directly Named a Theory</td>
<td>6</td>
</tr>
<tr>
<td>Described a Theoretically-Based Practice</td>
<td>36</td>
</tr>
<tr>
<td>Response was Unrelated to Theory or Theorist</td>
<td>25</td>
</tr>
</tbody>
</table>

Table 4.9 shows the three ways in which 57 participants responded to this optional survey question. Some participants identified learning and development theorists by name while some identified specific learning and development theories. More respondents described a classroom practice that was rooted in learning and development theory without using theorists’ names to identify a practice. A total of 57 respondents answered question #11. Some participants’ responses included more than one theoretically-based practice while 25 respondents included no references to theoretically based practices at all.

Table 4.10 delineates the number of direct references to learning and development theories and theorists made within the survey.
Table 4.10

Direct References by Participants (n=11)

<table>
<thead>
<tr>
<th>Theorist</th>
<th>Total Number of References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belenky et al.</td>
<td>1</td>
</tr>
<tr>
<td>Brookfield</td>
<td>1</td>
</tr>
<tr>
<td>Csikszentmihalyi</td>
<td>1</td>
</tr>
<tr>
<td>Fischer</td>
<td>1</td>
</tr>
<tr>
<td>Kegan</td>
<td>1</td>
</tr>
<tr>
<td>Knowles</td>
<td>1</td>
</tr>
<tr>
<td>Perry</td>
<td>1</td>
</tr>
<tr>
<td>Piaget</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Theory</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dewey, Experiential Learning</td>
<td>3</td>
</tr>
<tr>
<td>Dweck, Mindset Theory</td>
<td>1</td>
</tr>
<tr>
<td>Erikson, Identity Develop</td>
<td>1</td>
</tr>
<tr>
<td>Kegan, 4th Order of Modernism</td>
<td>1</td>
</tr>
<tr>
<td>Fischer, Dynamic Skill The</td>
<td>1</td>
</tr>
<tr>
<td>Piaget, Cognitive Disequilibrium</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 4.10 demonstrates that participants directly referred to eight theorists and six learning and development theories to describe how their understanding of adult learning and development theory has influenced their practice. Of the 50 respondents who answered question #11, only eleven included a direct reference to a theorist or theory. The theory most referenced by respondents in the open-response item was Dewey’s Experiential Learning Theory.

Table 4.11 presents the data about the number of instances that learning and development theories were implicitly referenced through participants’ descriptions in question #11.
Table 4.11

*Indirect References by Participants (n=24)*

<table>
<thead>
<tr>
<th>Theory</th>
<th>Total Number of References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baker &amp; Brown, Metacognitive Thinking</td>
<td>2</td>
</tr>
<tr>
<td>Bloom, Taxonomy of Cognition</td>
<td>2</td>
</tr>
<tr>
<td>Dewey, Experiential Learning</td>
<td>7</td>
</tr>
<tr>
<td>Gardner, Multiple Intelligence Theory</td>
<td>1</td>
</tr>
<tr>
<td>Kegan, Constructivist-Developmental Theory</td>
<td>4</td>
</tr>
<tr>
<td>Knowles, Andragogy</td>
<td>9</td>
</tr>
<tr>
<td>Fischer &amp; Frey, Guided Release of Responsibility</td>
<td>2</td>
</tr>
<tr>
<td>Piaget, Cognitive Constructivism</td>
<td>5</td>
</tr>
<tr>
<td>Piaget, Disequilibrium</td>
<td>2</td>
</tr>
<tr>
<td>Vygotsky, Social Constructivism</td>
<td>4</td>
</tr>
<tr>
<td>Vygotsky, Zone of Proximal Development</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>39</strong></td>
</tr>
</tbody>
</table>

In Table 4.11, participants indicated their understanding of adult learning and development through their description of various theoretically-based practices. On 39 occasions, 24 different participants indirectly referenced a theoretically-based practice to share how understanding learning and development theory influences their classroom instruction. The most often referenced theories include: (a) Malcolm Knowles’s Andragogical Framework *(n=9)*, (b) John Dewey’s Experiential Learning Theory *(n=7)*, (c) Jean Piaget’s, theory of Cognitive Constructivism *(n=5)*, (d) Lev Vygotsky’s theory of Social Constructivism *(n=4)*, and Robert Kegan’s Constructivist-Developmental Theory *(n=4)*.
Table 4.12 presents ways in which participants described their familiarity with adult learning and development theory.

Table 4.12

*Participants’ Familiarity with Adult Learning and Development Theory (n=95)*

<table>
<thead>
<tr>
<th>Type of Theory</th>
<th>Not at all familiar</th>
<th>Not so familiar</th>
<th>Somewhat familiar</th>
<th>Very familiar</th>
<th>Extremely familiar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Learning Theory</td>
<td>39</td>
<td>23</td>
<td>15</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Adult Development Theory</td>
<td>39</td>
<td>27</td>
<td>19</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 4.12 shows that a majority of instructors surveyed reported a lack of familiarity with adult learning theory, with 65% of participants rating themselves as *not so familiar* or *not at all familiar* with adult learning theory. Similarly, most respondents, or 69%, reported being *not so familiar* or *not at all familiar* with adult development theory.

Table 4.13 delineates where participants’ report having learned about adult learning and development theory.
Table 4.13

Participants’ Training in Adult Learning and Development Theory (n=95)

<table>
<thead>
<tr>
<th>Type of Training</th>
<th>Undergraduate Program</th>
<th>Graduate Program</th>
<th>Postgraduate Program</th>
<th>Workshop or Professional Development</th>
<th>Not Applicable</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Learning Theory</td>
<td>4</td>
<td>18</td>
<td>8</td>
<td>26</td>
<td>55</td>
<td>16</td>
</tr>
<tr>
<td>Adult Development Theory</td>
<td>9</td>
<td>21</td>
<td>8</td>
<td>15</td>
<td>62</td>
<td>9</td>
</tr>
</tbody>
</table>

Table 4.13 shows that most participants reported having received no formal training in the area of adult learning theory, with 58% of participants selecting not applicable as their response. The remaining 45 respondents indicated a range of training experiences, with workshop(s) or professional development session(s) as the most attended form of training in adult learning theory. Survey completers’ descriptions of other forms of learning about adult learning theory can be categorized into five types of experiences: (1) independent reading, (2) independent research, (3) professional discourse with colleagues, (4) teaching courses related to learning and development, and (5) prior professional experiences.

The majority of participants, or 65%, reported having received no formal training in adult development theory, selecting not applicable as their response. The other 33 respondents indicated a range of training experiences, but indicated graduate program as the most attended form of training in adult development theory. Participants’ descriptions of other learning experiences related to adult development theory can be grouped into three categories: (1) independent reading, (2) independent research, and (3) professional discourse with colleagues.
What follows is a presentation and analysis of qualitative data gathered from ten participant interviews.

**Presentation and Analysis of Interview Data**

What follows is the presentation and analysis of data extracted from follow-up interviews with ten participants. Those data demonstrate participants’ described understanding of adult learning and development in three ways: (a) characteristics of adult learners, (b) reference to theories and theorists, and (c) learning as a process. Information gathered from participant interviews are detailed in Tables 4.14 – 4.17.

Table 4.14 presents participants’ descriptions about the characteristics of adult learners.

**Table 4.14**

*Participant Descriptions of Adult Learners*

<table>
<thead>
<tr>
<th>Category</th>
<th>Code</th>
<th>Exemplifying Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complex Literacy Skills</td>
<td>Nuanced Thinking</td>
<td>“Very few of them have any deep reading abilities.”</td>
</tr>
<tr>
<td>Advanced Cognition</td>
<td></td>
<td>“Once we get them in college we’re trying to get them to be nuanced thinkers.”</td>
</tr>
<tr>
<td>Synthesis and Make Connections</td>
<td></td>
<td>“And that’s when things sort of click and all of a sudden you get, you know, everything that comes with the sort of adult tag to it.”</td>
</tr>
<tr>
<td>Grades as Priority</td>
<td></td>
<td>“They need to be motivated to believe that something’s important beyond a test.”</td>
</tr>
<tr>
<td>Self-Regulation</td>
<td></td>
<td>“A lot of pressure on students, particularly now, to be pragmatic, even mercenary in their studies.”</td>
</tr>
<tr>
<td>Complete Assigned Work</td>
<td>Motivated to Learn</td>
<td>“I’m keeping track of who’s coming to class prepared.”</td>
</tr>
<tr>
<td>Self-Directed, Independent Learners</td>
<td></td>
<td>“A student who actually cares about the material and cares about their learning”</td>
</tr>
</tbody>
</table>
In table 4.14, three major categories and exemplifying statements present ways in which interview participants described characteristics of adult learners. As demonstrated by some of the exemplifying statements, codes and categories were developed based on what interviewees reported as what characteristics were needed, and perhaps even missing, from their undergraduate students. An example of this involves the exemplifying statement, “Very few of them have any deep reading abilities.” In sharing the example of his students lacking deep reading abilities, Alexander relayed his expectations that adult learners have more highly developed literacy skills.

Table 4.15 provides information regarding participants in the high and low ALDT categories who cited theories and theorists to describe their understanding of adult learning and development.

Table 4.15

*Theoretical Citations in Interview Transcripts*

<table>
<thead>
<tr>
<th>Learning Theory / Theorist</th>
<th>Subjects with a High ALDT Score</th>
<th>Subjects with a Low ALDT Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cited Specific Theorists</td>
<td>Cited Specific Theories</td>
</tr>
<tr>
<td>Dewey, Experiential Learning</td>
<td>Xavier Dylan</td>
<td>Xavier</td>
</tr>
<tr>
<td>Fischer, Dynamic Skill Theory</td>
<td>Dylan Amber</td>
<td>Dylan</td>
</tr>
<tr>
<td>Kegan, Constructivist-Developmental Theory</td>
<td>Dylan Amber</td>
<td>-</td>
</tr>
<tr>
<td>Knowles, Andragogy</td>
<td>-</td>
<td>Xavier</td>
</tr>
<tr>
<td>Piaget, Cognitive Constructivism</td>
<td>Dylan Amber</td>
<td>Dylan Amber</td>
</tr>
<tr>
<td>Perry, Scheme of Intellectual Development</td>
<td>Charlotte Amber</td>
<td>Charlotte</td>
</tr>
<tr>
<td>Vygotsky, Social Constructivism</td>
<td>John Dylan</td>
<td>Dylan</td>
</tr>
</tbody>
</table>
As demonstrated in Table 4.15, participants in the high ALDT category more often cited specific theorists and learning and development theories in the context of their interviews than did subjects in the low ALDT group. The one learning theory that was more often cited by members in the “low” ALDT category was John Dewey’s Experiential Learning Theory.

All five members of the high ALDT group cited a specific theorist during their interview, whereas only one member of the low ALDT group referenced a specific theorist. Specific learning and development theories were referenced by four of the five members in both the high and low ALDT groups, as shown in Table 4.15.

Table 4.16 presents examples of how participants in the high and low ALDT categories indirectly referred to pertinent learning and development theories to describe their understanding of adult learning and development.
Table 4.16

Descriptions of Learning and Development Theories in Interview Transcripts

<table>
<thead>
<tr>
<th>Learning Theory / Theorist</th>
<th>Subjects with a High ALDT Score</th>
<th>Subjects with a Low ALDT Score</th>
<th>Exemplifying Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baker &amp; Brown, Metacognitive Thinking</td>
<td>-</td>
<td>2</td>
<td>“They might remember the skill of reading they learned in your class or how to approach a problem in a way that doesn’t make that problem intractable or otherwise frustrating to deal with. And that, I think, is more important than any of the content we have to give them.”</td>
</tr>
<tr>
<td>Dewey/Kolb, Experiential Learning</td>
<td>4</td>
<td>4</td>
<td>“What we are there as teachers to do is to give the real-world experiences to our students.”</td>
</tr>
<tr>
<td>Fischer &amp; Frey, Guided Release of Responsibility</td>
<td>1</td>
<td>2</td>
<td>“They need to see somebody writing the code and explaining to them why they’re doing what they’re doing.”</td>
</tr>
<tr>
<td>Hagenauer &amp; Volet, Teacher-Student Relationships</td>
<td>5</td>
<td>5</td>
<td>“Through the relationship, the learning happens.”</td>
</tr>
<tr>
<td>Kegan, Constructivist-Developmental Theory</td>
<td>2</td>
<td>-</td>
<td>“We teach students through content, but content is not the thing. The most important thing, it seems to me, is the cultivation of the students’ self.”</td>
</tr>
<tr>
<td>Knowles, Andragogy</td>
<td>2</td>
<td>3</td>
<td>“When someone asks you a question, you need to find out why they’re asking that question and how you can answer it, to connect it with what their passion and their need is.”</td>
</tr>
<tr>
<td>Piaget, Cognitive Constructivism</td>
<td>4</td>
<td>5</td>
<td>“Real learning has to be grounded in what you already know. There has to be a connection between what you are studying at the moment and what you experience and what you know and what you’ve thought about already.”</td>
</tr>
<tr>
<td>Perry, Scheme of Intellectual Development</td>
<td>4</td>
<td>2</td>
<td>“Just because I’m the one standing up in the classroom because my name’s on the syllabus doesn’t mean that I’m the one that’s right.”</td>
</tr>
<tr>
<td>Vygotsky, Social Constructivism</td>
<td>5</td>
<td>4</td>
<td>“I like getting them to try to teach each other and to help each other learn.”</td>
</tr>
</tbody>
</table>

Table 4.16 demonstrates that participants made indirect references to nine different theories of learning and development in the context of their interviews. All instructors cited the importance of teacher-student relationships in supporting adult learning and development. Most interviewees described learning and development in terms that related to Piaget’s theory of
cognitive constructivism, focusing on building upon students’ background knowledge, supporting students in connecting new information to known concepts, and the benefits of teaching through student misconceptions, directly relating to Piaget’s theory of cognitive disequilibrium. Another way in which nine out of the ten respondents described learning and development was in terms of Vygotsky’s theory of social constructivism. Participants tended to describe the use of collaborative grouping in their instructional pedagogy as well as the importance of scaffolding and working with a “more knowledgeable other” when building conceptual understanding.

The qualitative data presented in Table 4.17 display major categories and exemplifying statements for Research Question #1 that reveal ways in which interview participants described their understanding of adult learning and development as a process undergone by learners.
<table>
<thead>
<tr>
<th>Category</th>
<th>Code</th>
<th>Exemplifying Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning is a social process</td>
<td>Collaboration</td>
<td>“They really do learn a lot from each other”</td>
</tr>
<tr>
<td>Learning is a social process</td>
<td>Discourse</td>
<td>“If they’re engaging in discussion, they will learn a heck of a lot more than if it’s just me telling them content.”</td>
</tr>
<tr>
<td>Learning is a social process</td>
<td>Relationships</td>
<td>“The relationship comes first and academics builds upon that.”</td>
</tr>
<tr>
<td>Learning is a supportive process</td>
<td>More Expert Other</td>
<td>“You learn from each other and you teach each other and you’re responsible for each other in your learning community.”</td>
</tr>
<tr>
<td>Learning is a supportive process</td>
<td>Resources</td>
<td>“Providing tons of resources, tons of different approaches to things.”</td>
</tr>
<tr>
<td>Learning is a supportive process</td>
<td>Scaffolding</td>
<td>“Scaffold them in as opposed to just throwing them into the deep end of the pool and saying, let’s figure this out together. But to start with some simpler material that establishes a narrative and then work your way into more complex material.”</td>
</tr>
<tr>
<td>Learning is a constructive process</td>
<td>Background Knowledge</td>
<td>“You can’t just build the castle in the air. There has to be a foundation under it.”</td>
</tr>
<tr>
<td>Learning is a constructive process</td>
<td>Connections</td>
<td>“We’re building a multiple story building here and everything is related to everything.”</td>
</tr>
<tr>
<td>Learning is a constructive process</td>
<td>Progression</td>
<td>“You just need to be living in that world for a period of time before you start to be able to see the high-level stuff.”</td>
</tr>
<tr>
<td>Learning is a constructive process</td>
<td>Disequilibrium</td>
<td>“You create inner conflict that they must resolve. And when they must resolve that, that’s motivating.”</td>
</tr>
<tr>
<td>Learning is an active process</td>
<td>Experiences</td>
<td>“All learning is learning by doing.”</td>
</tr>
<tr>
<td>Learning is an active process</td>
<td>Meaningful</td>
<td>“If we don’t give them a reason to care about what we’re teaching them then I don’t think we can be effective at teaching anything.”</td>
</tr>
<tr>
<td>Learning is an active process</td>
<td>Real-life</td>
<td>“Instead of just memorizing a bunch of facts, which is how most of our students approach math, really get them to be working through more real, real world problems and things like that.”</td>
</tr>
</tbody>
</table>
Table 4.17 presents concept codes that emerged from interview transcripts to describe factors and conditions that participants identified as promoting adult learning and development. Exemplifying statements correspond with each concept code. Concept codes were organized into four categories, delineating participants’ descriptions of adult learning and development as various processes. What follows is a presentation of findings for Research Question #1.

Delineation of Findings for Research Question #1

The two findings delineated for research question #1 are derived from an analysis of the data gleaned from the survey and the interviews. Pertinent examples have been extracted from each instrument and used to validate each finding.

Finding #1: Instructors do not identify understanding of adult learning and development theory as a requisite of effective practice. The first finding is that university instructors in Northeastern Massachusetts are confident in their efficacy as teachers regardless of their understanding of adult learning and development theory. Exploring ways in which instructors described their understanding of adult learning and development and confidence as instructors began with an analysis of survey data.

Analysis of survey data began with an examination of participants’ experiences with formal training in the field of adult learning and development theory. Participants indicated their experiences with formal training in the field of adult learning and development through multiple choice survey items. As demonstrated in Table 4.13, the majority of the 95 survey completers indicated having received no formal training in the field of adult learning \((n=55)\) and development \((n=62)\). Survey respondents who participated in formal training experiences did so most often through workshops or professional development sessions and through graduate programs as demonstrated in Table 4.13.
An open-response item asking respondents to elaborate on how their understanding of adult learning and development theory elicited 57 responses. Table 4.9 shows that 25 participants did not reference adult learning and development theory in their open-response. Several completers used this open-response item to indicate their lack of familiarity with and training in adult learning and development, sharing such statements as, “I don’t know any theory. I know my field,” “I’m not at all familiar with these as theories,” and “Not familiar in the theories - although I would suspect I implement some of the strategies.” Seven respondents simply indicated, “N/A” or “X” as their response to this optional question.

Participants elaborated on their formal training experiences in the field of adult learning and development theory during their follow-up interviews. Half of the interview participants acknowledged having never been trained in adult learning and development theory, soliciting such statements as, “I have never had any kind of formal training” and “I don’t have that theoretical framework.” John, an instructor classified as high ALDT, noted his formal training in learning and development theory through his undergraduate and graduate programs, but recognized that theory does not necessarily translate into classroom practice,

I want to believe that I use learning theory, but I don't think I explicitly do it. I think I do it more in an implicit way because like I said, I don't have training in human development. I have taken countless courses on it in undergrad, in my master's degree, and my PhD - which were all very heavy into theory - but I never did any actual research on it. So, I don't think to myself, when I'm working with students like, “what is Freud say about this?” Like, that's not my area of expertise, but I'd like to think that I have that knowledge in me and I implicitly use it when I'm working with students and I consider it.
In addition to formal training, the survey collected information regarding participants’ familiarity with adult learning and development theory. According to survey data, as presented in Table 4.12, the majority of respondents described themselves as being *not at all familiar* or *not so familiar* with learning and development theory. Of the 95 respondents who completed these survey items, 62 described themselves as *not at all familiar* or *not so familiar* with adult learning theory and 66 completers described themselves as *not at all familiar* or *not so familiar* with adult development theory. Participants’ reflections noted in the survey and follow-up interviews are consistent with literature that asserted university instructors often demonstrate a lack of understanding of adult learning and developmental theory and seldom use that theory to inform course design or attend to adult learning (Boyer Commission, 1998; Cross, 1990; Drago-Severson et al., 2011).

Study participants were asked to describe their confidence levels as they relate to helping students learn course content and helping students to apply learned content in real-world contexts. The data presented in Table 4.8 depict university instructors as having a high degree of confidence, with 84 of the 95 participants indicating they are *very confident* or *extremely confident* in their ability to help their students learn course content. Regarding instructors’ perceived abilities to support their students in applying learned content in real-world situations, 65 of the 95 participants indicated they felt *very confident* or *extremely confident*.

Responding to an optional survey question about using learning and development theory to inform practice, some participants described theory as not being the most important consideration when designing instructional experiences. One respondent noted, “I'm more focused on experiential learning rather than the developmental theories behind it.” Another participant stated, “Educational theory rarely informs good teaching. Passion, subject matter
knowledge, organization and respect for your students’ diverse ideas are far more central.” In the context of his follow-up interview, Lucas commented on instructors’ understanding of adult learning and development theory explaining, “There are people that should be superstar teachers and just can’t get there and then there are people that have had no training and are still good teachers...I am a good teacher and I know I'm a good teacher. The things that make me a good teacher are not training.”

The underlying message of Finding #1 is that university instructors generally demonstrated a lack of regard for adult learning and development theory as a prerequisite for effective instructional practice in higher education. Data gathered from surveys and interviews suggested that instructors generally do not have formal training in the area of adult learning and development; yet, they convey high levels of confidence in helping students learn course content and apply course learnings in real-world contexts.

**Finding #2: Instructors report that adults learn and develop through active engagement with course content that connects to real-world context.** The second finding is that university instructors in Northeastern Massachusetts identify experiential learning, coupled with real-world problems, as a way adults learn and develop in the undergraduate setting. Exploring ways instructors described their understanding of adult learning and development through active learning experiences began with an analysis of survey data.

Analysis of survey data began with an examination of participants’ descriptions of ways adults learn and develop in the undergraduate setting. As stated earlier, an open-response item asking respondents to elaborate on how their understanding of adult learning and development theory elicited 57 responses. Table 4.9 shows that eight participants directly referred to a learning and development theorist and six respondents directly referred to a learning and
development theory in their open-response. While not directly citing a theory or theorist, 36 completers described their instructional practice in ways that connected to adult learning and development theory. In their descriptions of ways theory informs classroom pedagogy, three participants referred to Dewey’s Experiential Learning Theory and one respondent cited theorist Malcolm Knowles, as indicated in Table 4.10. One respondent shared, “Inclusion of experiential learning opportunities such as simulations” in their explanation of how Dewey’s Experiential Learning Theory informs their practice. Another completer wrote, “The overall emphasis was on experiential learning” in response to survey Question #11. One survey respondent indicated, “My PhD is in Health Professions Education so I tons of models. Knowles for one.”

In addition to direct references to Dewey’s Experiential Learning Theory, seven survey respondents described practices that are connected to these theoretical underpinnings, as indicated in Table 4.11. Participants’ descriptions of instructional practice informed by Experiential Learning Theory included, “Engage students in real-life situations,” “Take an active approach to learning,” and “Engage students actively in their learning.”

While only one participant directly referenced Malcolm Knowles in response to survey Question #11, Table 4.11 demonstrated that nine respondents described instructional practices that were informed by Knowles’s Theory of Andragogy. One participant explained their instructional practices in ways that connected to Knowles’s Andragogical assumptions as they related them to the Role of Learners’ Experience, explaining that, “Adult development integrates past/present lived experience with concepts and applied skills in order to have meaning for the learner.” Knowles’s assumptions as they relate to Readiness to Learn can be observed in one respondent’s description of classroom practice as, “Adult learners need to see the relevance or pertinence of the material to their lives/future careers.” Another completer described their
practice as informed by Knowles’s assumptions as they relate to Orientation to Learning, sharing, “Providing real life examples and opportunities for applying skill directly in the classroom.”

Participants elaborated on their understanding of the ways adults learn and develop during their follow-up interviews. Table 4.14 presented interview data that were distilled into concept codes and organized into categories indicating that participants viewed adult learners as self-directed individuals who are able to think at high levels and determine what is important. Significant statements captured within interview transcripts exemplify these categories. Significant statements made by interview participants indicate an influence of Knowles’s Andragogical assumptions. For example, the idea that adult learners, “Need to be motivated to believe that something’s important beyond a test,” is rooted Knowles’s assumptions regarding one’s Readiness to Learn, in which adults become ready to learn something when they experience an authentic need to learn it; a need to manage real-life tasks or problems (Knowles, 1980, p.44). As indicated in Table 4.16, five participants described instructional practices informed by Knowles’s Theory of Andragogy during follow-up interviews. Instructors described the importance of connecting course work to real-life context and problems to support adult learning and development. Alexander shared a powerful vignette in which he supported adult learning and development through connecting course material to real-world context,

The director of our computer center was a student of mine back in the nineteen eighties and he was a night student and he reminded me of a story that he had asked a question in class like, ‘When am I ever going to use this? Why is this important?’ And so apparently, I asked - I don't remember the conversation but he did - I asked him ‘So, what do you do for a living?’ And he told me he works at General
Dynamics doing something with airplanes. I said, ‘OK. I'll have an example for you next class.’ I came back with an example of the airflow over an airplane wing and you look at the cross section and his eyes lit up. And that was a great connection.

He said after that, the course was easy because he was motivated to learn.

Lucas shared a similar assertion, explaining, “It’s much more important for students to learn why what they’re learning now is important and how it fits into that bigger picture.” Interview participants described their understanding of ways adults learn and develop as having something to do with helping students to make connections between their course content and the application of that content in real-world scenarios.

In addition to connecting course content with real-world context, interview participants identified active learning experiences as an important element to supporting adult learning and development. As shown in Table 4.16, eight interview participants described their instructional practice in ways that connected to Experiential Learning Theory (Dewey, 1938; Kolb, 1984).

Xavier explained his understanding of the role of the instructor in supporting adult learning and development, stating, “I think our job as educators is to give those students a safe space; to give them that experience. And hopefully, they can take that experience and translate it into the real world when they get into the job sector.” Xavier’s description of practice aligns with Kolb’s (1984) model of experiential learning, which defines various abilities learners must have if they are to be effective as learners. According to Kolb, learners must develop concrete experience abilities, in which “learners involve themselves fully, openly and without bias in new experiences” (p. 30). Learners must also cultivate observation abilities, in which they “reflect on and observe their experiences from many perspectives” (p. 30). Learners develop the ability to conceptualize abstracts, “cret[ing] concepts that integrate their observations into logically sound
theories” (p. 30). Kolb asserted learners “use these theories to make decisions and solve problems,” an ability he referred to as active experimentation (p. 30). Although he did not directly reference Kolb’s model, Xavier described an instructional practice that is influenced by Experiential Learning Theory.

Dewey (1925) discussed the importance of primary experiences in his text Experience and Nature, asserting that things are “objects to be treated, used, acted upon and with, enjoyed and endured, even more than things to be known. They are things had before they are things cognized” (p. 28). It is the secondary experience that prompts reflection; the disequilibrium caused by our primary experiences that “gives rise to reflective thought and learning” (Miettinen, 2010, p. 65). Principles of Dewey’s Experiential Learning Theory can be detected in Xavier’s description of his introductory music classes, “It’s more experiential where it would be like, okay, touch this piece of equipment. How does it make you feel? How does this work? How does this do this? How to do that? And I find that’s more beneficial to the student than just going like, ‘talk about it’.” Casey discussed the importance of experience to adult learning and development, sharing, “Students learn better by doing” and Dylan affirmed his position, explaining, “It’s not so much what I say to them. It’s what they do that matters.”

The underlying message of Finding #2 is that university instructors described their understanding of ways adults learn and develop in terms of active classroom experiences that connect to real-world contexts. Data gathered from surveys and interviews demonstrated that instructors concluded that undergraduate students learn best when they actively engage in meaningful learning experiences.
Research Question #2: How do university instructors in Northeastern Massachusetts describe their understanding of how adult learning and development theory informs their approach to lesson planning and facilitation of adult learning in the undergraduate classroom setting?

The following discussion of Research Question #2 includes four subsections: (a) reiteration of the elements of the survey, (b) presentation and analysis of survey data, (c) presentation and analysis of interview data, and (d) delineation of findings for Research Question #2. The analyses of data are presented in both tabular and narrative form.

Elements of the Survey

The survey included questions that were divided into four main sections based on the guiding questions of this study: (a) instructional pedagogy, (b) knowledge of adult learning and development theory, (c) influences on instructional pedagogy, and (d) participant information. Five survey items asked respondents to reflect on their understanding of how adult learning and development theory has informed their approach to lesson planning and facilitation of adult learning.

A 4-point Likert scale was used to gather information about (a) the frequency participants implement a series of instructional practices; (b) participants’ perceived effectiveness in implementing a series of instructional practices; and (c) the importance participants’ place on implementing a series of instructional practices in the undergraduate classroom.

Two open-response questions were posed in this section. The first open-response item invited respondents to share frequently used instructional methods that were not listed as options within the survey. The second item prompted completers to reflect on factors and conditions that inhibit their implementation of instructional practices.
Presentation and Analysis of Survey Data

What follows is the presentation and analysis of data distilled from the closed-response survey in an effort to answer Research Question #2. Those data demonstrate participants’ described understanding of how adult learning and development theory informs their pedagogy in five ways: (a) instructors’ reported frequency in implementing various instructional practices in the undergraduate setting, (b) instructors’ reported perceptions of their efficacy implementing various instructional practices, (c) the perceived importance of various instructional practices as reported by instructors, (d) other instructional practices implemented in undergraduate classrooms as reported by instructors and (e) factors and conditions that instructors report as inhibiting their instructional practices.

Information gathered from survey Questions #2 - 6 are detailed in Tables 4.18 – 4.23. Table 4.18 presents information about the frequency with which survey completers implement various instructional practices in the undergraduate setting.
Table 4.18

*Participants’ Reported Frequency of Implementation of Instructional Practices (n=98)*

<table>
<thead>
<tr>
<th>Instructional Practice</th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Studies</td>
<td>13</td>
<td>37</td>
<td>32</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Discussion-based Protocols</td>
<td>18</td>
<td>31</td>
<td>29</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Fieldwork</td>
<td>26</td>
<td>31</td>
<td>20</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Films / Videos</td>
<td>8</td>
<td>35</td>
<td>39</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Journaling / Reflective Writing</td>
<td>15</td>
<td>41</td>
<td>22</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>Laboratories / Experiments</td>
<td>33</td>
<td>17</td>
<td>18</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Lecture</td>
<td>1</td>
<td>24</td>
<td>41</td>
<td>32</td>
<td>-</td>
</tr>
<tr>
<td>Open-ended Questions</td>
<td>5</td>
<td>13</td>
<td>40</td>
<td>39</td>
<td>1</td>
</tr>
<tr>
<td>Peer Feedback / Critique</td>
<td>22</td>
<td>47</td>
<td>19</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Problem Sets</td>
<td>9</td>
<td>29</td>
<td>32</td>
<td>18</td>
<td>10</td>
</tr>
<tr>
<td>Simulations</td>
<td>16</td>
<td>37</td>
<td>28</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Small-Group Discussion</td>
<td>1</td>
<td>28</td>
<td>41</td>
<td>28</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 4.18 shows that the most frequently implemented instructional practice is the use of open-ended questions, with 79 instructors reporting they *often* or *always* implement this instructional practice. Other frequently implemented instructional practices include lecture and small-group discussion, with a reported use of *often* or *always* as 73 and 69 participants, respectively. Fieldwork was reported as infrequently implemented by survey respondents, with 36 participants indicating the practice was *never* implemented or *not applicable* to their teaching. Laboratories/Experiments was the instructional practice rated as least frequently implemented, with 53 participants indicating the practice was *never* implemented or *not applicable* to participants’ teaching.
Table 4.19 presents mean scores for the frequency with which survey completers in the high, mid, and low ALDT categories implement various instructional practices in the undergraduate setting. Question #2 prompted completers to rate the frequency of practice implementation on a four-point Likert scale (1 = Never or N/A, 2 = Sometimes; 3 = Often; 4 = Always). Ratings for Question #2 were averaged by ALDT subgroup, yielding mean scores between 1.0 and 4.0.

Table 4.19

<table>
<thead>
<tr>
<th>Instructional Practice</th>
<th>High ALDT</th>
<th>Mid ALDT</th>
<th>Low ALDT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Studies</td>
<td>3.1</td>
<td>2.5</td>
<td>2.2</td>
</tr>
<tr>
<td>Discussion-based Protocols</td>
<td>3.3</td>
<td>2.3</td>
<td>2.4</td>
</tr>
<tr>
<td>Fieldwork</td>
<td>2.9</td>
<td>2.3</td>
<td>1.7</td>
</tr>
<tr>
<td>Films / Videos</td>
<td>2.7</td>
<td>2.9</td>
<td>2.4</td>
</tr>
<tr>
<td>Journaling / Reflective Writing</td>
<td>2.8</td>
<td>2.5</td>
<td>2.2</td>
</tr>
<tr>
<td>Laboratories / Experiments</td>
<td>1.6</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>Lecture</td>
<td>2.7</td>
<td>3.1</td>
<td>3.1</td>
</tr>
<tr>
<td>Open-ended Questions</td>
<td>3.6</td>
<td>3.3</td>
<td>3.0</td>
</tr>
<tr>
<td>Peer Feedback / Critique</td>
<td>2.4</td>
<td>2.2</td>
<td>2.0</td>
</tr>
<tr>
<td>Problem Sets</td>
<td>2.2</td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Simulations</td>
<td>2.7</td>
<td>2.6</td>
<td>1.9</td>
</tr>
<tr>
<td>Small-Group Discussion</td>
<td>3.7</td>
<td>3.1</td>
<td>2.9</td>
</tr>
</tbody>
</table>

Table 4.19 shows that instructors assigned to the high ALDT category more frequently implemented eight of the twelve instructional practices than did their colleagues with mid and low ALDT scores. Respondents with a high ALDT score implement Small-group discussion was rated as an instructional practice more often implemented by high ALDT completers (Σ = 3.7).
than by respondents in the mid ($\overline{\Sigma} = 3.1$) and low ($\overline{\Sigma} = 2.9$) ALDT subgroups. The implementation of open-ended questions ($\overline{\Sigma} = 3.6$) and discussion-based protocols ($\overline{\Sigma} = 3.3$) was more frequent by those with high ALDT scores than by instructors with mid and low ALDT scores. Respondents in the mid and low ALDT groups more frequently implemented only three instructional practices: lecture, laboratories/experiments, and problem sets. Participants in the mid ALDT subgroup showed the highest frequency of implementation for only one instructional practice; with an average rating of 2.9, the mid ALDT group more frequently used film/video in their instructional practice than did the high ALDT group ($\overline{\Sigma} = 2.7$) and the low ALDT group ($\overline{\Sigma} = 2.4$).

Table 4.20 presents information about other instructional practices implemented by instructors in the undergraduate classroom. Categories were developed from data gathered from an optional open-response item.
Table 4.20

*Other Frequently-Implemented Instructional Practices (n=39)*

<table>
<thead>
<tr>
<th>Instructional Practice</th>
<th>Number of Instructors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activism</td>
<td>1</td>
</tr>
<tr>
<td>Coding</td>
<td>1</td>
</tr>
<tr>
<td>Content-based Experiences</td>
<td>2</td>
</tr>
<tr>
<td>Debates</td>
<td>1</td>
</tr>
<tr>
<td>Demonstrations</td>
<td>2</td>
</tr>
<tr>
<td>Flipped Classroom</td>
<td>1</td>
</tr>
<tr>
<td>Group Work/Workshop</td>
<td>9</td>
</tr>
<tr>
<td>Guest Presenters</td>
<td>2</td>
</tr>
<tr>
<td>Informal Assessments (surveys, polls, quiz response system)</td>
<td>4</td>
</tr>
<tr>
<td>Interactive Lecture</td>
<td>4</td>
</tr>
<tr>
<td>Interactive Textbook</td>
<td>2</td>
</tr>
<tr>
<td>Literature Circles</td>
<td>1</td>
</tr>
<tr>
<td>Project-Based Learning</td>
<td>2</td>
</tr>
<tr>
<td>Reading</td>
<td>1</td>
</tr>
<tr>
<td>Roleplay</td>
<td>3</td>
</tr>
<tr>
<td>Socratic Method</td>
<td>1</td>
</tr>
<tr>
<td>Student Presentations</td>
<td>11</td>
</tr>
<tr>
<td>Student-led Discussions</td>
<td>4</td>
</tr>
<tr>
<td>Think-Pair-Share</td>
<td>2</td>
</tr>
<tr>
<td>Worksheets</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 4.20 delineates the 20 additional practices that were identified by 39 respondents in an optional open-response survey item. Student presentations was noted by 11 participants as a
frequently implemented instructional practice. Group work or group workshop was the second most frequently named instructional practice, receiving nine mentions.

Table 4.21 demonstrates respondents’ perceived effectiveness when implementing various instructional practices in the undergraduate classroom.

**Table 4.21**

*Participants’ Reported Efficacy in Instructional Practice Implementation (n=97)*

<table>
<thead>
<tr>
<th>Instructional Practice</th>
<th>Not at all Effective</th>
<th>Somewhat Effective</th>
<th>Moderately Effective</th>
<th>Extremely Effective</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Studies</td>
<td>1</td>
<td>19</td>
<td>29</td>
<td>29</td>
<td>19</td>
</tr>
<tr>
<td>Discussion-based Protocols</td>
<td>4</td>
<td>15</td>
<td>32</td>
<td>27</td>
<td>19</td>
</tr>
<tr>
<td>Fieldwork</td>
<td>1</td>
<td>6</td>
<td>22</td>
<td>27</td>
<td>41</td>
</tr>
<tr>
<td>Films / Videos</td>
<td>6</td>
<td>13</td>
<td>45</td>
<td>23</td>
<td>10</td>
</tr>
<tr>
<td>Journaling / Reflective Writing</td>
<td>4</td>
<td>17</td>
<td>35</td>
<td>22</td>
<td>19</td>
</tr>
<tr>
<td>Laboratories / Experiments</td>
<td>1</td>
<td>7</td>
<td>15</td>
<td>25</td>
<td>49</td>
</tr>
<tr>
<td>Lecture</td>
<td>1</td>
<td>12</td>
<td>51</td>
<td>33</td>
<td>-</td>
</tr>
<tr>
<td>Open-ended Questions</td>
<td>1</td>
<td>14</td>
<td>35</td>
<td>40</td>
<td>7</td>
</tr>
<tr>
<td>Peer Feedback / Critique</td>
<td>6</td>
<td>25</td>
<td>31</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td>Problem Sets</td>
<td>2</td>
<td>16</td>
<td>32</td>
<td>31</td>
<td>16</td>
</tr>
<tr>
<td>Simulations</td>
<td>2</td>
<td>21</td>
<td>30</td>
<td>28</td>
<td>16</td>
</tr>
<tr>
<td>Small-Group Discussion</td>
<td>2</td>
<td>24</td>
<td>28</td>
<td>40</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 4.21 shows that most instructors perceive themselves as being extremely effective in implementing open-ended questions (n=40), small-group discussions (n=40), and lectures (n=33) in the undergraduate classroom setting. Films/videos and peer critique/feedback each had the greatest number of completers (n=6) rate themselves as not at all effective in implementing these instructional practices. Laboratories/experiments and fieldwork had the greatest number of
participants indicate that the instructional practice was not applicable in their classroom, with 49 and 41 instructors, respectively.

Table 4.22 presents information regarding how survey participants rated the importance of various instructional practices in the undergraduate classroom.

**Table 4.22**

*Participants’ Perceived Importance of Instructional Practices (n=96)*

<table>
<thead>
<tr>
<th>Instructional Practice</th>
<th>Not at all Important</th>
<th>Somewhat Important</th>
<th>Moderately Important</th>
<th>Extremely Important</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>2</td>
<td>22</td>
<td>36</td>
<td>36</td>
<td>-</td>
</tr>
<tr>
<td>Laboratories / Experiments</td>
<td>1</td>
<td>12</td>
<td>17</td>
<td>55</td>
<td>11</td>
</tr>
<tr>
<td>Small-Group Discussion</td>
<td>2</td>
<td>8</td>
<td>44</td>
<td>39</td>
<td>3</td>
</tr>
<tr>
<td>Case Studies</td>
<td>-</td>
<td>8</td>
<td>24</td>
<td>60</td>
<td>-</td>
</tr>
<tr>
<td>Fieldwork</td>
<td>2</td>
<td>16</td>
<td>40</td>
<td>35</td>
<td>5</td>
</tr>
<tr>
<td>Simulations</td>
<td>9</td>
<td>25</td>
<td>45</td>
<td>17</td>
<td>-</td>
</tr>
<tr>
<td>Films / Videos</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>Open-ended Questions</td>
<td>2</td>
<td>3</td>
<td>25</td>
<td>68</td>
<td>-</td>
</tr>
<tr>
<td>Journaling / Reflective Writing</td>
<td>3</td>
<td>19</td>
<td>39</td>
<td>33</td>
<td>2</td>
</tr>
<tr>
<td>Discussion-based Protocols</td>
<td>2</td>
<td>15</td>
<td>34</td>
<td>42</td>
<td>3</td>
</tr>
<tr>
<td>Peer Feedback / Critique</td>
<td>5</td>
<td>26</td>
<td>37</td>
<td>25</td>
<td>3</td>
</tr>
</tbody>
</table>

According to Table 4.22, the greatest number of survey completers identified open-ended questions (n=68), small-group discussion (n=60), and fieldwork (n=58) as extremely important instructional practices in the undergraduate classroom. The instructional practice perceived as the least important was films/videos with 34 completers indicating not at all important or only somewhat important on survey Question #5. Second to that, 31 respondents reported peer feedback/critique was not at all important or only somewhat important. Instructors indicated
several practices that were *not applicable* in their instructional settings, with laboratories receiving the highest number of indications (*n*=11).

Table 4.23 delineates factors and conditions that inhibit instructional practice, as offered by survey participants in and optional open-response item.

**Table 4.23**

*Factors and Conditions Inhibiting Instructional Practice (n=54)*

<table>
<thead>
<tr>
<th>Inhibiting Factor or Condition</th>
<th>Number of Instructors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Size (too big)</td>
<td>8</td>
</tr>
<tr>
<td>Classroom Management/Culture</td>
<td>4</td>
</tr>
<tr>
<td>Constraints of Physical Environment</td>
<td>7</td>
</tr>
<tr>
<td>Course Assessments Used</td>
<td>1</td>
</tr>
<tr>
<td>Course Content</td>
<td>6</td>
</tr>
<tr>
<td>COVID Constraints</td>
<td>4</td>
</tr>
<tr>
<td>Heavy Teaching Load</td>
<td>3</td>
</tr>
<tr>
<td>Instructors’ Experience/Comfort with Practice</td>
<td>1</td>
</tr>
<tr>
<td>Insufficient Prep Time</td>
<td>4</td>
</tr>
<tr>
<td>Insufficient Time</td>
<td>18</td>
</tr>
<tr>
<td>Lack of Funding/Material Resources</td>
<td>7</td>
</tr>
<tr>
<td>Level of Course</td>
<td>1</td>
</tr>
<tr>
<td>Negative Student Feedback</td>
<td>2</td>
</tr>
<tr>
<td>Pre-tenure (too risky)</td>
<td>1</td>
</tr>
<tr>
<td>Short Attention Span/Distractions</td>
<td>1</td>
</tr>
<tr>
<td>Student Availability Outside of Class</td>
<td>1</td>
</tr>
<tr>
<td>Student Expectations of Instructor/Course</td>
<td>2</td>
</tr>
<tr>
<td>Student Readiness/Preparedness</td>
<td>10</td>
</tr>
<tr>
<td>Students’ Willingness to Participate</td>
<td>7</td>
</tr>
<tr>
<td>Time Needed to Learn New Practice</td>
<td>2</td>
</tr>
<tr>
<td>Transportation Logistics</td>
<td>2</td>
</tr>
<tr>
<td>Unskilled at Practice</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 4.23 presents the factors and conditions that inhibit instructional practice, as reported by 54 survey respondents. Insufficient time was the most often reported factor inhibiting
participants’ ability to implement various instructional practices, with 18 reporting so in open-
response Question #6. Student readiness/preparedness for class was reported by ten instructors as
being an inhibiting factor and eight participants indicated large class sizes as the condition that
presents the most challenge to their pedagogy. What follows is a presentation and analysis of
qualitative data gathered from ten participant interviews.

**Presentation and Analysis of Interview Data**

What follows is the presentation and analysis of data distilled from follow-up interviews
with ten participants. Those data demonstrate participants’ described understanding of how adult
learning and development theory informs their approach to lesson planning and facilitation of
adult learning in two ways: (a) learning and development theory considered by instructors when
planning for student learning, and (b) instructional methods participants use to facilitate learning
based on their described understanding of learning and development theory. Information
gathered from participant interviews are detailed in Tables 4.24 – 4.25.

Table 4.24 presents information about learning and development theories that influence
instructors’ lesson planning and instruction, as described by interview participants. Significant
statements captured from participant interviews and coded as conceptual statements, indicating
instructors’ lesson planning practices. Categories were distilled from concept codes, reflecting
theoretical influences on instructors’ planning and practice.
Table 4.24
Theoretical Influences on Lesson Planning and Instruction

<table>
<thead>
<tr>
<th>Category</th>
<th>Concept Code</th>
<th>Exemplifying Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students make sense of new information by referencing what they already know</td>
<td>Use Analogies</td>
<td>“So, I might have to create either more experiential learning or more analogies to the real world versus EDM music where everybody knows EDM music.”</td>
</tr>
<tr>
<td></td>
<td>Activate Prior Knowledge</td>
<td>“If you don’t have a scheme for it already, you create it. And then moments of disequilibrium can be really useful in the classroom to challenge our students.”</td>
</tr>
<tr>
<td></td>
<td>Create Disequilibrium</td>
<td>“I've often found that even if I am entirely wrong, when I'm debating with someone, I'm learning from them like that is how I get knowledge.”</td>
</tr>
<tr>
<td></td>
<td>Use Existing Frames of Reference</td>
<td>“My favorite thing in the classroom is when a student really thinks they have something and then they're really off base. And it's not that I like that they're off base, but I love the conversations that come out of them.”</td>
</tr>
<tr>
<td></td>
<td>Communicate Clearly</td>
<td>“I was taking that frame of reference and apply it back to the ancient Mediterranean, which is a different society with a different economy.”</td>
</tr>
<tr>
<td></td>
<td>Demonstrate &amp; Model</td>
<td>“That also forced me to have really clear expectations going forward of what I was looking for, for the student.”</td>
</tr>
<tr>
<td></td>
<td>Gradually Release Responsibility</td>
<td>“I teach by examples. I start, here's an example, here's something a little more complicated. Here's the basic idea, now reason towards the general principle, from specific examples to general principle.”</td>
</tr>
<tr>
<td>Students make sense of new information when cognitive demands are reduced</td>
<td>Scaffold Instruction</td>
<td>“We'll sit with the student one on one, we'll play something and then ask them to repeat it back. And that sort of builds a fine motor skill set as well as developing a style.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“We have to connect things for them. That what we're doing here is not brand new. You've seen this kind of thing. We're looking at a graph of a parabola. Well, you've looked at a graph of a line before, and those are kind of similar. Now we're looking at a graph of an exponential function or a logarithm function or sine wave. Yeah, it's very much the same thing.”</td>
</tr>
<tr>
<td></td>
<td>Cultivate Classroom Community</td>
<td>“If the environment is right that they like each other; if they're comfortable meeting their peers, they'll engage in discussion. If they are engaging discussion, they will learn a heck of a lot more than if it's just me telling them content.”</td>
</tr>
<tr>
<td>Activities</td>
<td>Quotes</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Set Conditions for Collaborative Learning</td>
<td>“We're just getting to know one another and establish affinity groups in terms of their interests and specific kinds of environmental problems... Who's interested in this one? Now you're in a group. And so, it seems like you're not doing all that much in terms of the complex work of teaching, but it's really laying a foundation for the later stuff where now students are going to be with students who care about more similar things. And so maybe they'll be able to motivate one another to be able to do what they need to be doing later in the semester when the assignments are more difficult.”</td>
<td></td>
</tr>
<tr>
<td>Establish Discourse Patterns</td>
<td>“You're going to get into a small group in the classroom and you're going to discuss it as a group. You're going to figure out what you think the answer is or where you all disagree. And they're going to come back as a group and discuss it. If I can do that in my teaching, my students will learn so much more than if I just stand up and give them one perspective on the content.”</td>
<td></td>
</tr>
<tr>
<td>Foster Teacher-Student Relationships</td>
<td>“I have weekly quizzes in many of my classes. And I've made the last question on the quiz every week is 'what is one thing you did this week for your physical or mental health?”’</td>
<td></td>
</tr>
<tr>
<td>Facilitate Exploration</td>
<td>“I'll give them a, I guess, more informal idea of what's going on, but then they have to develop the math themselves. This is what traditionally has been inquiry-based learning”</td>
<td></td>
</tr>
<tr>
<td>Students make sense of new information through experience and practice</td>
<td>“Instead of just memorizing a bunch of facts, which is how most of our students approach math, really get them to be working through more real, real-world problems and things like that.”</td>
<td></td>
</tr>
<tr>
<td>Provide Meaningful Experiences</td>
<td>“I find in my instructional approach that if the student is continually engaged, they will most likely have success.”</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.24 shows ways in which interview participants described how their understanding of adult learning and development theory influences their lesson planning and facilitation of student learning. Some instructors used field-specific terminology to describe theoretical underpinnings, such as “schema” and “experiential learning.” Most descriptions of how learning and development theory influenced instructors’ practice did not include field-specific terminology. Instead, participants described their instructional practices in terms of supporting students in making sense of new information, as demonstrated in the exemplifying
statements presented in Table 4.24. Concept codes were sorted into four categories related to learning and development theories.

Table 4.25 delineates the most frequently referenced instructional methods participants use to facilitate student learning, based on their understanding of learning and development theory. The number of instructors with high and low ALDT scores using each instructional method is outlined in Table 4.25.

**Table 4.25**

*Instructional Methods Used to Facilitate Student Learning*

<table>
<thead>
<tr>
<th>Instructional Method</th>
<th>High ALDT</th>
<th>Low ALDT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Participation/Experience</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Discussion</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Real-World Examples</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Collaborative Tasks</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Small-Group Work</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Disequilibrium (through disruption, debate, conflict)</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Essential Questions</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Student Presentations</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Project-Based Learning</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Students Teach Each Other</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 4.25 presents the ten most frequently referenced instructional practices participants use based on their understanding of ways in which adults learn and develop. Active participation/experience was reported by eight subjects, making it the most often reported instructional practice by participants in both the high and low ALDT subgroups. The use of discussion and real-world examples followed, with seven instructors referencing each as a frequently implemented instructional practice. All of the ten reported instructional practices were referenced by members of both the high and low ALDT subgroups. What follows is a presentation of findings for Research Question #2.
Delineation of Findings for Research Question #2

The two findings delineated for Research Question #2 are derived from an analysis of the data gathered from the survey and participant interviews. Pertinent examples have been extracted from each instrument and used to validate each finding.

Finding #3: Instructors are more inclined to use an instructional practice if they feel effective in the implementation of that practice. The third finding is that university instructors in Northeastern Massachusetts tend to employ specific instructional practices if they perceive themselves as effective in the implementation of those practices. Exploring ways instructors described their understanding of how adult learning and development informs lesson planning and instruction in the undergraduate classroom began with an analysis of survey data.

Analysis of survey data began with an examination of participants’ reported frequency of implementation of twelve instructional practices. Instructors went on to rate their perceived efficacy with implementing each instructional practice. Respondents then rated the importance of each instructional practice in supporting the learning and development of undergraduate students. Tables 4.18, 4.21, and 4.22 established that only two instructional practices earned top ratings across the three closed-response survey items. Of the 98 respondents, 79 indicated that they often or always implemented open-ended/essential questions and 73 affirmed that they often or always used small-group discussions in their instructional practice. These instructional practices were also noted as the methods with which instructors perceived themselves as most effective in their implementation. Table 4.21 indicated that 40 completers rated themselves as extremely effective at using open-ended/essential questions and small-group discussions in class lessons. When asked to rate the importance placed on the twelve instructional practices, 68 instructors rated open-ended/essential questions as extremely important and 60 instructors indicated that small-
group discussions were an *extremely important* instructional practice to support learning in the undergraduate setting.

Participants elaborated on their most often implemented instructional practices during their follow-up interviews. Emic codes captured from interview transcripts indicated that seven of the ten instructors identified discussion as a frequently used instructional practice to support student learning, as demonstrated in Table 4.25. John emphasized the importance discussion holds in his undergraduate classroom, explaining, “At the heart of [my practice] is getting kids to have discussions with one another and dialogue and communicate with one another, which goes to Vygotsky’s theories.” Charlotte spoke often about assigning her undergraduates to small-groups to discuss works of art and pre-assigned readings, “I put them in groups for small group discussion.” Consistent with Charlotte’s report, Table 4.25 shows that small-group work was a frequently employed instructional practice, as mentioned by six instructors. Essential questions also ranked as one of the more frequently implemented instructional practices, as outlined in Table 4.25. Lucas shared an example of a preferred classroom exercise that employed small-group discussion and open-ended/essential questions:

When I have the opportunity to go into group discussion, I do it. So, I teach our capstone class and we do seminars throughout our capstone class - it's a software engineering class. But when you're teaching them about the real-world, you need to talk about certain topics like algorithmic transparency. So, what are biases that are built into algorithms? Why does data lie sometimes? Like this kind of thing, right? So, like, you need to know that before you go into the real-world and are working with it. But that's a small group discussion that we have and I find it incredibly valuable. And I find it a lot of fun.
Lucas’s example not only demonstrated his use of small-group discussion and open-ended/essential questions but also illustrated the implementation of real-world examples, an instructional practice supported by Knowles’s Theory of Andragogy (1980) and referred to by seven of the ten interview participants (see Table 4.25).

In his interview, John referenced Vygotsky’s (1978) Theory of Social Constructivism, justifying his choice to include discussion as an instructional practice to support student learning. Vygotsky asserted that learning is a social process. Learners coconstruct knowledge through social interactions, with guidance from more knowledgeable others (Vygotsky, 1978). The implementation of discussion and small-group work in the undergraduate classroom align with Vygotsky’s Theory of Social Constructivism.

The use of open-ended/essential questions as an instructional practice coincides with Piaget’s (1975) Theory of Cognitive Disequilibrium. Piaget viewed the conflict between new ideas and one’s existing cognitive structures as integral to the learning process. Open-ended/essential questions are tools for instructors to provoke cognitive dissonance, encouraging students to reckon with “contradictions or inconsistencies in one’s [intellectual] schemes” (Che et al., 2009). According to Grant Wiggins and Jay McTighe (2013), essential questions stimulate ongoing thinking and inquiry, spark discussion and debate, and demand justification and support.

Dylan addressed Piaget’s Theory of Cognitive Disequilibrium, sharing his practice of creating conflict through posing open-ended/essential questions, “You create an inner conflict that they must resolve. And when they must resolve that, that's motivating. And so, which is it - nature versus nurture?” Piaget’s notion of disequilibrium as a requisite to knowledge construction is supported by the use of essential questions that "point to hard-won big ideas that we want learners to come to understand. [Essential questions] thus serve as doorways or lenses
through which learners can better see and explore the key concepts, themes, theories, issues, and problems that reside within the content” (Wiggins & McTighe, 2013, pp. 4-5). In posing the open-ended/essential question of nature versus nurture, Dylan provoked cognitive dissonance and subsequent inquiry to support students in assimilating new information and accommodating existing knowledge schemes.

Two instructional practices that participants perceived a lack of efficacy in implementing were films/videos and peer critique/feedback. In addition to not seeing themselves as effective at using these instructional practices, respondents rated films/videos and peer critique/feedback as less important to student learning than other instructional methods. Table 4.21 indicates that six survey completers rated themselves as not at all effective implementing films/videos and peer critique/feedback as instructional practices. Table 4.22 presents films/videos ($n=34$) and peer critique/feedback ($n=31$) as only somewhat important or not at all important. Regarding the frequency of implementation of these practices, Table 4.18 demonstrates that just 53 instructors report using films/videos and only 28 respondents report implementing peer critique/feedback, affirming the notion that instructors implement practices they perceive themselves using effectively. As demonstrated in Table 4.25, neither films/videos nor peer critique/feedback were identified as frequently implemented instructional practices.

In a follow-up interview, Alexander was asked to elaborate on his survey responses in relation to the implementation of films/videos as an instructional practice. Alexander has reported that he only sometimes uses films/videos in his classes; that he is not at all effective in his implementation of film/video as an instructional practice; but views films/videos as moderately important to supporting student learning in the undergraduate classroom. Alexander explained, “I am not a digital native. I'm in my 60s. I am really technologically challenged…It's
not intuitive to me how things work with a lot of software and technological tools.” Alexander illustrated the notion that instructors implement those practices with which they perceive a sense of efficacy, regardless of the importance placed on the instructional method.

Survey respondents reported more frequently using instructional practices they felt effective implementing than practices solely identified as important to supporting student learning. Table 4.18 demonstrates that 73 of the 98 completers indicated often or always employing lecture as an instructional practice in their undergraduate classroom. When asked to rate their effectiveness, 33 completers noted they were extremely effective at implementing lecture as an instructional practice. However, instructors did not identify lecture as holding great importance to supporting student learning. As indicated in Table 4.21, only 36 instructors rated lecture as an extremely important instructional practice, with seven other practices rated as holding greater importance to supporting student learning in the undergraduate classroom.

The essence of Finding #3 is that university instructors more often employ instructional practices if they perceive themselves as effective in the implementation of those practices. Data gathered from surveys and interviews demonstrated that perceived efficacy of instructional delivery influenced instructional decision-making more than the perceived importance of an instructional practice to supporting student learning.

Finding #4: Instructors implement instructional practices that support students in making sense of new information. The fourth finding is that university instructors in Northeastern Massachusetts are concerned with employing instructional practices that support students in understanding new content and concepts presented during classes. Exploring ways in which instructors described planning for and facilitating learning in the undergraduate classroom began with an analysis of survey data.
Analysis of survey data began with an examination of participants’ reported frequency of implementation of twelve instructional practices. As noted in Finding #3, instructors reported that they most frequently implement open-ended/essential questions, lecture, and small-group discussion to support student learning in the undergraduate classroom. Table 4.18 indicated that of the 98 survey respondents, 79 report _often or always_ using open-ended/essential questions to advance student learning. As stated in Finding #3, open-ended/essential questions promote the construction of knowledge and encourage student engagement in the learning process. Wiggins and McTighe (2013) advocated for the use of essential questions in lessons and units of study as they, “encourage thinking and discussion, and one's answers may evolve over time” (p. 7). The implementation of open-ended/essential questions requires undergraduate learners to engage in inquiry, challenge their assumptions and existing mental constructs, and debate complex issues, all practices central to Piaget’s (1975) Theory of Cognitive Disequilibrium. Piaget contended that learning happens through an active construction of meaning; it is not a passive process for students. When learners “encounter an experience or a situation that challenges the way we think, a state of disequilibrium or imbalance is created. We must then alter our thinking to restore equilibrium or balance” (Amineh & Asl, 2015, p. 10). One way to restore equilibrium or balance is to confer with more knowledgeable others to make sense of new information.

Small-group discussion provides opportunities for students to coconstruct knowledge and support one another in making sense of new information. Small-group discussion was reported as a practice _often or always_ implemented by 69 of the 98 survey respondents, according to Table 4.18. As discussed in Finding #3, the practice of small-group discussion applies key principles of Vygotsky’s (1978) Theory of Social Constructivism. The Theory of Social Constructivism contended that knowledge is a social and cultural construct, therefore, “Individuals can create
meaning when they interact with each other and with the environment they live in” (Amineh & Asl, 2015, p. 13).

Additional instructional practices frequently implemented by survey participants were shared in an open-response survey item. Table 4.20 showed group work/workshops (n=9), project-based learning (n=2), and Think-Pair-Share (n=2) as instructional practices frequently implemented by undergraduate instructors. Group work, project-based learning, and Think-Pair-Share are instructional practices based in constructivist theory as students make sense of new information through exploration, collaboration, and discourse.

Participants elaborated on their use of instructional practices that support students in understanding new information during their follow-up interviews. Interview transcripts revealed that instructors often did not directly reference learning and development theory when describing their approach to planning for and facilitating student learning. However, instructors’ descriptions of lesson planning and instruction were theoretically-sound. Exemplifying statements were coded by conceptual phrases and categorized into ways students make sense of new information. Table 4.24 shows that instructors support students in making sense of new information in four ways: (1) referencing what they already know, (2) reducing cognitive demands, (3) cultivating a classroom community, and (4) providing opportunities for experience and practice.

Instructors described the importance of engaging students’ existing knowledge base when introducing new information. Activating prior knowledge, using analogies, and building on frames of reference were instructional practices often described by instructors during interviews. William described this important constructivist principle when he shared:
Real learning has to be grounded in what you already know. There has to be a connection between what you're studying at the moment and what you experience and what you know and what you've thought about already. You can't just build the castle in the air. That has to be a foundation under it.

Throughout William’s interview, he never mentioned Jean Piaget, nor did he use the terms “schema,” “assimilation,” or “activate prior knowledge.” William has been assigned to the low ALDT category because of his self-ratings in relation to his familiarity with and training in the field of adult learning and development theory. At the start of our interview, William explained,

I have no idea. I have never had any kind of formal training. The vocabulary of this is entirely unknown to me. I know what I do in the classroom. I know what I do with my students. I have developed, from my experience, a set of practices that I know are effective. But I have no vocabulary to describe them and I have no way to connect this with the vocabulary that is used in the field.

William does not perceive his practice to be informed by learning and development theory. However, William’s description of practice demonstrates an implicit understanding of key elements Cognitivism Constructivism, namely the notion that “knowledge is something that is actively constructed by learners based on their existing cognitive structures” (GSI Teaching & Resource Center, 2016, p. 5).

Casey spoke about leveraging moments of cognitive disequilibrium in a way that did not directly reference learning and development theory:

My favorite thing in the classroom is when a student really thinks they have something and then they're really off base. And it's not that I like that they're off base, but I love the conversations that come out of them.
Using students’ misunderstanding as teachable moments is a practice frequently implemented by Casey and one she identified as highly effective in her classroom. Casey, like William, rated herself as having little familiarity with and training in learning and development theory. Despite her low ALDT score, Casey was employing theoretically-based practices in the classroom to support students in making sense of new information.

Instructors described their approach to lesson planning and instruction in ways that demonstrated an understanding that reducing cognitive demands supports students’ learning of new information. Rather than use field-specific terminology to relay their understanding of theory, instructors described instructional practices that reduce cognitive load for students. Instructors explained the importance of clearly communicating instructions and expectations to support student learning. The use of modeling and teacher demonstration was another often-shared instructional practice to reduce the cognitive demands as students learned new information. Alexander described his facilitation of student learning in this way; “I teach by examples. I start, here's an example, here's something a little more complicated. Here's the basic idea, now reason towards the general principle, from specific examples to general principle.” Providing a model for students can help alleviate cognitive burden and feelings of overwhelm.

Scaffolding instruction and employing a gradual release of responsibility supports students in managing new and challenging tasks. Tasks that are too challenging for students to master on their own, but can be achieved with support from an instructor call for scaffolding or guidance through a gradual release of responsibility. Such instructional practices illustrate theoretical application of Vygotsky’s (1978) Zone of Proximal Development. Without articulating any particular theoretical ties, Xavier described a
gradual release of responsibility to a student, “We'll sit with the student one on one. We'll play something and then ask them to repeat it back. And that sort of builds a fine motor skill set as well as developing a style.”

Study participants described their approach to lesson planning and instruction in ways that demonstrated an understanding that students learn new information when they feel safe and connected to others. During interviews, instructors elaborated on their beliefs that practices that cultivated a safe environment for students and provided opportunities for positive interactions support student learning (Hagenauser & Volet, 2014). John explained:

If the environment is right that they like each other; if they're comfortable meeting their peers, they'll engage in discussion. If they are engaging discussion, they will learn a heck of a lot more than if it's just me telling them content.

Charlotte expounded on the role of classroom community in supporting student learning, sharing a common practice:

You're going to get into a small group in the classroom and you're going to discuss it as a group. You're going to figure out what you think the answer is or where you all disagree. And they're going to come back as a group and discuss it. If I can do that in my teaching, my students will learn so much more than if I just stand up and give them one perspective on the content.

Instructors described the importance of establishing holding environments (Kegan, 1982; Heifetz & Linsky, 2002) and providing high levels of support as a means of nurturing individual and collective growth. Ensuring equity of voice during whole-class discussion is a way faculty can cultivate a sense of belonging and safety within the
classroom (Auerbach & Andrews, 2018). Charlotte described using small digital timers during small group discussions to ensure that all students received equal speaking time. Casey shared her solution to classroom “cliques” that had formed early on in the semester, “So I started doing Kahootz in class and so everybody participates. And after each question, you can be loud and boisterous or whatever and fun; but it includes the other students as well.” Establishing discourse patterns that were equitable and inclusive contributed to a sense of safety and belonging in the classroom and served to support undergraduates in making sense of new information.

Instructors described their approach to lesson planning and instruction in ways that demonstrated an understanding that students make sense of new information through experience and practice. Facilitating exploration, providing students with meaningful experiences, and engaging students in opportunities for repeated practice were instructional methods recounted by instructors. Adult learners make sense of new information through active experiences more so than through passive learning (Knowles, 1980). Casey relayed her implicit understanding of Knowles’s Theory of Andragogy when she explained, “Instead of just memorizing a bunch of facts, which is how most of our students approach math, I really get them to be working through more real, real-world problems and things like that.”

Xavier was one of the few instructors who directly referred to learning and development theory in his interview:

I'm a huge Dewey fan and there's a there's a quote in his Democracy in Education book, which I'll never forget, page 111. It basically says that students gain
knowledge through reading and books. Teachers are there to give experience to that knowledge.

Xavier elaborated on his teaching philosophy, citing experiential learning as a key to supporting students in making sense of new information, “I find in my instructional approach that if the student is continually engaged, they will most likely have success.”

The essence of Finding #4 is that university instructors employ instructional practices that support their students in making sense of new information. Although instructors may not have described their teaching methods in terms that directly connect to adult learning and development theory, their choice of instructional practices indicated an understanding of ways in which students make sense of new information.

Research Question #3: Beyond understanding of adult learning and development theory, what other factors or conditions do university instructors in Northeastern Massachusetts report influence the design and implementation of their classroom practice with undergraduate learners?

The following discussion of Research Question #3 includes four subsections: (a) reiteration of the elements of the survey, (b) presentation and analysis of survey data, (c) presentation and analysis of interview data, and (d) delineation of findings for Research Question #3. The analyses of data are presented in both tabular and narrative form.

Elements of the Survey

The survey included questions that were divided into four main sections based on the guiding questions of this study: (a) instructional pedagogy, (b) knowledge of adult learning and development theory, (c) influences on instructional pedagogy, and (d) participant information. Three survey items asked respondents to reflect on factors and conditions that have influenced
their approach to lesson planning and facilitation of learning, beyond their understanding of adult learning and development theory.

A 4-point Likert scale was used to gather information about experiences participants perceived as having prepared them to lead adult learning and that influenced their instructional practice. Two open-response questions were posed in this section. The first open-response item prompted completers to reflect on factors and conditions that guide their choice of teaching methods. The second item asked respondents to share anything else about their teaching or professional learning that was not asked within the survey.

**Presentation and Analysis of Survey Data**

What follows is the presentation and analysis of data gathered from the closed response survey in an effort to answer Research Question #3. Those data demonstrate participants’ described understanding of factors and conditions that influence the design and implementation of instructional practice in three ways: (a) instructors rated a series of experiences that influence the design and implementation of instructional practices in the undergraduate setting, (b) instructors reported other factors and conditions that guide their choice of teaching methods, and (c) participants shared additional reflections about teaching and learning.

Information gathered from survey Questions #14-16 are detailed in Tables 4.26 – 4.28. Table 4.26 shows how survey participants described various experiences that influenced their instructional practices.
Table 4.26

Experiences Influencing Instructor Practice (n=95)

<table>
<thead>
<tr>
<th>Experience</th>
<th>Not at all Influential</th>
<th>Somewhat Influential</th>
<th>Very Influential</th>
<th>Extremely Influential</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate / Graduate Coursework</td>
<td>13</td>
<td>25</td>
<td>19</td>
<td>36</td>
<td>2</td>
</tr>
<tr>
<td>Professional Conference / Workshop</td>
<td>7</td>
<td>32</td>
<td>28</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>Observation of Practice Within your Department</td>
<td>13</td>
<td>29</td>
<td>28</td>
<td>19</td>
<td>6</td>
</tr>
<tr>
<td>Observation of Practice Outside of your Department</td>
<td>12</td>
<td>29</td>
<td>23</td>
<td>18</td>
<td>13</td>
</tr>
<tr>
<td>Observation of Practice at Another Educational Institution</td>
<td>17</td>
<td>22</td>
<td>16</td>
<td>16</td>
<td>24</td>
</tr>
<tr>
<td>Practicum Experience / Internship</td>
<td>20</td>
<td>17</td>
<td>12</td>
<td>14</td>
<td>32</td>
</tr>
<tr>
<td>Faculty Meetings</td>
<td>37</td>
<td>33</td>
<td>14</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Instructional Coaching</td>
<td>29</td>
<td>17</td>
<td>13</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>Critical Friends Groups / Professional Learning Community</td>
<td>20</td>
<td>21</td>
<td>18</td>
<td>24</td>
<td>12</td>
</tr>
<tr>
<td>Instructional Videos</td>
<td>27</td>
<td>26</td>
<td>15</td>
<td>6</td>
<td>21</td>
</tr>
<tr>
<td>Professional Dialogue</td>
<td>4</td>
<td>20</td>
<td>35</td>
<td>33</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 4.26 shows that survey participants identified professional dialogue, undergraduate/graduate coursework, and professional conferences/workshops as the experiences that most influenced their instructional practice and prepared them for leading adult learning. Of the 95 survey respondents, 68 indicated that professional dialogue was very influential or extremely influential to their practice. Instructors also rated undergraduate/graduate coursework (n=55) and professional conferences/workshops (n=52) as very influential or extremely influential experiences in preparing to lead adult learning. Faculty meetings received the lowest ratings of all experiences, identified by 70 respondents as being not at all influential or only somewhat influential to instructors’ practice. Three experiences were notable in their ratings of
not applicable to participants’ experiences: observation of practice at another institution \((n=24)\), instructional coaching \((n=30)\), and practicum/internship \((n=32)\).

Table 4.27 presents information about factors and conditions that instructors report guided their choice of instructional methods.

**Table 4.27**

*Factors and Conditions Instructors Report Guided Their Choice of Teaching Methods \((n=82)\)*

<table>
<thead>
<tr>
<th>Factor / Condition</th>
<th>Number of References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Dynamic</td>
<td>2</td>
</tr>
<tr>
<td>Class Size</td>
<td>3</td>
</tr>
<tr>
<td>Confidence in Methods</td>
<td>5</td>
</tr>
<tr>
<td>Content Knowledge</td>
<td>2</td>
</tr>
<tr>
<td>Cost/Accessibility of Resources</td>
<td>4</td>
</tr>
<tr>
<td>Course Goals</td>
<td>12</td>
</tr>
<tr>
<td>Critical Thinking</td>
<td>2</td>
</tr>
<tr>
<td>Delivery Format</td>
<td>2</td>
</tr>
<tr>
<td>Engagement</td>
<td>10</td>
</tr>
<tr>
<td>Equity</td>
<td>2</td>
</tr>
<tr>
<td>Feedback from Colleagues</td>
<td>3</td>
</tr>
<tr>
<td>How I Learn</td>
<td>3</td>
</tr>
<tr>
<td>Instructor Motivation</td>
<td>3</td>
</tr>
<tr>
<td>Knowledge/Skills Required in a Real-World Context</td>
<td>5</td>
</tr>
<tr>
<td>Knowledge of Students</td>
<td>19</td>
</tr>
<tr>
<td>Nature of Content</td>
<td>13</td>
</tr>
<tr>
<td>Professional Discourse</td>
<td>5</td>
</tr>
<tr>
<td>Reflection and Adjustment to Practice</td>
<td>20</td>
</tr>
<tr>
<td>Research of Best Practices</td>
<td>15</td>
</tr>
<tr>
<td>Student Assessment</td>
<td>4</td>
</tr>
<tr>
<td>Student Feedback</td>
<td>13</td>
</tr>
<tr>
<td>Time</td>
<td>8</td>
</tr>
<tr>
<td>What Worked Well for Colleagues</td>
<td>8</td>
</tr>
<tr>
<td>Workload</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 4.27 shows that 82 survey participants answered the optional open-response Question #15. According to these data, the factors and conditions most reported by instructors as guiding their choice of teaching methods are reflection and adjustment to practice \((n=20)\), knowledge of their students \((n=19)\), and referencing research and best practices in their respective fields \((n=15)\). Student feedback \((n=13)\), the nature of course content \((n=13)\), and course goals \((n=12)\) were also noted by several instructors as influencing their choice of instructional practices.

Open-response Question #16 was optional and invited survey participants to share any additional information about their teaching and/or learning that was not asked about within the survey items. Table 4.28 presents thoughts and ideas shared by completers in response to Question #16.
Table 4.28

Additional Information About Participants’ Teaching and Learning (n=32)

<table>
<thead>
<tr>
<th>Additional Information</th>
<th>Number of References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influences Teaching Practice</td>
<td></td>
</tr>
<tr>
<td>Course Delivery Format</td>
<td>2</td>
</tr>
<tr>
<td>Good Models of Teaching</td>
<td>1</td>
</tr>
<tr>
<td>Graduate Program</td>
<td>2</td>
</tr>
<tr>
<td>Learning with and from Colleagues</td>
<td>5</td>
</tr>
<tr>
<td>Natural Ability</td>
<td>1</td>
</tr>
<tr>
<td>Professional Development Opportunities</td>
<td>5</td>
</tr>
<tr>
<td>Reading about Pedagogy</td>
<td>2</td>
</tr>
<tr>
<td>Reflection</td>
<td>8</td>
</tr>
<tr>
<td>State University vs. Private Institution</td>
<td>2</td>
</tr>
<tr>
<td>Student Feedback</td>
<td>1</td>
</tr>
<tr>
<td>Student Motivation</td>
<td>3</td>
</tr>
<tr>
<td>Student Needs</td>
<td>1</td>
</tr>
<tr>
<td>Taking Students’ Perspective</td>
<td>1</td>
</tr>
<tr>
<td>Important Lessons Learned</td>
<td></td>
</tr>
<tr>
<td>Be Flexible with Adult Learners</td>
<td>1</td>
</tr>
<tr>
<td>Bring Energy to Teaching</td>
<td>2</td>
</tr>
<tr>
<td>Bring Social Justice and Equity into Practice</td>
<td>1</td>
</tr>
<tr>
<td>Engage Students with Active Learning Experiences</td>
<td>4</td>
</tr>
<tr>
<td>Teach Relevant Content</td>
<td>1</td>
</tr>
<tr>
<td>Use Technology to Support Teaching</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 4.28 shows that 32 survey respondents answered open-response Question #16, sharing 13 additional influences on their teaching practices as well as six important lessons they have learned about teaching. The most reported influence on participants’ teaching practice was reflection, with eight respondents indicating as such. Learning with and from colleagues and attending professional development opportunities also rated high
among respondents, with five references each. Regarding important lessons learned about teaching, four survey participants referenced engaging students through active learning experiences and two instructors mentioned the need to approach teaching with a high level of energy. What follows is a presentation and analysis of qualitative data gathered from ten participant interviews.

**Presentation and Analysis of Interview Data**

What follows is the presentation and analysis of data gathered from follow-up interviews with ten participants. Those data present factors and conditions that instructors report as having influenced the design and implementation of their classroom practice in two ways: (a) participants’ descriptions of key moments in their development as instructors in higher education, and (b) factors and conditions respondents described as influencing their teaching practice in the undergraduate setting. Information gathered from participant interviews are detailed in Tables 4.29 – 4.30.

Table 4.29 presents information about key moments in their development as instructors in higher education, as described by interview participants.
Table 4.29

*Participants’ Descriptions of Key Developmental Moments*

<table>
<thead>
<tr>
<th>Developmental Moment</th>
<th>Number of References</th>
<th>Exemplifying Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advice from a Mentor</td>
<td>1</td>
<td>“One of the things that one professor that was leading that said, which has always stuck with me, is ‘embrace the silence. Never feel the need to fill the room with noise. When your students are quiet, that’s giving them time to think about things.’ That has been has been very important to me, remembering to embrace the silence. Let us have those moments of reflection in the room.”</td>
</tr>
<tr>
<td>Evaluation</td>
<td>3</td>
<td>“One of the other key moments in my teaching career is I was actually nominated for a teaching Grammy, which was pretty cool. And I don't think I was ever deserving of it and I didn't win, but it was still cool to be nominated. But I think it was just an appreciation of some other student who nominated me for it, which was really cool. And I got to experience the process of it and it was cool to see that sort of validation that you worked so hard and you get this this cool little piece of paper, but, you know, in the end, it's like, all right, it's just a piece of paper. Let's go crush some more music.”</td>
</tr>
<tr>
<td>Identifying as the Teacher</td>
<td>3</td>
<td>“I like to say that I used to be a great teacher. Until I started holding myself responsible for my students learning, so, you know, it's easy to give a lecture. It's easy to talk to people and you can be great at it, but until you really take responsibility for teaching somebody something, for having them learn, all you're doing is talking and spouting and professing or what have you. So that's a big change.”</td>
</tr>
<tr>
<td>Professional Development</td>
<td>4</td>
<td>“[Project Next] They take a cohort of about 100 recent graduates, new professors. And we go to three conferences, basically. And so, for these three times over a year and a half, you basically spend a week…learning about different aspects of the profession. So, mostly teaching, but some research and stuff also. So, you get exposed to all of these different pedagogical ideas about, you know, like assessment that you've never thought about, because as a TA, you always just do what the professor said and that was always just traditional. So, you learn about a whole bunch of different techniques and it really brings you into a community of learners.”</td>
</tr>
</tbody>
</table>
| Teaching in Various Settings| 4                    | “My first job out of grad school, I was at a liberal arts college, which is what I wanted. I went to a liberal arts college and then seeing how different it is as a professor, as a
“Another key moment where I realized that some students are not out for your best interest. So, for example, there was one student in my old institution that would call their lawyer whenever they didn't get an A. And it's a real problem. And it was up to me to provide the work for the student and, you know, show the examples of what the expectations were versus this is what the student actually handed in. And it actually went to litigation and we won. But still, it was like it was a major headache... But that also forced me to have really clear expectations going forward of what I was looking for, for the student, which also then prompted me to say, OK, the students aren't ready for critical creativity and open thinking in that sort of aspect. They really do need a very structured approach.”

Table 4.29 shows six categories of participant experiences that described key moments in their development as instructors in higher education. During the follow-up interviews, four participants reported professional development experiences as greatly influencing their development as instructors. Experiences teaching in various educational settings were also reported as key moments in development for four interviewees. Instances of evaluation by either students or supervisors were reported by three participants. Three instructors shared traumatic experiences in their teaching practices as important moments that shaped their development.

Table 4.30 presents factors and conditions that participants report influenced the design and implementation of classroom practice beyond their understanding of adult learning and development theory.
Table 4.30

Factors and Conditions that Influenced Classroom Practice

<table>
<thead>
<tr>
<th>Factor or Condition</th>
<th>Number of References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Size</td>
<td>3</td>
</tr>
<tr>
<td>Content Knowledge</td>
<td>2</td>
</tr>
<tr>
<td>Cost/Accessibility of Resources</td>
<td>1</td>
</tr>
<tr>
<td>Course Texts</td>
<td>2</td>
</tr>
<tr>
<td>COVID-19 Pandemic</td>
<td>4</td>
</tr>
<tr>
<td>Good Model / Mentor</td>
<td>6</td>
</tr>
<tr>
<td>Learning with and from Others</td>
<td>4</td>
</tr>
<tr>
<td>Natural Talent</td>
<td>1</td>
</tr>
<tr>
<td>Observe Others’ Practice</td>
<td>3</td>
</tr>
<tr>
<td>Professional Development / Workshop</td>
<td>3</td>
</tr>
<tr>
<td>Professional Discourse</td>
<td>6</td>
</tr>
<tr>
<td>Reflection and Adjustment of Practice</td>
<td>7</td>
</tr>
<tr>
<td>Research on Best Practices</td>
<td>2</td>
</tr>
<tr>
<td>Safety</td>
<td>4</td>
</tr>
<tr>
<td>Student Engagement / Motivation</td>
<td>9</td>
</tr>
<tr>
<td>Student Feedback</td>
<td>3</td>
</tr>
<tr>
<td>Student Readiness</td>
<td>3</td>
</tr>
<tr>
<td>Take Students’ Perspective</td>
<td>3</td>
</tr>
<tr>
<td>Teach How I Learned</td>
<td>3</td>
</tr>
<tr>
<td>Time</td>
<td>4</td>
</tr>
<tr>
<td>Teacher-Student Relationships</td>
<td>2</td>
</tr>
<tr>
<td>Workload</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 4.30 outlines 22 factors and conditions that instructors report influence the design and implementation of their classroom practice with undergraduate learners. Student engagement/motivation was the most often noted factor influencing instructor practice, with nine references during follow-up interviews. Reflection and adjustment to practice was the second most often referenced factor, with seven instances of notation during participant interviews. Other often-referenced factors and conditions include good models/mentors \((n=6)\) and professional discourse \((n=6)\). What follows is a presentation of findings for Research Question #3.
Delineation of Findings for Research Question #3

The two findings delineated for Research Question #3 are distilled from an analysis of the data gathered from the survey and participant interviews. Pertinent examples have been derived from each instrument and used to validate each finding.

Finding #5: Engaging in professional discourse supports instructors with the design and implementation of their classroom practice. The fifth finding is that university instructors in Northeastern Massachusetts report professional dialogue as having a positive influence on their design and implementation of instruction in the undergraduate classroom. Exploring influences on design and implementation of instructional practice began with an analysis of survey data.

Analysis of survey data began with an examination of how survey participants described various experiences that influenced their instructional practices. Using a four-point Likert scale, survey Question #14 asked respondents to rate a series of professional experiences, indicating the influence each experience had on the design and implementation of their classroom practice. Table 4.26 indicated that professional dialogue was rated as the most influential experience with 68 respondents reporting the experience as either very influential or extremely influential to the design and implementation of practice.

An open-response question offered survey participants the opportunity to share any additional information about their teaching or professional learning that had not yet been reported through the instrument. Analysis of the 32 responses yielded thirteen influences on classroom practice and six important lessons learned by instructors, as demonstrated in Table 4.28. One of the influences most frequently reported by survey participants was learning with and from colleagues. Participant responses center professional discourse as an essential element
of learning with and from colleagues. Survey responses that described learning with and from colleagues included, “informal conversations with colleagues,” “Faculty Learning Communities have been critical to me,” and “informal conversations with colleagues.”

The influence of professional discourse on the design and implementation of classroom practice was expounded upon by instructors during follow-up interviews. Participants elaborated on their engagement in professional dialogue and the impact on practice in two ways: (1) through sharing key moments in their development as instructors in higher education, and (2) by identifying factors and conditions that influence lesson design and classroom practice.

During their follow-up interviews, four participants illustrated the role professional discourse played in contributing to key moments in their development as instructors. Alexander noted the “conversations with a colleague about how to do group work effectively” as contributing to his development as an instructor in higher education. Xavier recounted a conversation he once had with his mother, a fellow educator, that had a profound impact on his development as an instructor,

My mother is an educator as well in higher ed, so I guess I sort of followed the family business, unwillingly at first. But there was a point where I was complaining that my students just didn't get it. And she said, ‘Well, you have to teach them. They don't know. You have to teach them that.’...I was like, oh, you're right. Like, I have to teach them everything from the ground up. And I was sort of disconnected from the students' experience versus my experience. I was like, oh, they should just know how to do this, because in the corporate world you should just know how to do it. And I think that was a realization that there was, I wasn't just a peer to these
students. I was the teacher. And I had that was my responsibility to teach them, you
know, whatever the subject matter was.

This candid conversation with his mother led to a shift in Xavier’s mindset that forever
influenced his approach to teaching and learning in the undergraduate setting. No longer
would Xavier take for granted that students “just knew” how to do things, but he saw
himself as the person responsible for facilitating his students in their construction of
knowledge.

Henry recalled meeting with an older colleague, someone he thought of as an
unassigned mentor. Henry described instances when this mentor would pop into his
classes and they would have lunch together talking about teaching and learning and “how
to just talk with students about these complex things. And he was just a really nice
mentor and because he had been teaching for so long and really cared about the
Teaching.” Charlotte described a key moment in her development as an instructor was
when she came to understand how powerful discourse is to making sense of information.
Charlotte explained, “I noticed that the more I talked about the work and tried to explain
it to other people, the students, my studio work improved substantially.”

Alexander shared a powerful example of how professional discourse, coupled
with the opportunity to observe colleagues’ teaching practice, has shaped his instruction
over the years:

As a tenured faculty member for 30-something years; every tenured faculty member
visited every untenured faculty member every year. So, I’ve visited over a hundred
lectures of my younger colleagues, some of whom do know theory of education.
And I've learned from watching them like, oh, that would work in my class. I could
try that. So, not just looking at their static materials, but visiting classes of junior colleagues, I've learned from them that, yup, now that you mention that, that's where I've gotten a lot of ideas. And then afterwards we'll have a conversation and I'm supposed to be mentoring them, but I'm actually getting from them too. So, it's a good relationship.

Alexander illustrates the power of a reciprocal, professional relationship in advancing teaching practice. Alexander’s vignette acknowledges that faculty members bring different strengths, knowledge, and skills to the institution. Sharing what works well in our practice with colleagues across departments strengthens the capacity of the faculty as a collective.

Interview participants referred to professional discourse as one of the more influential factors when designing and implementing classroom practice. Table 4.29 delineated 22 factors and conditions that emerged in participant interviews. Professional discourse was mentioned by six instructors as being influential to their teaching practice. Some instructors noted that the most impactful conversations happened in formal contexts. Lucas was asked why he rated faculty meetings as only somewhat influential to his teaching practice. Lucas explained that faculty meetings were not often geared towards the needs of math and science instructors, rather most discussions centered topics most relevant to the humanities. William shared his frustration with the rigidity and constraints of faculty meetings, explaining:

So, one of the most important influences on my teaching has been talking with my colleagues about our teaching. But, in faculty meetings, we don't have time to talk about our teaching. We have to deal with the business that is before us. We have to
talk about budgets. We have to talk about course schedules. We have to talk about new course proposals…So, all of these good conversations I've had with my colleagues - and there have been a lot of them - have happened outside of any kind of formal faculty meetings. It's when we've been sitting around having lunch and we're talking about what's going on in our classes or how we deal with the particular students. It's been sitting around waiting for the faculty meeting to start and we talk about I just got a really great paper from the student or a student came to fix a particular problem and I don't know what to do about it.

Instructors reported that professional discourse is highly influential to the design and implementation of their classroom practice. Survey and interview data demonstrate the importance of professional dialogue to instructors as they continue to develop their practice. Learning within community helps faculty to improve upon their practice and discover new ways of supporting student learning. When educators function as a professional learning community, they assume a collective responsibility for the learning of all students, but also for others within the organization. In deprivatizing one’s practice, individuals learn with and from each other and share the role of the more knowledgeable other (Vygotsky, 1978). The belief that we can accomplish more together than we can accomplish on our own is also present in the principles of networked improvement communities (Bryk et al., 2017).

The essence of Finding #5 is that university instructors report professional dialogue as having a positive influence on their design and implementation of classroom practice and support student learning. Data gathered from surveys and interviews demonstrated that instructors reflected on their growth and learning as a result of time spent with colleagues discussing teaching practice.
Finding #6: Instructors make sense of adult learning and development through an iterative process of instructional experiences, reflection, and adjusting practice. The sixth finding is that university instructors in Northeastern Massachusetts described a practice of teaching and reflecting on instructional experiences as influential to their design and implementation of lessons in the undergraduate classroom. Exploring influences on design and implementation of instructional practice began with an analysis of survey data.

Analysis of survey data began with an examination of how survey participants described various experiences that influenced their instructional practices. Survey Question #15 asked participants to consider what guides their choice of teaching methods when planning and implementing classroom lessons. Table 4.27 demonstrated that 82 participants answered this optional open-response question. Participant responses were sorted by concept codes and listed as factors and conditions that guided instructors’ choice of teaching methods. Survey respondents identified reflection and adjustment to practice ($n=20$) as the most influential factor guiding their choice of teaching methods. One survey instructor wrote, “past experience, self-reflection,” in response to survey Question #15. Other responses that illustrated reflection and adjustment to practice included, “past experiences of what worked well,” “past practices,” and “my experience of whether what I tried works with my students or not.”

Table 4.28 delineated survey responses for open-ended item Question #16. Participants shared additional information about their teaching and professional learning that was not addressed in the other survey items. Contributor responses were coded and organized into two categories: (1) Influences on Teaching Practice, and (2) Important Lessons Learned About Teaching. Reflection was noted as the influence most often mentioned by respondents ($n=8$). One participant answered the open-response question explaining, “Adult learning is I believe
also strongly influenced by the lived experience of the teacher— their own ability to self-observe and self-evaluate along with feedback of others— including students.”

Some respondents used idioms and analogies to illustrate the act of reflecting on experiences to inform their practice, including, “Basically learning how to teach was trial by fire for me.” One instructor explained, “I spent a long time working in professional development prior to becoming faculty. That ‘in the trenches’ work framed much of my belief system about adult learners.” Two survey respondents described the cycle of experience, reflection, and adjusting instructional practice as “trial and error.”

Participants were prompted to elaborate on the cycle of experience, reflection, and adjusting instructional practice during the follow-up interviews. In his survey, John described “trial and error” as a factor that guided his choice of instructional methods. When asked to expound on that response during his interview, John described a reflective cycle:

I would like to think if I do a lesson and it clearly doesn't work, if my students are bored, if they're playing on their phone or whatever, that I will leave that class and think to myself, ‘that didn't go well, what can I do to make it better?’… Like, teaching isn't about reinventing the wheel, especially in my case in which I already designed my wheel many, many times, but instead making my wheel more effective. And that is just done by trial and error over time, saying, ‘What worked? What didn't? How can I make this better?’

John described an iterative process that began with a teaching experience. Following the lesson, John reflected on what worked well and what did not. He asked himself a series of reflective questions and the answers to those questions led John to adjust his practice, improving the experience for his learners.
Seven interview participants described reflection and adjustment to practice as being influential to the design and implementation of classroom lessons, as demonstrated in Table 4.30. William described the reflective cycle as “learning on the job, my own stumbling forwards. Figuring out what works after having a really good day in the classroom, going home and thinking about what made that day so good and then trying to do it again.”

The reflective cycle described by study participants is messy. The description of “stumbling forwards,” and “trial by fire” suggested some growing pains throughout the process. In some anecdotes, instructors recounted collegial support through the learning process. Henry illustrated the benefits of professional discourse when engaging in a cycle of reflection:

And that wasn't something we received any kind of like specific pedagogical instruction on how to do. So, learning how to do that has been just a trial by error and talking with others who perhaps have received training or have otherwise made that important to their pedagogies, the exchanging of war stories and things like that.

Often instructors reflected without the support of others. Xavier mentioned his feelings of isolation during the follow-up interview:

In higher ed, we're so siloed that, you know, it's hard to find that sort of information. So, you try to find, ‘hey, what did you do in this class?’ And people just like, ‘here's the syllabus’ and what is the syllabus going to tell me?

Learning communities within universities benefit both instructors and students. Pooling individual insights grows the collective capacity of the organization (Bryk et al., 2017, p.
As individuals contribute to the perspectives and prior experiences that exist within their community, individual instructors’ learning and subsequent practice is informed and enriched.

Amber recounted her experiences teaching at a community college prior to moving to her current position at a private university. She described a teaching experience that was not successful; but through reflection, Amber has learned more about adult learners and has adjusted her practice to better meet their needs:

The big picture that community college experience taught me - OK, I need to truly understand what an 18-year-old or an English language learner, like what level they are at so I can manage my expectations and infuse appropriate curriculum and readings that are comprehensible to them instead of like all these peer reviewed scholarly articles.

Survey and interview participants shared instances of reflection that informed adjustment to teaching practices to better meet the needs of their adult learners. Understanding ways in which adults learn and develop, like all knowledge, is constructed and contextual within the instructor (Belenky et al., 1986; Magolda, 1987; Piaget, 1938; Perry, 1970; Vygotsky, 1978). Instructors’ frames of reference matter and are subject to change based on experiences and reflection (Hofer & Pintrich, 1997). Mezirow (1990, 1991) defined frames of reference as the assumptions and expectations that frame our thinking, our feelings, and our actions. Arguing that the purpose of adult development is to realize one’s agency through critical reflection and self-awareness, Mezirow explained that transformation of the self occurs through the elaboration of existing frames, the learning new frames of reference, and transforming one’s point of view or
habits of mind (Brown, 2004). The act of transformative learning changes the way instructors see themselves and makes sense of their practice.

The essence of Finding #6 is that instructors make sense of adult learning and development by reflecting on teaching experiences, either individually or within community. Reflections on practice lead to transformative learning, prompting adjustment to the design and implementation of classroom lessons with undergraduate learners.

Chapter Summary

The final section of Chapter Four begins with a restatement of the purpose and scope of the study, followed by an explanation of the major sections presented in the chapter. The six findings are then delineated, and the summary concludes with an outline for Chapter Five.

This study was designed to investigate how instructors in Northeastern Massachusetts described their understanding of ways in which adults learn and develop in undergraduate settings. Further, this study sought to understand the theoretical influences on the design and implementation of classroom practice as well as other factors and conditions instructors described as influencing the planning and facilitation of adult learning. An explanatory mixed methods approach (Creswell & Creswell, 2018) was supported with data gathered through an online, survey and follow-up interviews with ten participants. Data analysis began with descriptive statistics that led to grouping participants based on self-perceptions of their familiarity with adult learning and development theory, informing the selection of interview participants for the qualitative portion of the study. Quantifying survey data supported identification of major categories and influenced the development of the follow up questions for
specific interviewees in the interview protocol. Major categories were extracted from the qualitative data and coupled with exemplifying statements.

The four major sections begin with a description of demographics for study participants. After that, data are presented and analyzed and findings are proffered for each of the three guiding research question. Data presentation and analysis include four subsections: (1) elements of the survey, (2) presentation and analysis of survey data, (3) presentation and analysis of interview data, and a delineation of findings for each guiding research question.

A synopsis of the findings was presented for each guiding research question. Guiding Research Question #1 provided two findings: (1) instructors do not identify understanding of adult learning and development theory as a requisite of effective practice, and (2) instructors report that adults learn and develop through active engagement with course content that connects to real-world context. Guiding Research Question led to two findings: (1) instructors are more inclined to use an instructional practice if they feel effective in the implementation of that practice, and (2) instructors implement instructional practices that support students in making sense of new information. And Research Question #3 yielded two findings: (1) engaging in professional discourse supports instructors with the design and implementation of their classroom practice, and (2) instructors make sense of adult learning and development through an iterative process of instructional experiences, reflection, and adjusting practice.

The discussion of the six findings in Chapter Five are intended to produce deeper insights for several groups of educators. The scope of those discussions includes examining practical and theoretical implications, and making recommendations for the field.

Chapter Five is presented in five sections, including an introduction, a study summary, a discussion of findings, suggestions for future research, and final reflections.
CHAPTER FIVE: STUDY SUMMARY, DISCUSSION, FUTURE RESEARCH, AND FINAL REFLECTIONS

Introduction

Chapter Five provides a concluding statement about this study. It begins with a summary of important elements stated in the first four chapters. Chapter Five transitions to a discussion of the six findings that emerged from the study. The discussion of each finding includes three subsections: (1) theoretical implications, (2) practical implications, and (3) recommendations for instructors and other stakeholders in the field of higher education. Suggestions for future research follow based on delimitations and limitations of the study. This chapter concludes with final reflections on the experience of conducting this study and the enduring understandings that resulted from this work.

Study Summary

The primary purpose of this explanatory sequential mixed methods study was to explore how university instructors in Northeastern Massachusetts described their understanding of adult learning and development. Additionally, the study examined how instructors reported the influence that their understanding of theory has on their instructional practice in the undergraduate classroom. Beyond knowledge of adult learning and development theory, this study sought to explore the factors and conditions that instructors in higher education described as influencing their pedagogy, especially for those practitioners who have had no formal training in the field of learning and development.

My entire professional life has been spent in schools. Prior to my role as an assistant professor in the School of Education at Endicott College, I served as a classroom teacher and elementary school principal. Years of undergraduate and graduate education, professional
development and training, and former teaching experiences have informed my work with undergraduate learners. Formal scholarship in the field of teaching and learning have heavily influenced my planning and instructional practice with baccalaureate students. I realize, however, that my training and professional background are not shared by all.

Conversations with colleagues across departments and universities have revealed that while many instructors are experts in their respective fields, few have cultivated pedagogical methods or best practices through formal scholarship. I’ve often wondered what informed the planning and instruction of my colleagues who have no formal training in how their students learn and develop.

Literature has suggested that a lack of theoretical understanding limits the pedagogical practice of faculty in the undergraduate classroom (Auerbach & Andrews, 2018; Boyer Commission, 1998; Cahn, 1978; Cross, 1990; Werner, Scovotti, Cummings, & Bronson, 2018). Instructors plan for and facilitate learning based on the assumptions they hold about how undergraduate students learn (Smith & MacGregor, 1992). These assumptions are informed by learning and development theory or by one’s prior experiences as a learner (Boyer Commission, 1998). Given that one’s assumptions are influenced by a mix of theory and experience, this study investigated how university instructors acquire theoretical understanding of adult learning and development and the influence those understandings, and related factors and conditions, have on their pedagogical practice.

Instructors do not universally apply effective pedagogical practices in the context of undergraduate instruction, despite the availability of literature on the subject of adult learning and development theory and classroom methods (Auerbach & Andrews, 2018; Boyer Commission, 1998; Clarke & Gabert, 2004; Werner et al., 2018). The reasons why
undergraduate instructors are not employing effective pedagogical strategies in their classrooms is unclear. Additionally, there is a dearth of research that indicates factors and conditions influencing instructor practice in undergraduate education. This study has endeavored to clarify those unknowns. Three research questions guided this study:

1. How do university instructors in Northeastern Massachusetts describe their understanding of the ways in which adults learn and develop in the undergraduate setting?
2. How do university instructors in Northeastern Massachusetts describe their understanding of how adult learning and development theory informs their approach to lesson planning and facilitation of adult learning in the undergraduate classroom setting?
3. Beyond their understanding of adult learning and development theory, what factors or conditions do university instructors in Northeastern Massachusetts report influence the design and implementation of classroom practice with undergraduate learners?

An explanatory sequential mixed methods design (Creswell & Creswell, 2018) was used as the primary research design method in this study. This design methodology began with quantitative data collection and analysis. This analysis informed the design of the qualitative research, in particular, the selection of participants for the in-depth interviews as well as development of the interview protocol.

**Discussion**

Six major findings emerged from this study. Details of each finding include a discussion of theoretical implications, practical implications, and recommendations.

**Finding #1: Instructors do not identify understanding of adult learning and development theory as a requisite of effective practice.**
Finding #1 emerged from Guiding Research Question #1: How do university instructors in Northeastern Massachusetts describe their understanding of the ways in which adults learn and develop in the undergraduate setting?

The first finding is that university instructors in Northeastern Massachusetts are confident in their efficacy as teachers regardless of their understanding of adult learning and development theory. The following literary connections substantiate this finding.

**Theoretical Implications**

Many university instructors received little to no formal training in the field of adult learning and development theory (Cahn, 1978; Davis et al., 2011; Mattheis & Jensen, 2014; Momsen et al., 2010; Robinson & Hope, 2013). A majority of instructors participating in this study reported a lack of familiarity with adult learning (65%) and developmental (69%) theory. Study participants described seldom using learning and development theory to inform course design or attend to adult learning, as noted in open-ended item survey responses and follow-up discussions with interview participants. Despite their lack of formal training in the field of adult learning and development, university instructors expressed varying degrees of confidence and self-efficacy in their practice (Boyer Commission, 1998; Cross, 1990; Drago-Severson et al., 2011). Survey respondents indicated they were highly confident in helping students learn course content (88%) and apply that knowledge in real-world contexts (68%). Self-efficacy is integral to understanding how people feel and perform in the workplace (Ver et al., 2011). Historically, research on teacher self-efficacy has focused on K-12 contexts (Fong et al., 2019; Tschannen-Moran et al., 1998). However, some scholars have identified factors that promote feelings of efficacy among instructors in higher education.
Bandura (1994) defined self-efficacy as one’s “beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives” (p. 71). The beliefs faculty hold about their abilities to impact students’ learning were identified as important indicators of teaching effectiveness and determine how people feel, think, motivate themselves, and behave (Bandura, 1994; Fong et al., 2019). Instructors who have a strong sense of self-efficacy tended to approach challenges with a spirit of goal-directed persistence, whereas faculty with a weaker sense of efficacy may avoid difficult tasks and feel threatened by challenges (Bandura, 1994). Instructors derived their sense of self-efficacy from four sources: mastery experiences, positive appraisal, models of successful practice, and limited affective responses to teaching experiences (Bandura, 1994). Bandura’s self-efficacy framework supports an understanding of Finding #1.

Mastery experiences were found to cultivate a sense of self-efficacy among teachers (Bandura, 1994; Fong et al., 2019). Achieving professional successes led instructors to believe that they could positively impact student learning. Inversely, perceived failures undermined instructors’ sense of efficacy (Bandura, 1994). Many university instructors actualized their pedagogical skills during early teaching experiences, like serving as graduate student instructors in baccalaureate programs (Fong et al., 2019). Research has determined that the ease with which instructors implemented certain instructional practices was deemed as a strong predictor of pedagogy in the undergraduate classroom (Ertmer 2005; Long, 2017; Ottenbreit-Leftwich et al. 2010; Spotts 1999). Experiencing successful lesson planning and implementation resulted in a heightened sense of self-efficacy for study participants. In follow-up interviews, John, Alexander, Henry, and Lucas all elaborated on ways they learn from successful – on not so successful – teaching experiences. Three interview participants used the phrase “trial and error”
to illustrate the impact of learning through experience, reflecting “And that is just done by trial error over time, saying, ‘What worked? What didn't? How can I make this better?’” (John, 2020). Identifying “what worked” in lesson planning and implementation was an indicator of participants’ reliance on mastery experiences to boost feelings of confidence in their practice. A strong sense of self-efficacy allowed instructors to examine practices that were successful as well as those that “didn’t work” without feeling disparaged or like they had failed at teaching. Instead, instructors demonstrated their capacity for critical reflection and self-awareness; habits of mind critical to expanding a sense of agency (Mezirow, 1990, 1991).

Instructors’ feelings of self-efficacy were also strengthened through vicarious experiences provided by social models. According to Bandura (1994), “people seek proficient models who possess the competencies to which they aspire” (p. 72). Grunspan et al. (2018) referred to affective vicarious experiences as social transmission, “the beliefs, practices, and various artifacts of others that individuals acquire within the social and institutional contexts they experience throughout their careers in academia” (p. 2). Social transmission closely aligned with Bandura’s (1994) assertion that observing successful social models impacts an instructors’ sense of efficacy. Instructors new to university teaching positions often employed instructional methodologies modeled and endorsed by respected colleagues (Grunspan et al., 2018; Henrich & Gil-White, 2001; Henrich & McElreath, 2003; Oleson & Hora, 2014). Several interview participants shared their experiences of observing former instructors and mentors modelling successful practice. Xavier traced his instructional decisions back to observations of a senior professor, sharing “[he] let me sit in on some of his classes. So, I learned by modeling what he did and he was very effective. And I followed what he did. And it worked for me, too.” Alexander described his efforts to emulate the pedagogy of former teachers, “…modeling my
own undergraduate professors. What they did well and what they didn’t do well.” Study participants observed the methods and strategies demonstrated by skilled mentors and teachers. Observing their colleagues succeed in the classroom fostered a belief among instructors that they could also be effective in their practice.

Positive appraisals of instructors’ work contributed to perceptions of effective practice, a phenomenon regarded as social persuasion (Bandura, 1994; Morris & Usher, 2001). Social persuasion in the form of positive student feedback promoted confidence among study participants. Three instructors expressed a confidence in their abilities to provide effective instruction based on positive appraisals they received from students via course evaluations. Lucas was explicit in the connections he drew between evaluations and his sense of self-efficacy, “I have stellar student evaluations. I am a good teacher and I know I'm a good teacher. And the things that make me a good teacher are not training.” Xavier described the year his students nominated him for a “Teaching Grammy” as a key moment in his development as an educator. Alexander recounted praise he received from a former student, “His eyes lit up… He said after that, the course was easy because he was motivated to learn…He's like, ‘No, that was really important to me. And it was a great way of teaching.” Hearing positive appraisal empowered Alexander to continue implementing specific practices. Student feedback and recognition were examples of social persuasion (Bandura, 1994) that promoted self-efficacy among instructors.

Mastery experience, models of successful practice, and social appraisal all contributed to instructors’ elevated sense of self-efficacy (Bandura, 1994; Grunspan et al., 2018). The theoretical implications explored in this subsection beget practical implications.

Practical Implications
Instructors’ confidence and self-efficacy were not contingent upon having been trained in the field of adult learning and development. Instructors in this study reported a high degree of confidence in their abilities to support their students in learning course material and apply those learnings in real-world contexts, despite a lack of formal training in learning and development. Study participants described the importance of mastery experience in contributing to their confidence as instructors of adult learning. Learning “what works and what doesn’t work” (John, 2020) about one’s craft contributes to feelings of efficacy. Opportunities to observe master teachers in action contributed to instructors’ confidence in their practice. Seeing former professors and colleagues succeed in supporting student learning empowered instructors to emulate observed pedagogy and replicate models of practice. Instructors’ sense of self-efficacy was enhanced with positive appraisals of practice. Formal conduits of positive feedback came in the form of student evaluations and professional awards. Impromptu encounters with students, however, also yielded affirmations of classroom experiences. Instructors’ sense of self-efficacy was an indicator of teaching effectiveness and affects teacher motivation and behaviors (Bandura, 1994; Fong et al., 2019). University instructors would benefit from opportunities to observe and experience successful teaching. Instructor confidence and sense of efficacy would also be enhanced through formalizing structures for collegial support in higher education.

**Recommendations**

Finding #1 has led to recommendations for human resources personnel, administrators, and instructors in higher education. These recommendations encourage leaders in higher education to examine K-12 professional learning structures that promote educator collaboration and development. The first recommendation challenges institutions of higher education to formalize models of instructional coaching for new and veteran instructors. University
administrators should identify exceptional practitioners within the organization and train them as instructional coaches. Instructional coaches could provide specific guidance and to an instructor, disentangled from evaluative practices. Supportive services offered by instructional coaches could include: modeling effective practice, observing instructor practice and sharing feedback, supporting the design and implementation of instructors’ lessons, fielding questions from instructors, and sharing resources to support lesson planning and implementation.

The second recommendation calls for the establishment of professional learning communities in higher education. Faculty learning communities encourage the deprivatization of teaching practice. Administrators should designate time and space for faculty to come together and share “what works” in their practice. Learning communities support faculty in exploring dilemmas of practice and examining aspects of their craft that need improvement. Administrators could offer fiscal support by funding facilitator training for faculty learning groups and releasing instructors from faculty meeting time to engage with their professional learning groups.

The third recommendation is to formalize structures and processes that engage instructors in observations of practice, within and outside of their associated departments. Models of teaching practice influence instructional choices made by faculty. Instructors expand their pedagogical repertoire with exposure to others’ practice. Administrators can release faculty from other responsibilities to provide the time needed to observe colleagues’ practice and then engage in follow up discussions of observations.

Finding #2: Instructors report that adults learn and develop through active engagement with course content that connects to real-world context.
Finding #2 emerged from Guiding Research Question #1: How do university instructors in Northeastern Massachusetts describe their understanding of the ways in which adults learn and develop in the undergraduate setting?

The second finding is that university instructors identified experiential learning, coupled with real-world problems, as a means for adults to learn and develop in the undergraduate setting. The following literary connections substantiate this finding.

**Theoretical Implications**

Individuals come to understand their world and make sense of new information through experience and interaction with their environments (Dewey, 1938; Kolb, 2015; Piaget, 1954; Vygotsky, 1978). The intersection of Constructivist Learning Theory, Experiential Learning Theory, and the Theory of Andragogy contributed to understanding ways in which undergraduate students learn and develop.

Elliott et al. (2000) described constructivism as an approach to learning grounded in the belief that people “actively construct or make their own knowledge and that reality is determined by the experiences of the learner” (p. 256). Piaget (1954) and Vygotsky (1978) advanced constructivist theories, arguing that knowledge is built through experience, integrating new information to an existing intellectual framework. Piaget’s (1954) Theory of Cognitive Constructivism assumed that individuals are born with basic mental structures upon which all subsequent learning and knowledge is based. According to Piaget, individuals interact with their environments, experiencing discrepancies between what they already know and what they discover in their environments. These discrepancies create a sense of cognitive disequilibrium to be resolved. Vygotsky’s (1978) Theory of Social Constructivism argued that an individual’s community plays a central role to their learning. Through environmental and social experiences,
students coconstruct knowledge and assimilate new information into preexisting cognitive structures (Vygotsky, 1978).

Experiential Learning theorists regarded learning as an active process of creating knowledge (Kolb, 2015). Research demonstrated that instructional methods that were experiential in nature resulted in student outcomes that were superior to those of lecture-based classes (Werner et al., 2018). The use of active learning pedagogies to examine real-world issues has proven successful in studies involving college-aged men and women (Edmonstone & Robson, 2014; Smith & Stitts, 2013; Söffè & Hale, 2013; Yeo & Marquardt, 2015; Werner et al., 2018). Kolb (1984, 2005, 2015) asserted that learning is an active process of creating knowledge, promoting learning modes that engaged students in concrete experiences, reflective observation, abstract conceptualization, and active experimentation. Regardless of a passive learning experience, lecture remain the instructional method most often employed by instructors in higher education (Werner et al., 2018). Engaging students in experiential learning opportunities, however, promoted undergraduates’ development of a practical understanding of the world (Brown, 2004).

Knowles (1980) contended that participating in legitimate, generative work is motivating for adult learners. According to Auerbach and Andrews (2018), faculty hope that students belong to a community of learners, engage in the practices and discourse of the discipline, and demonstrate deep levels of understanding (p. 5). Results from a study conducted at a large midwestern university revealed, “faculty agreed that active learning methods such as cases and experiential learning were vital in undergraduate education (M= 4.11; SD= 0.74)” yet faculty used lecture as a common form of instruction (Werner et al., 2018, p. 10).
Adult learners demonstrated a need to be self-directing, self-managing, and able to immediately apply new learnings in a personal and professional context (Knowles, 1980). The practical application of knowledge is motivating to adult learners; as Knowles indicated, adults become ready to learn something when they “experience an authentic need to learn it; a need to manage real-life tasks or problems” (Knowles, 1980, p. 44). Learning requires students to engage with their environment and acquaint themselves with the holistic process of adapting to one’s world (Kolb, 2015). Instructors can best meet the needs of undergraduate learners by establishing interactive classroom experiences that support the construction of meaning (Auerbach et al., 2018).

**Practical Implications**

Experiential Learning Theory influenced instructors’ lesson planning and implementation. Instructors described selecting active-learning methods that, “engage students in real-life situations,” and “engage students actively in their learning,” helping students make sense of new information. Several instructors noted the importance of connecting course work to real-world contexts, explaining, “adult development integrates past/present lived experience with concepts and applied skills in order to have meaning for the learner,” and “adult learners need to see the relevance or pertinence of the material to their lives/future careers.” Explicit pairing of theory with real-world application supported students in understanding new course content and brought meaning to assigned classwork.

Undergraduate instructors expressed their concerns that students may not see the value of course material beyond simply passing a test. As such, instructors underscored the importance of connecting course work to real-life context and problems. Lucas emphasized the need for instructors to relay “why what [students are] learning now is important and how it fits into that
bigger picture”. Alexander described his successes connecting course material to real-world contexts, acknowledging that “it's really important to find out how to connect this individual with the material through some kind of application.” Connecting their coursework to real-world contexts was motivating for undergraduate learners.

Several interview participants discussed the differences they observed between underclassmen and upper-level students’ abilities to deeply understand content and concepts. Upper-level courses were described as project-based and experiential; whereas, introductory courses tended to be more lecture-based. Xavier explained differentiating his instructional approach for the level of the class, likening the learning styles of “early underclassman” to those “of a K through 12 student…I'm using a lot more learning tools such…worksheets and organizers.” Xavier varied his pedagogy for his “upper class students [as they] have a little bit more of that higher order thinking and have a little bit more life experience. So, a lot more of those classes are experiential in nature.” Casey also adjusted her instructional methodologies for lower- and upper-level courses, sharing, “The way I teach my junior and senior level classes, I am only lecturing if they have questions.” Internships and field-based experiences were identified as pedagogical approaches that support learning and development; “your mastery comes as you get into your sector and you go and work in the real world. And that's where you become masters at your craft” (Xavier, 2020). Henry described connecting the content of his upper-level restoration ecology course to real-world problems. Henry’s students examine “the conceptual issues involved in the choices we make about preserving and conserving the Earth's resources.” Instructors differentiated their instructional approaches based on their perceived needs of students in both lower and upper level courses. The pedagogical approaches used with lower-level courses tended to be geared towards instrumental knowers (Kegan, 1982, 1994;
Drago-Severson, 2004, 2005, 2007, 2009), who tended to feel most supported with direct guidance and advice from instructors. Instructors tended to approach upper-level courses using methods that were more appropriate for the needs of socializing knowers (Kegan, 1982, 1994; Drago-Severson, 2004, 2005, 2007, 2009). Socializing knowers had a greater capacity for reflection and were able to think abstractly, generalizing concepts from one context to another. Instructors, therefore, recognized the benefits of experiential learning in real-world contexts for upper-level students. Employing experiential learning methods with opportunities for real-life application could also enhance the learning of underclassmen students, supporting movement along the continuum of adult development.

**Recommendations**

Finding #2 has led to recommendations for human resources personnel, administrators, and instructors in higher education. The first recommendation calls for human resources personnel to examine orientation and onboarding practices for new instructors in higher education. Many new instructors are entering the field of higher education without training in teaching and learning. It is recommended that new instructor orientation programs include professional development related to adult learning theory and pedagogy. Human Resources could develop online training programs or invest in cohort-based workshops and seminars for new instructors. Professional development opportunities would support new instructors in understanding ways in which undergraduate students learn and how to plan for instruction that fosters adult learning.

The second recommendation challenges departmental administrators to provide students with opportunities to apply course learnings in real-world contexts. Administrators are encouraged to examine programs of study and identify ways in which students across grade
levels can engage in internships, apprenticeships, and field-based experiences in conjunction with course delivery. The application of course learnings within the context of real-world experiences serves to motivate adult learners and contributes to a deeper understanding of content.

The third recommendation encourages undergraduate instructors to plan lessons and facilitate learning using experiential pedagogy. Instructors must reevaluate teaching practices that employ passive learning techniques. Instructors are encouraged to plan lessons that integrate active learning methods with real-world problems, such as case studies, simulations, problem sets, and experiments. It is also important that instructors communicate the lesson’s value beyond the classroom to their students. Clarifying the “why” of the lesson supports students in making connections and generalizing information across courses. Administrators can release faculty from other responsibilities to provide the time needed to observe colleagues’ experiential practice and then engage in follow up discussions of observations.

**Finding #3: Instructors are more inclined to use an instructional practice if they feel effective in the implementation of that practice.**

Finding #3 emerged from Guiding Research Question #2: How do university instructors in Northeastern Massachusetts describe their understanding of how adult learning and development theory informs their approach to lesson planning and facilitation of adult learning in the undergraduate classroom setting?

The third finding is that university instructors employed specific instructional practices if they perceived themselves as effective in the implementation of those practices. The following literary connections substantiate this finding.

*Theoretical Implications*
As discussed in Finding #1, instructors derived a sense of self-efficacy from various sources. Self-efficacy in this context referred to the beliefs held by instructors regarding their capabilities to “produce designated levels of performance” when implementing specific instructional practices (Bandura, 1994, p. 71). Instructors’ perceptions of self-efficacy were found to determine how people feel, think, motivate themselves, and behave (Bandura, 1994; Fong et al., 2019; Fong, Gilmore, Pinder-Grover, & Hatcher, 2019). Sources contributing to instructors’ sense of teaching efficacy included mastery experiences, positive appraisal, models of successful practice, and limited affective responses to teaching experiences (Bandura, 1994).

Study participants identified open-ended/essential questions, small-group discussions, and lecture as instructional practices with which they felt a strong sense of efficacy and often implemented in their classroom teachings. Open-ended/essential questions and small-group discussion, in particular, were identified as important instructional practices by instructors. Although lecture was not seen as an important methodology, it ranked among the most frequently implemented instructional practices and was recognized by study participants as a methodology they felt effective using. Lecture has been a standard pedagogical choice among instructors in higher education throughout time (Friesen, 2011; Werner et al., 2018). Although often disparaged as a less effective, passive pedagogical form, lecture remains a dominant instructional practice in higher education (Bowen, 2012; Harmon et al., 2015; Petrović & Pale, 2015; Werner et al., 2018). Successful instructional experiences, positive feedback from students and colleagues, and models of successful teaching practice may have informed instructors’ decisions to employ lecture-based teaching in the undergraduate classroom. Instructors’ predispositions to certain teaching styles and a need for control within the classroom environment may also have been contributing factors.
The teaching styles embodied by instructors may have predisposed them to an enhanced sense of self-efficacy as it related to certain instructional practices. Grasha (1994) referred to the personal qualities of university instructors and the effects those qualities had on student learning as one’s teaching style. Reinsmith (1992) originally deemed instructor qualities as archetypal forms of teaching. Instructor teaching styles represented “patterns of needs, believes, and behaviors that faculty displayed in their classrooms” and impacted how instructors managed their classrooms, presented content, and supervised coursework (Grasha, 1994, p. 142).

Five models of teaching styles emerged from Reinsmith’s (1992) research, suggesting that instructors’ teaching styles often presented as: expert, formal authority, personal model, facilitator, and delegator (Grasha, 1994, p. 142). The “expert” transmitted essential knowledge and expertise to students, challenging them to enhance their competence. The “formal authority” retained status among students due to expertise and their formal position as faculty, concerned with providing feedback and holding students accountable. Instructors who embodied the “personal model” endeavored to teach by example, encouraging students to observe and follow their lead. The “facilitator” focused on interpersonal connections and guided students in developing the capacity for independent action and responsibility. The “delegator” was most concerned with supporting students in achieving autonomy, availing themselves to students as needed to support them in completing independent projects. According to Grasha, instructors embodied all teaching styles, however, “college teachers used some styles more often than others” (p. 142). The primary or dominant teaching styles were compared to the foreground in a painting, “easily seen and central to understanding the artist’s vision” (Grasha, 1994, p. 142). In light of Grasha’s findings, it is reasonable to deduce that an instructor’s primary teaching style may reinforce a students’ perceptions of their role as either an active or a passive learner.
The expert and formal authority teaching styles were most easily observed when instructors lectured. The passive nature of student learning and the neutral, if not cool, environment of the lecture-based classroom communicated to students that the instructor was the person in charge (Grasha, 1994). The expert-formal authority architype was reminiscent of early hierarchical positions of Perry’s (1970) Scheme of Intellectual Development. Perry asserted that the earliest positions, found within the category of dualism, suggested that the learner thinks in dualistic and absolutist terms, believing that it is the role of the teacher to know the truth and convey this truth to the learners.

Teachers who employed a blend of expert, facilitator, and personal model, by contrast, tended to use more collaborative, experiential instructional practices to support student learning. Small-group discussion, instructor-designed group projects, self-discovery activities, and learning pairs/debates were among classroom methodologies employed by instructors with an expert-facilitator-personal model profile (Grasha, 1994). Instructors reported using the expert-formal authority style of teaching with underclassmen, with classes required in a program of study, and when pressured for time. Grasha reported that instructors used the lecture-based pedagogy associated with expert-formal authority often because “it helped them to easily meet the expectations of colleges for ‘how [they] should teach’” (p. 144). Instructors who find themselves subject to institutional expectations for how lessons “should be taught” may approach their practice as instrumental knowers, thinking in concrete terms, seeking guidance from authority figures, and concerned with “right” answers (Kegan, 1982, 1994; Drago-Severson, 2004, 2007, 2009, 2012).

Instructors seeking to retain a sense of control in the classroom proved resistant to teaching with a more student-centered style (Grasha, 1994). Grasha (1994) described a perceived
control among instructors within the lecture-based classroom. Respect for authority, management of time and learning outcomes, and clearly defined student- and teacher-roles, were factors and conditions that contributed to a sense of control perceived by instructors in lecture-based classrooms. Scholars have illuminated the need for more collaborative learning experiences through which learners coconstruct knowledge, as “fundamental changes in teaching and learning are rare in higher education…the lecture still reigns supreme” (Lueddeke, 1999, pp. 240-241). Researcher findings have indicated that lecture remains the dominant pedagogical approach in higher education not because instructors are disinterested in engaging students in more active pedagogies, but because faculty do not understand adult learning and development theory (Auerbach & Andrews, 2018; Boyer Commission, 1998; Cahn, 1978; Cross, 1990; Werner, Scovotti, Cummings, & Bronson, 2018).

Though many survey completers identified lecture as a frequently implemented instructional practice (74%) and considered themselves highly effective at using lecture in the classroom (87%), several interview participants shared their aversions to using lecture with undergraduate students. Instructors in the high ALDT group were explicit in their opposition to the use of lecture as a pedagogy. Dylan described the ineffective nature of lecture as an instructional pedagogy, stating “the only thing that matters is the doing and everything else is window dressing - tests and lectures in which we pretend to teach and study sessions in which they pretend to learn.” John predicted that students would disengage from class if he “just walked in for the first four weeks and lectured at them.” Xavier relayed his preference for experiential learning techniques over lecture as an instructional practice, sharing “what we're there as teachers to do is to give the real-world experiences to our students. You know, and not sit up there and lecture.” Amber argued that instructors needed to facilitate rather than lecturer.
Amber shared remorse for subjecting her students to lectures, “I just ended up lecturing. Like I was hoping to get to an activity or a free write and then I ended up explaining something too much… I hate myself on those days is just so boring.” Instructors with a high level of familiarity with adult learning and development theory were most concerned with the limitations of lecture as an instructional pedagogy, while they acknowledged its occasional presence in lesson planning and implementation.

Beyond lecture-based pedagogy, study participants identified small-group discussion and open-ended/essential questions as instructional practices that were frequently implemented. Small-group discussion and open-ended/essential questions were also teaching methods with which participants indicated a sense of self-efficacy. Although less structured than a lecture-based practice, employing discussion and questioning as instructional methods involved “tacit expectations reflecting the socio-cultural experience the individual brings to the situation” (Fisher & Larkin, 2008, p. 4). The perceptions teachers and students held regarding their roles in classroom discourse impacted the nature of the interaction (Fisher & Larkin, 2008). Vygotsky (1978) argued that language was central to learning and that student learning is coconstructed through experiences with more expert others.

Discourse patterns among students have been widely studied in K-12 education (Guzey & Aranda, 2017; Kim & Hand, 2017; Lodge, 2008; Pendergast et al., 2014), however, there is a dearth of research about discourse patterns in higher education. Tharp and Gallimore (1988) identified “recitation script” as a discourse pattern prevalent in schools. Within this three-part discourse model, the instructor maintains a high degree of control, often initiating discourse patterns through questioning and ending the conversation with some degree of evaluative feedback to students (Fisher & Larkin, 2008). Student thinking and interpretations may be
stymied in class discussions in which instructors retain the locus of control (Fisher & Larkin, 2008). Studies have demonstrated that not all student discourse was productive to knowledge construction (Chan, 2000; Eichinger et al., 1991; Mercer, 1995). Explicit skills instruction was necessary to promote interpretive talks, collaborative inquiry, and coconstruction of explanations among students (Chan, 2000; Coleman, 1998; Kuhn et al., 1997; Miyake, 1986; Okada & Simon, 1997; Teasley, 1997). Research contended that student “dyads trained to engage in collaborative constructive activity, such as asking their partners to think, performed better than control students on conceptual understanding” (King et al., 1998 as cited in Chan, 2000, p. 446). To support students in making meaning of new or complex information, instructors taught learners how to engage in specific discourse patterns.

Practical Implications

Instructors most frequently implemented the instructional practices that they felt effective using with undergraduate students. Feelings of efficacy originated from successful experiences of practice, from positive appraisal of performance, and from observed success among colleagues.

Instructors did not often implement practices for which they felt ineffective. Alexander described his aversion to using technology in the classroom, explaining “I just I don't have an aptitude for the audio-visual stuff. I'm just kind of plain, you know, chalk and talk.” Alexander had identified lecture, or “chalk and talk,” as an often-used methodology in his teaching practice. Lecture was an instructional practice that Alexander identified as extremely effective at implementing. During his follow-up interview, however, Alexander intimated that deviating from his practice of lecture was a sign of affection for his students, explaining that “they kind of got the sense I cared about them and it wasn't lecture all the time.”
A perceived sense of control may contribute to instructors’ sense of efficacy. William spoke about his use of Socratic Dialogue as his primary instructional method, across all courses and levels. William justified the implementation of this method, stating “The more time that I am talking, the less time they are talking and it's when they are talking that they will come up with the ideas I'm looking for them to come up with. So, I will only resort to lecture when there are some particular issues that's more complicated than we have time to deal with.” In his promotion of small-group discussion as a method to support students’ construction of knowledge, William demonstrated an implicit desire for control. William expressed his concern for managing the time constraints of the lesson as well as student learning outcomes, suggesting there were predetermined ideas he wanted students to identify and resorted to lecture when certain ideas did not emerge in time. In his follow-up interview, William expressed his efforts to “avoid lecture as much as possible,” explaining lecture was boring and not very useful.

When employing interactive learning methods, instructors continued to assume a certain level of control. Henry described a blend of lecture and experiential learning, sharing “maybe I have to give a 15- or 20-minute lecture to try to just get them to get through these concepts. Or maybe you do a 10-minute lecture broken up by an exercise that demonstrates the point.” Lucas illustrated a classroom practice that was a blend of lecture and application of skill, “Every single one of my lectures was basically the same format, which is a 30- to 40-minute lecture, introducing a topic and then a 40-minute exercise practicing that topic.” The instructional methods that instructors identified as implementing frequently and with efficacy were methods that situated the instructor in a position of control.

**Recommendations**
Finding #3 has led to recommendations for instructors, university administrators, and professional development coordinators. The first recommendation encourages instructors to take stock of their instructional repertoire. Instructors should reflect on the range of teaching methods they use with undergraduates and consider their rationale for implementing certain practices. Further, instructors might consider areas of their practice in which they can transfer positions of authority back to their students. Reevaluating locus of control within classroom practice will support undergraduate students in seeing themselves as active makers of meaning become more self-directed in their learning.

University administrators are challenged to shift their perceptions of the role of instructors. Just as instructors must begin to relinquish some of their control to students, administrators must also adjust their expectations of faculty as the sole authority in the classroom. Instructors have demonstrated that the teaching methods most often employed are those for which they feel a sense of efficacy. Feelings of efficacy are contingent upon perceptions of authority and control. As instructional leaders, university administrators can support faculty by cultivating a professional culture that is safe for instructors to engage in discussions of practice.

A final recommendation holds implications for the work of professional development coordinators. Instructors would benefit from development focused on how undergraduate students learn and develop and associated pedagogies instructors can implement to support that learning and development. Professional literature on the subject of teaching and learning at the undergraduate level is scarce, making professional development opportunities so critical for instructors in higher education. Administrative funding and release time to attend teaching and learning conferences would support instructors in cultivating effective practice.
Finding #4: Instructors implement instructional practices that support students in making sense of new information.

Finding #4 emerged from Guiding Research Question #2: How do university instructors in Northeastern Massachusetts describe their understanding of how adult learning and development theory informs their approach to lesson planning and facilitation of adult learning in the undergraduate classroom setting?

The fourth finding is that university instructors are concerned with employing instructional practices that support students in understanding new content and concepts presented during classes. The following literary connections substantiate this finding.

**Theoretical Implications**

Study participants did not consistently make direct references to learning theories or theorists to describe ways in which adults come to understanding course material. Nonetheless, survey data and interview transcripts revealed many instances of instructors describing theoretically-sound teaching practices. Study participants described instructional methods that reflected the conceptual frameworks of constructivism, andragogy, and learning within community.

Active construction of knowledge through experience is a central premise of Constructivist Learning Theory (Elliott et al., 2000). Students learned new information, building on an existing intellectual framework (Ausubel, 1968). This prior knowledge influenced what new or modified knowledge an individual constructed from new learning experiences (Phillips, 1995). Educators that used constructivist teaching methods were concerned with deep learning and cognitive development (Fosnot & Perry, 2005). Principles of Cognitive Constructivism and
Social Constructivism were employed by instructors who endeavored to support students in making sense of new information.

Piaget (1954) presented some basic assumptions about learning and development in his Theory of Cognitive Constructivism. Individuals are born with basic mental structures upon which all subsequent knowledge is based and come to understand their world through experience and interaction with their environments (Piaget, 1954). Learning is not a passive process, rather, learning happens through an active construction of meaning (Piaget, 1954). Piaget posited that children experience discrepancies between what they already know and what they discover in their environments. These discrepancies create a sense of cognitive disequilibrium that individuals strive to resolve. When learners “encounter an experience or a situation that challenges the way we think, a state of disequilibrium or imbalance is created. We must then alter our thinking to restore equilibrium or balance” (Amineh & Asl, 2015, p. 10). One way to restore equilibrium or balance is to confer with more knowledgeable others to make sense of new information.

Vygotsky (1978) also contended that individuals construct knowledge through experience, integrating new learnings with an existing cognitive framework. Vygotsky’s view of learning as a social process diverged from Piaget’s view of knowledge construction as an individual endeavor (Amineh & Asl, 2015). Social Constructivism Theory emphasized the role of social interaction as fundamental to the development of cognition (McLeod, 2020). Vygotsky argued that community is central to an individual’s process of making meaning of new information. Within learning communities, students worked in relation with instructors and other students to coconstruct their understanding of information. Individuals made sense of new information when learning was guided, or scaffolded, by more expert collaborators (Vygotsky,
1978). Educators were, therefore, critical contributors to supporting student development.

Instructors who designed learning experiences that allowed for students to engage with more knowledgeable others and received appropriate levels of support from the teacher were more likely to stimulate those internal developmental processes within individual students, thus promoting a greater capacity for continued learning (Darling-Hammond et al., 2019).

Study participants supported their students in making sense of new information using classroom practices informed by Experiential Learning Theory. Instructional methods informed by Experiential Learning Theory promoted learning-by-doing. Learning was conceived as a process rather than in terms of student outcomes (Kolb, 2015). Instructors assessed learning through an evaluation of students’ engagement in active learning experiences rather than solely assessing finished products (Kolb, 2015). Engaging students in experiential learning opportunities supported their development of a practical understanding of the world (Brown, 2004). Participating in legitimate, generative work was motivating for adult learners, as it required students to tap into prior experiences and apply their skills to solve real-world problems (Knowles, 1980). Involving students in the development of course experiences and assessments fostered a sense of ownership and self-directed learning among undergraduate students. Drago-Severson et al. (2009) found that through the development of a collaborative learning environment, university faculty were better able to facilitate social-learning experiences than if they had taken a lecture-based approach to pedagogy (p. 142). For students to demonstrate deep levels of understanding, instructors established interactive classroom experiences which engaged students in constructing meaning (Auerbach et al., 2018). Learning required students to engage with their environment and acquaint themselves with the holistic process of adapting to one’s world (Kolb, 2015, p. 51).
The relationships students developed with their instructors and others in the classroom setting were “linked to better school performance and engagement, greater emotional regulation, social competence, and willingness to take on challenges (Osher et al., 2018)” (Darling-Hammond, 2019). The principles of social learning theory explained that students more deeply understood new content and concepts when learning within community than when engaged in individual study. Students worked with one another and with instructors to develop their understanding of course content and make meaning of experiences (Amineh & Asl, 2015). Instructors who promoted a sense of community in the classroom imparted an essential element of a quality undergraduate education (Boyer Commission, 1998).

Although traditionally applied to professional educational settings, the characteristics of professional learning communities and networked communities suggested application for supporting adult learning and development in a higher education classroom. When educators functioned as a professional learning community, they assumed a collective responsibility for the learning of all students, but also for others within the organization (DuFour et al., 2008). Simply assembling in small faculty groups does not affect change in student learning (Supovitz, 2002). Educators who participated in intentional learning communities engaged in reflection and sustained exploration of teaching and learning (Fahey & Ippolito, 2015; Supovitz, 2002). Making teaching practices public encouraged individuals to learn with and from each other and share the role of the more knowledgeable other (DuFour et al., 2008; Vygotsky, 1978). The belief that learners could accomplish more together than on their own was also present in the principles of networked improvement communities (Bryk et al., 2017).

The benefits of teacher-student relationships to student learning have not been as widely studied in higher education as in K-12 education (Hagenauer & Volet, 2018). The findings of a
study by Auerbach and Andrews (2018) indicated that faculty had a desire to promote a sense of belonging and community among their students and wished to design classroom experiences that were perceived as safe and welcoming. To achieve a safe and collaborative learning climate, instructors created a holding environment (Kegan, 1982; Heifetz & Linsky, 2002), providing high levels of support while also challenging individual and collective growth. Once faculty had developed a safe learning environment, they shifted their attention to supporting students in realizing their agency as self-directed learners and contributors to the community.

Atteberry and Bryk (2010) asserted that in schools with strong professional community, leaders support a culture in which teachers are viewed as active agents of change (p. 361). In such schools, attention was drawn to what the individual agent contributed to the learning of others within the community. As valued contributors, teachers were more willing to innovate and saw their roles as influential to organizational outcomes. Generalizing this concept to the undergraduate classroom setting, instructors who created classrooms where students were responsible for engaging in their own learning and contributing to the growth of others, nurtured a climate of self-directed learners.

Like professional learning communities, networked communities were described as “intentionally designed social organizations, and participants have distinct roles, responsibilities, and norms for membership” (Bryk et al., 2017, p. 144). Developing group norms at the start of each semester promoted mutual accountability among adult learners. Students began to view themselves as socializing learners, accountable for their own learning and that of their peer group. Deviating from lecture-based pedagogy was an important first step. In their study of active-learning instruction with undergraduate math and science majors, Auerbach and Andrews (2018) noted that university faculty viewed small workgroups as potential settings for students to
communicate their understanding, learn from their peers, and yet their thinking in a safe context (p. 12). Peer coaching afforded students opportunities to support the growth and development of others through observation, modeling, and providing feedback on their classmates’ work (Atteberry & Bryk, 2010).

Instructors planned for class sessions using discussion-based protocols, such as “convenings” (Drago-Severson, 2009) and others provided by professional organizations. Highly structured discussion-based protocols contributed to the development of holding environments, given the structured format (Breidenstein et al., 2012). The use of discussion-based protocols ensured that conversations remained focused and within time constraints, that participants shared leadership and facilitation roles, and that speaking time was equitably allocated among participants. Such norms developed within learning communities encouraged students to take risks, share ideas, and collaborate to make sense of new information.

**Practical Implications**

Instructors demonstrated an interest in employing constructivist and experiential learning methods to support their students in making sense of new information. Instructors described their practice in ways that indicated they understood that collaborative learning, small-group discussions, and skills application were important methods to support student learning. Study participants did not often refer to learning theories or theorists when rationalizing their instructional decisions, however. University faculty must consider the unique needs of adult learners as they design curriculum and plan for classroom learning experiences. It is critical that instructors plan for and facilitate learning experiences that promote active construction of meaning. Introducing disorienting dilemmas motivates adult learners to understand new information and resolve conflicted thinking. Establishing a classroom culture that encourages
dialogue and academic risk-taking supports students in coconstructing knowledge and understanding. Supportive learning environments, “promot[ing] strong attachments and relationships, a sense of safety and belonging, and relational trust” (Darling-Hammond et al., 2019), encourage student participation in constructivist and experiential learning.

**Recommendations**

Finding #4 has led to recommendations for instructors and university administrators. The first recommendation challenges university instructors to replace traditional, lecture-based content delivery with pedagogical approaches that include experiential and constructivist learning methods that are more reflective of the needs of adult learners. Instructors should plan for learning experiences that promote self-direction, self-management, and immediate application in personal and professional contexts. There should be emphasis placed on activation of prior knowledge at the outset of each lesson, as the basis of constructivist learning is integrating new information with existing knowledge. Analogies are a helpful tool for supporting students with connecting new content to known information. Instructor modeling and small-group discussion offer students support from more expert others when making sense of new information. Building a repertoire of experiential and constructivist teaching moves should be a priority of every undergraduate instructor.

The second recommendation calls for instructors to develop a classroom climate that encourages student participation in constructivist and experiential learning methods. Learning experiences that invite students to engage in cognitive disequilibrium and work in small groups require a culture of safety and trust. Instructors must cultivate a learning environment where students feel secure in taking academic, social, and emotional risks. The use of discussion-based protocols promotes safety within the learning environment. The structure of discussion-based
protocols ensures that discussions remain focused and equitable and that participants share leadership and facilitation roles. Instructors should support the development of class norms and encourage students to take risks, share ideas, and collaborate to make sense of new information. Instructors should develop positive working relationships with their students and support students in establishing in-class relationships with one another. Administrators can support instructors in their professional development, paying for training related to instructional facilitation and building learning communities.

The third recommendation advises administrators to examine the community culture in their respective departments. As administrators build a strong sense of professional community, they foster a culture that views instructors as agents of change. Empowering instructors in this way will support innovative practice and ownership. Administrators can cultivate and sustain learning communities through their own modeling and sharing of practice. Demonstrating vulnerability gives implicit permission for others to take risks. Sharing research and professional literature that focuses on effective instructional practices is another step to be taken by administrators. Engaging in discussion of common text supports building a shared understanding of teaching and learning among faculty. Administrators can also provide funding and release time for instructors to attend trainings that support classroom pedagogy.

**Finding #5: Engaging in professional discourse supports instructors with the design and implementation of their classroom practice.**

Finding #5 emerged from Guiding Research Question #3: Beyond their understanding of adult learning and development theory, what factors or conditions do university instructors in Northeastern Massachusetts report influence the design and implementation of classroom practice with undergraduate learners?
The fifth finding is that university instructors reported professional dialogue as having a positive influence on their design and implementation of instruction in the undergraduate classroom. The following literary connections substantiate this finding.

**Theoretical Implications**

As discussed in Finding #4, people made greater meaning of content and concepts when learning within community than when engaged in individual study. Study participants identified professional discourse as a primary influencer of instructional practice. Social interactions influenced individual thinking, while learning was supported by more knowledgeable others (Vygotsky, 1978). Instructors described engaging in both formal and informal discussions of practice. Establishing learning communities and networked communities was an attempt to formalize professional learning among instructors. Substantial research has been conducted regarding the benefits of formalizing learning communities across various educational settings.

Across educational contexts, professional learning communities engaged committed educators in collective inquiry and action research to improve teaching and learning (DuFour et al., 2008). Defining characteristics of professional learning communities shattered the traditional views of teaching in isolation. The conventional approach to teaching and learning involved educators operating independent of the rest of the school community (DuFour et al., 2008). In our follow-up interview, Xavier lamented, “in higher ed, we're so siloed.” Instructors practicing within a professional learning community, however, shared a mission and vision for their organization; they shared goals that focused on student learning (DuFour et al., 2008).

Gathering teachers for small group discussion of practice will not, on its own, improve teaching and learning (Supovitz, 2002). Members of professional learning communities contributed to a collaborative culture, maintaining an unwavering focus on student learning and
engaged in collective inquiry into best practice (DuFour et al., 2008). Within the context of these intentional learning communities, educators received guidance and structured opportunities to explore ways that their instruction impacted student learning (Supovitz, 2002). Teachers were action-orientated, results-oriented, and committed to continuous self and organizational improvement (DuFour et al., 2008). Deprivatization of practice engaged teachers in learning with and from each other, sharing the role of the more expert other (Vygotsky, 1978).

Creating and sustaining a community of learners required adaptive leadership (Heifetz & Linsky, 2014). Senge (1990) introduced the concept of the “learning leader.” Leaders who viewed themselves as designers, teachers, and stewards of their learning organizations achieved greater success and productivity than those of more traditional organizations, for “over the long run, superior performance depend[ed] on superior learning” (Senge, 1990, p.462). The belief that educators can accomplish more together than on their own was also present in the principles of networked improvement communities (Bryk et al., 2017).

The goal of networked improvement communities was to support individual and organizational learning to achieve targeted improvement in schools (Bryk et al., 2017). Networked improvement communities allowed for greater problem-solving in the field of education through the design of organizational conditions that “enable[d] effective collective action” among educators (Bryk, 2017, p.11).

Bryk et al. (2017) described social learning in networks across three levels. Level-A learning involved knowledge acquisition at an individual level, achieved through experiential learning in one’s professional context. Level-B learning occurred among individuals within a professional context, at times when individuals collaborated to collectively acquire knowledge, as in school-based learning communities. Level-C learning engaged individuals in learning with
others outside of their organizational context, offering opportunities for teaming across institutions. Bryk et al. (2017) argued that pooling individual insights grew the collective capacity of the organization. The greater the number of perspectives and prior experiences that existed within the community, the more an individual’s learning was informed and enriched (Bryk et al., 2017). Since many undergraduate instructors have received minimal to no training in learning and development theory and classroom pedagogy (Cahn, 1978; Davis et al., 2011; Mattheis & Jensen, 2014; Momsen et al., 2010; Robinson & Hope, 2013), instructors and administrators might consider creating organizational conditions that support collaborative learning behaviors.

There existed an inherent culture of collaboration in the practice of learning communities (DuFour et al., 2008). Educators worked interdependently to achieve common goals and held one another accountable for supporting the learning and development of all (DuFour et al., 2008).

Drago-Severson et al. (2009) found that collaboration through sharing knowledge, expertise, and perspectives, stimulated learning and leadership development among learners. Adults have demonstrated a natural tendency toward self-directed learning (Knowles, 1980). As such, school leaders should identify ways to leverage individual and organizational capacity employ principles of learning communities, contributing to the growth and development of all.

In addition to structured learning opportunities, informal on-the-job learning was characterized as critical to the success of new faculty as they oriented themselves to the school community (Boyd & Harris, 2010; Eraut, 2000; Lave & Wenger, 1991; Wenger, 1998). Interactions with experienced faculty, formal training experiences, and departmental leadership contributed to the learning and development of instructor pedagogy (Boyd & Harris, 2010; Fuller et al., 2005; Trowler & Knight, 2000; Knight et al., 2006). Corbo et al. (2016) explained that
cultural transmission occurred within instructors’ departments and social contexts. New faculty often relied on collegial advice from veteran instructors and benefitted from replicating the practices they perceived as working well for others (Grunspan et al., 2018; Henrich & Gil-White, 2001; Henrich & McElreath, 2003; Oleson & Hora, 2014). Providing instructors with formal and informal opportunities to engage in professional discourse increased the capacity of individuals as well as the larger organization.

**Practical Implications**

Instructors identified professional dialogue as the experience most influential to the design and implementation of practice with undergraduate learners. Study participants described both formal discussion structures and informal collegial exchanges as invaluable to their professional learning and development. In follow-up interviews, several participants shared that they had participated in self-selected Professional Learning Groups (PLGs) at their respective institutions. The focus of learning changed annually in these PLGs, ranging in topics from interdisciplinary teaching to teaching students with Autism Spectrum Disorder. Lucas identified the importance of these learning communities to his development as an instructor in higher education, explaining, “I have that support and I have those resources available to me…the two things that helped me the most during my first few years was having people to question and ask things about and drawing on my own personal experience.” Access to experienced colleagues and the time to speak with others about issues of teaching and learning were collaborative resources sought by new instructors in higher education.

At times instructors benefitted from impromptu discussions and professional discourse that was unimpeded by formal structures. William described constraints associated with faculty meetings, indicating that the most helpful discussions sometimes happened outside of faculty
meeting time, “So all of these good conversations I've had with my colleagues - and there have been a lot of them - have happened outside of any kind of formal faculty meetings.” Instructors shared that a formal meeting structure sometimes limited spontaneity within discussions and faculty were mired down, having dove “deeply into theory and into bibliography and reading journal articles” (William, 2020). Formal structures for professional conversation and informal collegial discourse proved valuable to instructor development.

**Recommendations**

Finding #5 has led to recommendations for instructors and university administrators. The first recommendation calls for administrators in higher education to reevaluate the use of faculty meeting time. Time spent as a faculty should be viewed as an opportunity for learning and growth. Informational updates can be sent in electronic format and communicated outside of meeting times. Instead, administrators are encouraged to give faculty the time to share instructional successes and work through dilemmas of practice. Faculty meeting time would be better spent giving and receiving feedback on professional works in progress and analyzing artifacts of student learning. Administrators might evaluate their plan for faculty meeting time by considering how the meeting objectives could impact student learning.

The second recommendation encourages administrators to formalize structures that support faculty in meeting as professional learning groups. Faculty should self-select into learning groups they consider to be most relevant and meaningful to their work. Administrators can support this work through offering release time to faculty as well as funding facilitative leadership training. Administrators might also introduce discussion-based protocols into faculty meetings as a way to facilitate professional discourse. Modeling the use of discussion-based protocols during formal meeting times may encourage the use of such tools in faculty PLGs.
Administrators would benefit from examining learning community models long-established in the field of K-12 education. Teachers and leaders in K-12 schools across the nation have engaged in the work of learning communities for the last few decades. As deprivitization of practice is a key characteristic of learning communities, these organizations are well-versed in sharing their experiences with others, often opening their doors to visitors from other school communities. Principles of collaborative learning can be generalized from K-12 schools and adapted to meet the unique needs of instructors in higher education.

The third recommendation challenges instructors to deprivatize their teaching practice. Participating in professional learning groups, posting to online discussion forums, and sharing what works about your practice with colleagues new to higher education are ways instructors can build capacity within their organization and within their field. Instructors might consider presenting innovative or successful practices at faculty institutes, educational unconferences, or open space events. Educational unconferences are free events, offering innovative training sessions led by the participants in attendance (Schulten, 2018). Open space meetings are parallel working sessions that center a theme for learning and development. Much like an unconference, participants lead the open space meeting sessions (Herman, 2021). There are a number of formal and informal ways for instructors to learn with and from each other.

**Finding #6: Instructors make sense of adult learning and development through an iterative process of instructional experiences, reflection, and adjusting practice.**

Finding #6 emerged from Guiding Research Question #3: Beyond their understanding of adult learning and development theory, what factors or conditions do university instructors in Northeastern Massachusetts report influence the design and implementation of classroom practice with undergraduate learners?
The sixth finding is that university instructors described a practice of teaching and reflecting on instructional experiences as influential to their design and implementation of lessons in the undergraduate classroom.

**Theoretical Implications**

Survey and interview participants described a practice of reflection that informed adjustment to classroom teaching to better meet the needs of their adult learners. Reflection was an important process for instructors in examining experiences and assessing effectiveness to improve performance (Van Woerkom, 2004). Understanding ways in which undergraduates learned and developed was constructed and contextual within the instructors (Belenky et al., 1986; Magolda, 1987; Piaget, 1938; Perry, 1970; Vygotsky, 1978).

Mezirow (1998) contended that learning could be understood as the process of using an existing interpretation of experience to assimilate a new or revised interpretation of one’s experience to guide future actions and decision making (p. 189). Mezirow referred to this process as “assimilative learning.” Survey respondents described reflection as thinking about “what worked well” and their abilities to “self-observe and self-evaluate.” Instructors employed assimilative learning in situations where old ways of thinking and behaving no longer worked and a tacit choice was made to shift thinking and behavior to more functional and acceptable forms (Mezirow, 1998).

Kolb (1984) theorized that experiential learning and reflection called on individuals to engage two types of memory. Learners’ episodic memory stored specific, personally experienced events. The semantic memory housed more general knowledge that transcended specific episodes. In experiential learning, personally experienced events were first stored in episodic memory and then used to construct generalized knowledge structures in semantic memory (Van
Woerkom, 2004, p. 179). Kolb (1984) explained that learning occurred when individuals reflected on concrete experiences, drew conclusions and made judgments regarding those experiences, and then made decisions or took actions that were informed by judgments made. Kolb’s experiential learning cycle had application to instructor practice in higher education. In follow-up interviews, instructors elaborated on changes in practice made as a result of reflecting on prior experiences. Amber shared a profound learning experience about matching appropriate curriculum materials with learners. Amber reflected on the time she assigned peer-reviewed journal articles to her students at a community college. The assignment was unsuccessful given that the text was far beyond the students’ capacity to access and comprehend. Amber reflected on her concrete experiences and drew some conclusions, leading her to adjust her planning, explaining “I need to truly understand what an 18-year-old or an English language learner, like what level they are at, so I can manage my expectations and infuse appropriate curriculum.” Amber’s reflections on experiences in other educational settings informed her current practices with undergraduate students at Site B.

Mezirow argued that adults have the capacity to be critically reflective of their own and others’ assumptions and that critical reflection of one’s assumptions may lead to significant personal and social transformation (Mezirow, 1998). Mezirow called critical reflection of assumptions the “emancipatory dimensions of adult learning” describing this reflective process as the “function of thought and language that frees the learner from frames of reference, paradigms, or cultural canons (frames of reference held in common) that limit or distort communication and understanding” (p. 190). Instructors’ frames of reference matter and are subject to change based on experiences and reflection (Hofer & Pintrich, 1997). Mezirow (1990, 1991) defined frames of reference as the assumptions and expectations that frame our thinking,
our feelings, and our actions. Arguing that the purpose of adult development is to realize one’s agency through critical reflection and self-awareness, Mezirow explained that transformation of the self occurs through the elaboration of existing frames, learning new frames of reference, and transforming one’s point of view or habits of mind (Brown, 2004). The act of transformative learning changed the way instructors saw themselves and made sense of their practice. The disposition and emotional stamina and the will to reach self-established professional goals were important non-cognitive factors in transformative learning (Mezirow, 1998).

Interview participants shared instances of reflecting on their practice with colleagues, while others described a more isolated process of reflection. Critical reflection occurred both within and outside of discursive groups (Mezirow, 1998). Henry discussed benefitting from opportunities to learn from “talking with others who perhaps have received training” and from “the exchanging of war stories” with colleagues. Xavier experienced more challenges to collegial reflection, describing his professional context as “siloed” and difficult to share information among colleagues. Critical reflection of one’s assumptions were both a product of professional discourse as well as the process through which learners gained insight in dealing with disorienting dilemmas (Mezirow, 1998). William illustrated reflective learning as both a process and a product stating, “learning on the job, my own stumbling forwards. Figuring out what works after having a really good day in the classroom, going home and thinking about what made that day so good and then trying to do it again.” Schools as well as individual instructors benefit when practitioners engage in critical reflection.

Practical Implications

Instructors made sense of adult learning and development by reflecting on teaching experiences, both individually and within community. Reflections on practice
led to transformative learning, prompting adjustment to the design and implementation of classroom lessons with undergraduate learners. “Trial and error” was an often-used phrase used by instructors to describe the phenomenon of critical reflection through experiential learning. Instructors described learning to improve classroom teaching through a four-phase reflective process. First, instructors taught a lesson. Then instructors reflected the details of the teaching experience. Next, instructors evaluated the success of that experience, according to metrics like desired lesson outcomes, student engagement, and student feedback. Finally, instructors used their evaluative judgments to adjust some element of practice for the next instructional experience. Instructors often engaged in reflective practices on their own, describing their ambiguous learning experiences as “trial by fire” and “stumbling forwards.” Instructors appreciated opportunities to engage in reflective processes with colleagues, learning what worked, what didn’t work, and how to make the experience better for next time.

**Recommendations**

Finding #6 inspired recommendations aimed at instructors and administrators in higher education. The first recommendation challenges instructors to make time for professional reflection part of their daily instructional routine. Instructors are encouraged to reflect on the success of their instruction soon after classes end, while details of the lesson are still fresh in one’s mind. Instructors might use questions to prompt reflection, such as, What worked well about today’s lesson?, What didn’t work the way I planned?, When did students seem most engaged?, and Did students achieve the desired outcomes for today’s lesson? Journaling is one way that instructors can keep track of daily reflections. Some instructors may choose to annotate a class agenda or lesson plan or make notes in their course syllabus regarding adjustments to be
made. An electronic record may be preferable to some instructors, using platforms like Google Docs, Notes, or Stickies to keep track of reflections.

The second recommendation encourages instructors to seek formative and evaluative feedback from students regarding their instructional experiences. Build in time at the end of class or at the end of a learning experience, for students to share their reflections. Instructors may collect these data in the form of a simple Plus/Delta, prompting students to share “What worked for you today?” and “It would be even better if…” Exit tickets are often used to collect student feedback in K-12 education, but have application in higher education settings as well. Formative assessments of student experiences will inform adjustments to practice while the semester is in progress. Instructors might also implement their own summative course evaluations as a tool to prompt reflection. Questions for reflection may include What were your most important learnings this semester? and What concepts/practices/ideas do you plan to apply to your work in the field? End-of-course reflections could inform planning for future semesters.

The final recommendation calls for administrators in higher education to support the process of critical reflection among their faculty. Soliciting faculty input when developing instructor evaluations is important to reflective practice. It is important for Instructors to have input regarding assessment items included in faculty evaluation instruments. Instructors need to be encouraged to use course evaluations when reflecting on their efficacy and success as practitioners; but if faculty are not involved in the development of evaluation instruments, less attention may be paid to the results. Administrators might consider dedicating time in faculty meeting for sharing and celebrating formative feedback and reflections on practice. Reserving a portion of monthly meeting time to sharing practice that “works well” builds individual and organizational capacity through the sharing of ideas and the normalization of making teaching
practices public. The theoretical and practical implications and recommendations for each of the six findings, as well as study limitations and delimitations, have led to suggestions for future research.

**Areas for Future Research**

Following a review of the literature, it is clear that there is a dearth of research exploring how university instructors use their understanding of adult learning and development to plan and facilitate learning in the undergraduate classroom. Understanding factors and conditions that influence teaching practice in higher education, beyond instructors’ knowledge of learning and development theory, is an area worthy of further study. The delimitations and limitations of this study also informed the recommendation of areas for future research. A delineation of six areas of further study follows.

1. **Use a larger sample size.**

This study gathered participants from three area colleges in Northeastern Massachusetts. Future studies may consider sampling participants from across New England or gather a national sample of participants. Increasing sample size would provide more accurate mean values in the survey data and expand selection options for interview participants. Instructors from other areas of the nation may report different influences on classroom practice and may have received diverse training in the areas of adult learning and development. Additionally, this study was initiated in July 2020, a time of year when the majority of faculty are not teaching. The survey was open to instructor participation for two weeks, closing on August 11, 2020. Instructors who did not regularly check their school emails during summer break likely did not see the invitation to participate in the study until after the survey window had closed. Had the survey been conducted during the fall or spring semester, greater instructor participation may have resulted.
2. Include Doctoral Universities with high research activity as well as predominantly Teaching Universities.

The Carnegie Commission on Higher Education (1970) developed a framework for classifying colleges and universities in the United States. The Basic Classification is a descriptive framework that delineates the criteria for American colleges and universities to be classified into the following groups: Doctoral Universities, Master’s Colleges and Universities, Baccalaureate Colleges, Baccalaureate/Associate’s Colleges, Associate’s, Colleges, Special Focus Institutions and Tribal Colleges.

The sites selected for this study were similar in size, student enrollment, and program offerings. Site A is classified as a Baccalaureate College: Arts and Sciences Focus. This classification signaled that at least 50 percent of the degrees conferred were baccalaureate or higher, but less that 50 master’s and 20 doctoral degrees were conferred in the classification update year (2017). Sites B and C were each classified as M1: Master’s Colleges and Universities – Larger Programs. The designation of M1: Master’s Colleges and Universities – Larger Programs indicated that Sites B and C awarded at least 50 master’s degrees and fewer than 20 doctoral degrees in the classification update year (2017).

Given that the focus of this study was on instructor’s described understanding of ways in which adults learn and develop and their application of that understanding to the planning and implementation of classroom practice, selecting universities with less emphasis placed on research activity was a reasonable design decision. It would be interesting to learn if distinctions in knowledge of adult learning and pedagogy exist among instructors from predominantly teaching universities and faculty at high research Doctoral Universities. R1 and R2 Doctoral Universities are a select group of institutions that awarded at least 20 research/scholarship
doctoral degrees, engaged in “very high” or “high” research activity, and incurred at least five million dollars in research expenditures during the classification update year (Carnegie Classifications of Institutions of Higher Education, 2018).

3. Include student perspectives.

The purpose of this study was to understand how instructors described their knowledge of learning and development and how that knowledge, and other factors and conditions, influenced their classroom practices. Throughout participant interviews, several instructors referred to “student engagement,” “student buy-in,” and “student interest” as influencing their instructional decisions in some way. Future studies could include student perspectives of instructor practice, confirming or disputing certain methodologies as engaging, interesting, or effective in supporting learning.

4. Explore other research methods.

Employing an explanatory sequential mixed method design for this study generated many insights. Other qualitative research methods may be considered for future studies in this area. A case study approach would allow a researcher to more closely examine instructor pedagogy and the influences on teaching practice. During participant interviews, many instructors explained that they were unknowledgeable in the field of adult learning and development. When describing their practice, however, many theoretical connections emerged. It would be revealing for a researcher to observe an instructor’s practice in action, rather than only hear a description of practice in an interview setting. Observations of practice would provide insights into instructors’ teaching methods but also students’ real-time responses to those instructional practices.

This study was conceived and designed prior to the emergence of COVID-19 and the state-wide school closures in Massachusetts. Due to health risks associated with the COVID-19 virus, all classes at Sites B and C had transitioned to fully remote instruction, a pedagogical adjustment to which some interview participants were still adapting. During follow-up interviews, several participants responded to questions, qualifying their practice as pre-COVID. Lucas went so far as to say, “I'm speaking before the weird times.” Alexander shared that having to record his classes on Zoom has forced him to be more prepared than ever. The interview protocol designed for this study did not specifically probe into adaptations of practice due to the COVID-19 pandemic, however, every instructor and student has been impacted by this health crisis and further research is warranted.

6. **Use a second coder during data analysis.**

A limitation to this study involved a single coder in the analysis of qualitative data. Involving multiple coders in data analysis would improve efficiency within the study and “increase comprehensibility, to support intersubjectivity, and to provide sound interpretation of the data” (Burla et al., 2008). Follow-up studies on this subject should include multiple coders. The following section describes final reflections about this study.

**Final Reflections**

The entirety of my adult life has been spent working in schools. I served as a public-school teacher and administrator for seventeen years before making the transition to higher education. Teaching in a school of education, preparing the next generation of Massachusetts educators, has afforded me the chance to integrate all of the elements of educational leadership that most fulfilled me in my work. The essence of this work has entailed leading individual and organizational learning, designing curriculum and instruction that supports others in acquiring
knowledge and deeply understanding concepts, and cultivating an environment that is safe and supportive and encourages individuals to learn with and from one another.

When I started teaching at the undergraduate level, it became clear that my experiences teaching and leading in PK-8 schools would serve me well. Many instructional practices I employed to successfully lead student learning had proved to be just as effective to supporting adult learners. Adults benefitted from learning experiences that simulated real-world problems as did my younger students. I found that my undergraduate learners more deeply understood new concepts after having the chance to confer with partners or groupmates, just as I had experienced when teaching elementary-aged students. I also realized that adult learners, like school-aged students, were more likely to participate in group discussions and take academic risks if I spent time cultivating a safe and respectful classroom culture.

The commonalities I observed between adult learners and young students was not an altogether surprising realization, as I had immersed myself in the formal study of learning and development for several years. As an undergraduate student focused on early childhood education, I examined learning and development theory as it related to newborns through adolescent learners. Later, I studied adult learning and development theory, as a graduate student of educational leadership. The theory of how children and adults come to understand their world is age- and stage-specific, however, many principles apply to both children and adults. I have experienced this truth teaching in the undergraduate setting. My background knowledge and professional experiences prepared me to support adult learners in an undergraduate setting. I knew, however, that the majority of my colleagues in higher education did not share my training and school-based experiences. How then, could they know how to support undergraduate students in learning the important content and concepts of their discipline? How could they
support their students in applying that knowledge in real-world contexts? Where did they learn how to teach? What did they think about when they sat down to plan their weekly lessons? These were the questions that led me to design this study.

This study endeavored to understand how university instructors in Northeastern Massachusetts described their knowledge of adult learning and development theory and how they converted that understanding to planning and implementing classroom lessons. Through this research, influences on teacher practice beyond instructors’ understanding of adult learning and development theory were identified. This study has pulled back the curtain, so to speak, revealing teaching practice that has historically and culturally been highly privatized. Educators often operate within individual silos, making it difficult to know what others’ teaching practice looks like and how lessons are conceived. I am incredibly grateful for the opportunity to have met the ten amazingly talented and dedicated university instructors who volunteered to participate in online interviews, and am forever appreciative of their willingness to share their practice with me.

This study confirmed several findings reported in the literature. First, many instructors in higher education have not received formal training in the field of adult learning and development theory. The majority of study participants described having limited to no familiarity with theory regarding how adults learn and develop. This lack of training and familiarity did not impact feelings of instructor efficacy, however. The majority of study participants reported feeling highly effective in supporting students when learning course content and applying their learnings in real-world contexts. Instructors who have had formal training in adult learning and development theory reported not necessarily considering that theory when planning for and facilitating undergraduate learning. Instructors identified factors other than theoretical
understanding as being influential to their practice. Institutions of higher education would be well-served to attend to this need of new instructors. Instructors new to higher education would benefit from professional development regarding ways in which adults learn and develop. A basic theoretical understanding of how adults acquire new knowledge and develop conceptual understanding would positively impact lesson planning and facilitation. Instructional coaching is another resource that could be provided to new instructors during their first year of teaching. Study findings indicated that instructors’ used teaching methods with which they felt most confident. Literature suggested that self-efficacy increased among instructors following successful teaching experiences, receiving positive feedback on practice, and observing their colleagues achieve success (Bandura, 1994). Instructional coaching provides opportunities for new instructors to engages with these three sources of self-efficacy.

In addition to successful teaching experiences, positive feedback from students and colleagues, this study found that instructors were willing to implement new practices after hearing from colleagues about “what worked” in their lessons. Development of instructor pedagogy was supported through professional dialogue. Sharing practice – both successes and failures – was highly valued among instructors. Formal structures for professional discourse and informal collegial conversations were leveraged to develop instructors’ craft. These findings have significant implications for administrators in higher education. Administrators have the opportunity to support their faculty’s professional development through the formalization of professional learning communities, releasing instructors to engage in collaborative discussion, and funding facilitator training for instructional leaders. University administrators could model professional dialogue and deprivitization of practice by introducing discussion-based protocols during faculty and school meetings. Using discussion-based protocols communicates to faculty
that the administrator values the professional dispositions of sharing practice, taking risks,
learning with and from each other, and supporting team members without judgment.
Additionally, the structure of discussion-based protocols contributes to a climate of safety and
promote equity of voice among participants. Administrators would benefit from examining
learning community models established in K-12 schools. School leaders from all levels have a
unique opportunity to approach educator development through the lens of K-16 collaboration and
educator development.

The literature contended that adults made sense of their worlds through experiences and
social interactions. Further, connecting information to meaningful context in real-world settings
aided in the development of deep understanding. Findings from this study demonstrated that
instructors were interested in implementing teaching practices that supported students in deeply
understanding content and concepts. These findings suggest that instructors could be supported
in their lesson development and facilitation through instructional coaching, sharing practice with
colleagues in professional learning groups, observing practice within and outside of their
respective departments, and attending educational conferences and un-conferences. Lessons that
included experiential learning, connected to real-world contexts best supported learners in
making sense of information. As such, instructors and administrators could re-evaluate programs
of study, identifying areas for student participation in field-based experiences and internships.
Applying knowledge in a real-world context helped students to make those critical connections
and generalize meaning across settings.

Having completed this dissertation, I intend to share my findings through professional
journals. My hope is that these findings will inspire professional dialogue and offer pragmatic
instructional tools to instructors and administrators in higher education. Beyond the publication
of findings in professional journals, I intend to present this work at local and national conferences. In particular, presentation of these findings may be appropriate for the annual Leadership in Higher Education Conference and the Association of American Colleges and Universities Conference. More immediate opportunities to present these findings include local faculty institutes, open space meetings, and educational unconferences. Educational unconferences, called Edcamps, are emerging across the region and present an excellent opportunity to share these important findings.

In closing, I encourage instructors and administrators in higher education to consider students and faculty as learners in their own right, each developing their understanding of the world and making sense of new information. A climate of safety and trust supports adults as they fully engage in learning experiences, remaining vulnerable in the face of disequilibrium. Instructors are responsible for establishing the classroom conditions that promote learning and development for their students, while the onus is on department and institution administrators to cultivate a safe and collaborative learning environment for faculty. Investing the time and resources necessary to foster and nurture such conditions will result in an institution evolving into a true community of learners.
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Maxwell, J. (2013). *Qualitative research design: An interactive approach.* SAGE.


[www.learningforward.org](http://www.learningforward.org)


United-States


*The Carnegie classification of institutions of higher Education ©.*

[https://carnegieclassifications.iu.edu/index.php](https://carnegieclassifications.iu.edu/index.php)


[http://revistas.um.es/analesps](http://revistas.um.es/analesps)


Appendix A

Letter Requesting Participation: Survey

Subject line: Request for participation in dissertation research

Hello,

My name is Jennifer Flewelling and I am an assistant professor of education in Northeastern Massachusetts. I am currently pursuing my Ph.D. in Education Leadership at Lesley University. Because you are affiliated with a local university, I am hoping that you would be willing to participate in my dissertation research, which examines factors that influence faculty pedagogy in the undergraduate classroom.

This study investigates how university instructors in Northeastern Massachusetts describe and understand ways in which adults learn and develop in the undergraduate classroom and how that understanding informs their approach to lesson planning and facilitation of student learning. For the purpose of this study, adult learners refers to undergraduate students, ages 18-22 years. Beyond theories of adult learning and development, I am interested in determining what other factors instructors report influence their design and implementation of classroom practice.

Participation in this study requires that you spend 15-20 minutes completing an online survey and you may be selected to participate in an individual interview with the researcher to follow up on information ascertained through the survey. By participating in this study, you will be entered into a drawing of four $25 Amazon Gift Cards.

There are no known harms or discomforts associated with this study beyond those encountered in normal daily life, and there are no costs for participation in this study. Names of participating college professors will not be reported. Your participation is completely voluntary and you can withdraw from the study at any time. To begin the survey, click here.

Thank you for your participation!

Jennifer Flewelling
jflewell@lesley.edu
(978) 270-1297

There is a Standing Committee for Human Subjects in Research at Lesley University to which complaints or problems concerning any research project may, and should, be reported if they arise. Contact the Committee Chairperson at irb@lesley.edu.
Appendix B

Participant Consent Form: Survey

PAGE 1: About the Survey

My name is Jennifer Flewelling and I am an assistant professor of education in Northeastern Massachusetts. I am currently pursuing my Ph.D. in Education Leadership at Lesley University. Because you are affiliated with a local university, I am hoping that you would be willing to participate in my dissertation research, which examines factors that influence faculty pedagogy in the undergraduate classroom.

This study investigates how university instructors in Northeastern Massachusetts describe and understand ways in which adults learn and develop in the undergraduate classroom and how that understanding informs their approach to lesson planning and facilitation of student learning. Beyond theories of adult learning and development, I am interested in determining what other factors instructors report influence their design and implementation of classroom practice.

Participation in this study requires that you complete an online survey and you may be selected to participate in an individual interview with the researcher to follow up on information ascertained through the survey. By participating in this study, you will be entered into a drawing of four $25 Amazon Gift Cards.

There are no known harms or discomforts associated with this study beyond those encountered in normal daily life, and there are no costs for participation in this study. Names of participating college professors will not be reported. Your participation is completely voluntary and you can withdraw from the study at any time.

Your participation in this survey indicates that you understand the procedures described above, that you agree to participate in this study, and that you allow this data to be included in the researcher’s dissertation and any publications resulting from this study.

○ I agree and continue on to survey
○ No, thank you. I do not wish to continue at this time.
Appendix C

Letter of Consent for Participation: Interview

Agreement to Participate in Research

Dear Professor ____________________,

My name is Jennifer Flewelling and I am a professor of education. I am currently pursuing my Ph.D. in Education Leadership at Lesley University. Because you are a college professor, I am hoping that you would be willing to participate in my dissertation research, which examines the influence of adult learning and development theories on faculty pedagogy in the undergraduate classroom.

Purpose of Study: This study investigates the degree to which college professors understand adult learning and development and the impact their understandings of adult learning and development have on pedagogical practice. Additionally, I am interested in determining factors and conditions that support and inhibit the development of pedagogical practice for college professors.

Procedures: Participation in this study requires that you complete an online survey and you may be selected to participate in an individual interview with the researcher to follow up on information ascertained through the survey.

Risks and Discomforts: There are no known harms or discomforts associated with this study beyond those encountered in normal daily life. There are no costs for participation in this study.

Benefits: As a participant, you may or may not benefit from participation in this study. The possible benefits you may experience from participation in this study may include the implication of efforts to identify areas of strength regarding your instructional pedagogy. There are no additional compensations for participation in this research study.

Confidentiality: Names of participating college professors will not be reported. All research data will be stored on cloud-based systems and computers that are password protected. The research team is guided by all HHS and FDA regulations concerning confidentiality. No information derived from this research project that personally identifies an individual will be used for any purposes and will not be voluntarily released or disclosed without separate consent, except as specifically required by law. Publications and/or presentations that result from this study will not include identifiable information about participants.

Your participation is completely voluntary and you can withdraw from the study at any time. Your responses will help better understand the ways in which college professors develop their pedagogical practice in the undergraduate classroom.

I understand the procedures described above. My questions have been answered to my satisfaction, I agree to participate in this study, and allow this data to be included in the
researcher’s dissertation and any publications resulting from this study. I have been given a copy of this form.

Name of Subject ________________________________________________________________

Signature of Subject ____________________________________________ Date_____________

Thank you for participating in this important research. Please direct any questions/concerns to one of the researchers listed below.

**Research Team**

Lead Researcher: Jennifer Flewelling

Name and Title: Doctoral Student, Lesley University Department: Educational Leadership

Telephone Number: 978-270-1297

Email: jflewell@lesley.edu

Faculty Sponsor: Dr. John Ciesluk

Name and Title: Dissertation Senior Advisor Department: Educational Leadership

Email: jciesluk@lesley.edu

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Appendix D

Participant Survey

PAGE 1: About the Survey

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This study investigates how university instructors in Northeastern Massachusetts describe and understand ways in which adults learn and develop in the undergraduate classroom and how that understanding informs their approach to lesson planning and facilitation of student learning. Beyond theories of adult learning and development, I am interested in determining what other factors instructors report influence their design and implementation of classroom practice.

Participation in this study requires that you complete an online survey and you may be selected to participate in an individual interview with the researcher to follow up on information ascertained through the survey. By participating in this study, you will be entered into a drawing of four $25 Amazon Gift Cards.

There are no known harms or discomforts associated with this study beyond those encountered in normal daily life, and there are no costs for participation in this study. Names of participating college professors will not be reported. Your participation is completely voluntary and you can withdraw from the study at any time.

Your participation in this survey indicates that you understand the procedures described above, that you agree to participate in this study, and that you allow this data to be included in the researcher’s dissertation and any publications resulting from this study.

- I agree and continue on to survey
- No, thank you. I do not wish to continue at this time.
PAGE 2: Instructional Pedagogy

* 2. How frequently do you implement the following instructional practices in your classes?

<table>
<thead>
<tr>
<th>Instructional Practice</th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
<th>N/A</th>
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<td>Lecture</td>
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<td>Small Group Discussion</td>
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<td>Case Studies</td>
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<td>Open-Ended/ Essential Questions</td>
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<td>Peer feedback/ Critique</td>
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3. What other instructional methods do you employ in your classroom practice that are missing from this survey? *(short answer)*
**PAGE 3: Instructional Pedagogy**

* 4. How effective do you believe you are in implementing the following instructional practices are in your classes?

<table>
<thead>
<tr>
<th>Instructional Practice</th>
<th>Not at all effective</th>
<th>Somewhat effective</th>
<th>Moderately effective</th>
<th>Extremely effective</th>
<th>N/A</th>
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<td>Lecture</td>
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<td>Labs/ Experiments</td>
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<td>Peer feedback/ Critique</td>
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</table>
5. How important do you believe the following instructional practices are in higher education settings?

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<thead>
<tr>
<th>Instructional Practice</th>
<th>Not at all important</th>
<th>Somewhat important</th>
<th>Moderately important</th>
<th>Extremely important</th>
<th>N/A</th>
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<td>Lecture</td>
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</table>

6. What factors or conditions inhibit your implementation of instructional practices? *(short answer)*
PAGE 5: Adult Learning and Development Theory

7. How confident are you that you can help your students learn the content of your class?
   - Not at all confident
   - Not so confident
   - Somewhat confident
   - Very confident
   - Extremely confident

8. How confident are you that you can help your students apply what they are learning in class to their experiences in the real world?
   - Not at all confident
   - Not so confident
   - Somewhat confident
   - Very confident
   - Extremely confident

9. How familiar are you with adult learning theory (such as the work of Jack Mezirow’s transformational learning theory)?
   - Not at all familiar
   - Not so familiar
   - Somewhat familiar
   - Very familiar
   - Extremely familiar

10. How familiar are you with adult development theory (such as the work of Robert Kegan’s constructivist- developmental theory)?
    - Not at all familiar
    - Not so familiar
    - Somewhat familiar
    - Very familiar
    - Extremely familiar

11. Could you please provide an example of how your familiarity with Adult Learning and/or Development Theory has influenced your instruction? (short answer)
*12. Please indicate where you have learned about Adult Learning Theory (select all that apply). If you have not learned about Adult Learning Theory, please select N/A.

- Undergraduate program
- Graduate program
- Post-graduate program
- Workshop(s) or Professional Development session(s)
- N/A
- Other (please specify)

*13. Please indicate where you have learned about Adult Development Theory (select all that apply). If you have not learned about Adult Development Theory, please select N/A.

- Undergraduate program
- Graduate program
- Post-graduate program
- Workshop(s) or Professional Development session(s)
- N/A
- Other (please specify)
PAGE 6: Influences on Instructional Pedagogy

14. Which of the experiences below have prepared you to lead adult learning and influenced your instructional practice?

<table>
<thead>
<tr>
<th>Experience</th>
<th>Not at all influential</th>
<th>Somewhat influential</th>
<th>Very influential</th>
<th>Extremely influential</th>
<th>N/A</th>
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<tbody>
<tr>
<td>Undergraduate and/or Graduate coursework</td>
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<td>Professional conference and/or workshop; Webinars</td>
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<td>Observation of practice within your department</td>
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<td>Observation of practice outside of your department</td>
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<td>Observation of practice in another educational institution</td>
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<td>Practicum experience or apprenticeship</td>
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<td>Faculty meetings</td>
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<td>Instructional coaching</td>
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<td>Mentoring</td>
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<td><em>Critical Friends Groups</em> or other formalized professional learning communities</td>
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<td>Instructional videos</td>
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<td>Professional dialogue</td>
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15. When you make choices about teaching methods, what guides those choices? *(short answer)*

16. Is there anything else about your teaching or professional learning that I have not asked you about that you would like to share? *(short answer)*
PAGE 8: Participant Information

17. For how many years have you taught at some institution of higher education? *(short answer)*

*18. At which college/university do you teach? (select all that apply)*

- Endicott College
- Gordon College
- Merrimack College
- Montserrat College of Art
- Northern Essex Community College
- North Shore Community College
- Salem State University
- University of Massachusetts, Lowell
- Other

19. What is your present academic rank?

- Professor
- Associate Professor
- Assistant Professor
- Adjunct (lecturer/instructor/other part-time work)
- Graduate Student/Teaching Assistant
- Other (please specify)

20. What is your tenure status at your institution?

- Tenured
- On tenure track, but not tenured
- Not on tenure track, but institution has tenure system
- Institution has no tenure system

21. On average, how many undergraduate (baccalaureate) courses do you teach each semester?

- 0
- 1-2
- 3-4
- More than 4
22. Please indicate the highest degree you have earned.
   - Bachelor’s (B.A., B.S., etc.)
   - Master’s (M.A., M.S., M.Ed.)
   - Terminal Master’s (M.F.A., M.B.A.)
   - J.D.
   - Medical Doctorate (M.D., D.D.S., D.V.M., etc.)
   - Ph.D.
   - Professional Doctorate (Ed.D., Psy. D., etc.)
   - Other (please specify)

*23. With which department, school, or division are you primarily associated (i.e. Biology, Nursing, Sports Management)? (short answer)

*24. Are you willing to participate in a brief follow up interview in person or online?
   - Yes
   - No

25. Contact information if you are willing to participate in a follow-up interview either in-person at your institution or online via Zoom or Skype.
   
   Name (short answer)

   Institution (short answer)

   Email Address (short answer)

*26. Do you give the researcher permission to retain your contact information (i.e., your email address and name) for possible follow-up research? (RESEARCHER maintains strict standards of confidentiality and will not release your identifying information)
   - Yes
   - No

27. Would you like to be entered into a drawing for a gift card?
   - Yes
   - No
Appendix E
Interview Protocol

Opening/Introduction
“Thank you for meeting with me to talk a bit more about your responses to the online survey you completed. I am conducting research about the instructional practice of undergraduate faculty. I am interested in understanding factors and that conditions influence your lesson planning and classroom instruction.”

“Some instructors have received formal training in adult learning and development and this training informs their classroom practice. Others, however, have received no formal training in these fields. As such, the major purposes of this study are to explore how university instructors in Northeastern Massachusetts describe and understand adult learning and development and how those understandings inform their approach to lesson planning and instruction in the undergraduate classroom. Further, beyond understandings of adult learning and development theory, I am interested in what college professors in Northeastern Massachusetts report as factors that influence the design and implementation of instructional practice in higher education.”

“I have just a few open-ended questions for you to consider and respond to based upon your answers to the online survey. I would like to record our conversation so that I can stay present in our discussion and not have to worry too much about scribing every word right now. Later, I will listen to our discussion and write up a summary of our interview. I aim to protect your privacy when reporting findings. I will use a pseudonym and obscure or omit any potentially identifying information.”

“I will share with you the full transcript of our interview dialogue. If there is anything, upon reflection, that you would like to omit, delete, or add, please let me know that prior to analysis. A final report of my findings will be shared with you at the end of the study. Is it okay with you if I record our conversation?”

“Please remember that you may opt-out of participating in this study at any time. If you are agreeable to the structure I’ve just described, I will go ahead and start the recording. Do you have any questions for me about this study before we begin?”
Logistical / Information Gathering Questions
Clarifying questions for participants in follow up to survey responses (participant dependent).

Follow-Up Interview Questions
Probing questions are designed to gather more information about a participant’s experiences in relation to the guiding questions. These questions will be designed based on participant responses to the online survey.

Interview questions that support the investigation of **Guiding Research Question #1: How do college professors describe their understanding of how adults learn and develop in the undergraduate classroom setting?**

1. How would you define the term adult learning?
2. What are the most important skills needed by those working with adult learners?
3. What aspects of adult learning theory do you consider when working with undergraduate students?
4. What aspects of adult development theory do you consider when working with undergraduate students?
5. What do you see as the most pressing learning needs of undergraduate students?
6. Think back to when you were a beginning professor. What do you wish someone had taught you about teaching undergraduate students?

Interview questions that support the investigation of **Guiding Research Question #2: In what ways do college professors’ understandings of adult learning and development inform their approach to lesson planning and facilitation of student learning in the undergraduate classroom setting?**

1. What are the various ways you use adult learning theory when developing lesson plans for undergraduate students?
2. What are the various ways you use adult development theory when developing lesson plans for undergraduate students?
3. What are the various approaches you use to facilitate learning in the undergraduate classroom?
4. Which instructional methods do you think are most effective and why?
5. What is the most important lesson you have learned regarding approaches to working with undergraduate students. How and why has it proven invaluable.

Interview questions that support the investigation of **Guiding Research Question #3: What factors and conditions support and inhibit the development of pedagogical practice as reported by college professors?**

1. Describe a classroom experience when you felt particularly effective in working with undergraduate students. Describe your actions and the reactions of the students you were working with.
2. Describe an experience working with undergraduate students when things blew up and you felt particularly ineffective. Describe your actions and the reactions of the students you were working with.
3. Please describe the changes that should be made to your job responsibilities so that you may become more effective working with undergraduate students.
4. Describe some key moments in your development as an instructor in higher education.
5. Is there anything I have not asked that you would like to say or anything in addition that could give additional insights regarding your work with undergraduate students?

Based on survey results, examples of participant-specific follow up interview questions might sound like:

1. You ranked open-ended and essential questions as an *extremely important* practice in an undergraduate classroom. However, you indicated that you only *sometimes* employ this practice and that you feel *not at all effective* in your use of this instructional methodology. Can you tell me more about why you responded in this way? What might help you to feel more effective in your use of open-ended and essential questions? What might help you to use this instructional methodology more often in your classroom practice?
2. You indicated that you learned about Adult Learning Theory in your graduate and postgraduate studies. Which theories did you learn about in your graduate and
postgraduate studies? How have they informed your teaching practice with undergraduate students?

3. In your survey, you indicated that instructional coaching has been extremely influential in preparing you to lead adult learning and informing your instructional practice. Tell me about your instructional coaching experiences? How have they informed your teaching practice with undergraduate students?

Closing

“Thank you so much for your willingness to meet with me and discuss your survey responses in more detail. I will be analyzing participant interview data over the upcoming weeks and will reconnect with you to share my findings to ensure that I am accurately representing your experiences. Thank you, again. Please let me know if you have any questions or concerns moving forward.”
Appendix F

Narrative Participant Profiles

Narrative profiles for each interview participant provide a brief description of the subjects’ position within their respective institutions, courses they instruct, and their familiarity with adult learning and development theory, as determined by participants’ self-ratings and reported training in the field of learning and development.

John

John is an assistant professor in the School of Education at Site B. John reported knowing from an early age that he wanted to be a teacher, like his parents. John focused on social studies education as an undergraduate student and taught for several years in K-12 education before earning his doctoral degree and transitioning into higher education. John’s research interests shifted from K-12 education to preservice teaching. His primary course, Teaching Social Studies, is an undergraduate course that instructs education candidates how to teach social studies in the K-12 classroom. John also teaches courses on diversity, social justice, and ethics, a secondary methods course that addresses curriculum and instruction at the middle and high school levels, and an introductory course called First Year Experience. John’s responses to the online survey and follow up interview questions indicate a high level of familiarity with adult learning and development theory. In addition to his formal study of learning and development theory in his undergraduate and graduate programs, John’s dissertation explored the nature of learning and development, centering the power and necessity of discussion in the classroom. Based on John’s survey and interview responses he was assigned an ALDT score of high.
Alexander

Alexander is a full professor in the Computer and Data Science department at Site B. Alexander’s graduate program was focused on graduate level mathematics and he noted that “teaching an undergraduate was not the focus of my Ph.D. program at all. I just had to kind of learn on my own.” Alexander has served as a member of Site B’s Appointment Rank and Tenure Committee for many years and has conducted evaluations of junior faculty members for roughly 30 years. These collegial experiences have informed his practice and Alexander referred back to his experiences learning with and from junior faculty throughout his interview. Alexander’s responses to the online survey and follow up interview questions indicated a low level of familiarity with adult learning and development theory. Alexander noted in his online survey, “I don’t know any theory. I know my field.” During Alexander’s follow up interview, he talked about his classroom practice in ways that connected to theoretical underpinnings and spoke of instructional methods that are theoretically sound, however, he did not have the field-based language to name specific theories or theorists. Based on Alexander's survey and interview responses he was assigned an ALDT score of low.

Henry

Henry is an associate professor of philosophy at Site B. Because Henry’s research background is in the area of environmental studies, he was moved to the communications department and now teaches introductory and upper level environmental studies courses. Henry’s formal training in the field of philosophy has exposed him to the works of such theorists as Aristotle, Dewey, and Freire, which he referenced in the follow up interview. However, Henry credited his understanding of learning and development theory to his interactions with more knowledgeable others in his organization over the years, having “passively receive[d] some of
the ideas” from colleagues at the Center for Teaching Excellence. Henry’s survey responses indicated no formal training in the areas of adult learning and development and when asked about his familiarity with various learning and development theories, Henry responded, “I have never heard of these things.” Based on Henry’s survey and interview responses he was assigned an ALDT score of low.

**Dylan**

Dylan is the Academic Director of a specialized program for students who would not traditionally be accepted into an undergraduate college program. He is a professor of psychology at Site B who identifies himself as a “developmentalist.” Dylan was incredibly well-versed in the field of learning and development and throughout the interview he referenced various theories and theorists. In his survey, Dylan wrote, “instructional practice is informed by pedagogical goals and one’s theory of learning.” Based on Dylan’s extensive training and experience in the field of psychology as well as his survey and interview responses, Dylan was assigned an ALDT score of high.

**Lucas**

Lucas is an associate professor in the computer and data science department at Site B. Lucas teaches a variety of introductory and upper level courses in the field of computer science, ranging from Introductory Programming to Web Design and Development to Advanced Computer Graphics. Lucas has not received any formal training in the field of adult learning and development, nor did he indicate a familiarity with learning and development theories or theorists. Throughout the interview, Lucas often described adult learning in terms of being self-directed and self-managing. He often discussed the importance of teaching students how to learn
rather than placing emphasis on the content itself. Based on Lucas’s survey and interview responses he was assigned an ALDT score of low.

**Amber**

Amber is an associate professor in the human development and human services program, affiliated with the school of education at Site B. She teaches such courses as Introduction to Human Development and Diversity, Social Justice, and Ethics. In past years, Amber has taught an Adult Development class. Her courses require a great deal of knowledge and understanding of learning and development theory and Amber demonstrated her extensive understanding of both in her responses on the survey and in the follow up interview. In her survey, Amber rated her familiarity with adult learning and development theories as only *somewhat familiar* and listed minimal formal training in this field. As such, her initial ALDT score was coded as mid-level. However, Amber was reassigned to the high ALDT group after her follow up interview as her described understanding of learning and development theory was commensurate with that of others with a high ALDT score.

**Xavier**

Xavier is an assistant professor of music technology at Site C. Xavier had professional experience in sports broadcasting before transitioning to higher education. Xavier teaches a range of courses like Computer Programming and Electronic Dance Music. Xavier reflected that as he immersed himself in educational training, learning about John Dewey and the principles of andragogy, his “class development has definitely changed.” Xavier spoke of the influence of such theories as emerging adulthood and experiential learning on his practice throughout the interview, referencing specific educational theorists. Based on Xavier’s survey responses, his
formal training in the field of learning and development, and his knowledge of adult learning and development theory shared in the interview, Xavier was assigned an ALDT score of high.

Casey

Casey is a full professor in the mathematics department at Site C. She has been teaching in higher education for more than 20 years and describes being *not at all familiar* with adult learning and development theory. Casey teaches what she refers to as “the full spectrum of the math courses,” including introductory level math courses for non-majors through upper division math courses reserved for math majors. She also teaches a senior seminar and a math-specific writing course, where students learn how to write proofs and write within the norms of the math field. Casey received no formal training in the field of adult learning and development but spoke quite a bit about her participation in online learning communities and listservs for math educators. Based on Casey’s survey responses and her self-described knowledge of adult learning and development theory shared in the interview, Casey was assigned an ALDT score of low.

Charlotte

Charlotte is an assistant professor of art and design at Site C. She has been teaching in higher education for more than 20 years and shared her extensive knowledge of learning and development theory during our interview. Charlotte rated herself as being *extremely familiar* with adult learning and development theory on the survey, noting that she “graduated with [her] Ph.D. in 2000 and incorporated adult learning and development research into [her] dissertation.” Charlotte teaches a variety of courses to art majors and non-majors, including Art History, Introduction to Art Education Methods, Contemporary Issues in Art Education, and Research Methods. Throughout our interview, Charlotte referenced several learning and development
theories and theorists and discussed the application of that knowledge to her instructional practice. For these reasons, Charlotte was assigned an ALDT score of high.

William

William is an associate professor in the history department at Site C. He characterizes himself as an “ancient Mediterranean historian” who teaches both introductory and upper level courses such as First Year Seminar, History of Ancient Greece, Roman Law, and Barbarians in the Greek and Roman World. William described his understanding of learning and development theory as not at all familiar. He indicated that he has “never had any kind of formal training” and lacks field-based vocabulary to connect the types of practices he uses in the classroom to learning and development theories. Based on William’s survey responses and his self-described knowledge of adult learning and development theory shared in the interview, William was assigned an ALDT score of low.