COX, CHARLOTTE RUSSELL. Massive Open Online Course Completion Journeys: A Descriptive Case Study of Self-Efficacy and Self-Determination of Adult Learners. (Under the direction of Dr. Diane Chapman).

Professional development is critical in successful organizations. Specifically, the need to provide “just in time” training for professionals is in demand across the world. North Carolina State University (NCSU) developed the free of charge professional development initiative entitled Massive Open Online Course for Educators (MOOC-Ed). In this qualitative case study, Coaching Digital Learning MOOC-Ed completers described their drivers, barriers, and strategies associated with course completion. MOOC completers also described how their professional practice was impacted after completing the course.

Two theories (self-determination theory and self-efficacy theory) were used as the theoretical framework to explain MOOC motivation and efficacy. The study population included 16 MOOC completers from the Spring 2016 and Spring 2017 Coaching Digital Learning course. The qualitative data was collected through surveys, interviews, and document analysis and analyzed through a priori, magnitude, and open coding. Seven themes were found in the study with four important findings: (1) Intrinsic motivation (not incentives) was a primary MOOC-Ed persistence driver, (2) Scheduling can assist with overcoming MOOC completion barriers, (3) Time management strategies were important for successful course completion and (4) The personal learning network (PLN) had a large impact on professional practice.
Massive Open Online Course Completion Journeys: A Descriptive Case Study of Self-Efficacy and Self-Determination of Adult Learners

by
Charlotte Russell Cox

A dissertation submitted to the Graduate Faculty of
North Carolina State University
in partial fulfillment of the
requirements for the degree of
Doctor of Education

Adult and Community College Education

Raleigh, North Carolina
2018

APPROVED BY:

_______________________________                       _______________________________
Dr. Diane Chapman                         Dr. Michelle Bartlett
Committee Chair

_______________________________                       _______________________________
Dr. Tuere Bowles                                                           Dr. Lisa Hervey
DEDICATION

To my husband and son: William-Thank you for your support throughout this journey. My baby boy has been my primary motivation for completing this chapter of my life. It is my prayer that I am able to see you grow from an infant into a strong educated man. My hopes and dreams for you are infinite, just like my love.

To my parents: Both of you have been my lighthouse in the midst of “rough waters and darkness.” Your love has faithfully guided me through all aspects of my life, and I will be forever grateful. I am so proud that both of you were able to see my long-term goal come to fruition.

To my siblings: David, you continuously show me how to keep moving forward and how to become a lifelong learner. Never stop your pursuit of learning and growing. Monique, thank you for being a trailblazer in our family. Your resiliency and achieving your goal of being a doctor has been an inspiration to me.
BIOGRAPHY

Charlotte Russell Cox is a Hickory, North Carolina native. She is a graduate of the University of North Carolina at Greensboro with a bachelor’s degree in Education and a second major in Political Science in 2004. After graduation, she enrolled in the Instructional Technology program at North Carolina Agricultural and Technical State University. Charlotte was a graduate assistant for the Instructional Technology program and graduated with a master’s degree in 2006. While a graduate assistant, she researched various educational technology initiatives with students and educators. Professionally, she was an educator for the Alamance Burlington School System where she served as a Technology Teacher and Instructional Technology Specialist/Webmaster for ten years.

In 2011, Charlotte was named Teacher of the Year at North Graham Elementary School. Also in 2011, Charlotte received her E-Learning graduate certificate from North Carolina State University. While working in the school system, she enrolled in the North Carolina State University Adult Education doctorate program. Her passion for providing technology training/professional development for educators was strengthened.

Charlotte is currently working full time as the Instructional Technology Specialist at Campbell University in Buies Creek, North Carolina on the main campus. She helps faculty/staff integrate technology into their courses within the Information Technology Services department. Charlotte resides in Cary, North Carolina with her husband William.
ACKNOWLEDGMENTS

First and foremost, thank you to my Lord and savior Jesus Christ for guiding me faithfully through this journey. Thank you to my husband Mr. William Cox Jr. for his love and support. William, you have known me as a doctoral student/candidate throughout our entire relationship. You have exhibited understanding with late night deadlines and weekend writing groups. Thank you for your unconditional love and patience from the beginning to the end of the doctorate process.

To my parents, Mr. Robert Russell Jr. and Mrs. Carolyn Russell, I appreciate your help encouraging me to reach my goals! Your loving influence and my upbringing helped me to believe that I can accomplish my dreams with God on my side.

I appreciate all the encouragement from my brother Mr. David Russell and my cousin/sister Dr. Monique Johnson. To my aunts, Ms. Starlett Craig, Mrs. Shelia Winfield, Dr. Margaret Lee, Ms. Linda Lee, and Mrs. Edna Jean Shavis, thank you for your continuous support personally and professionally. Thank you to all my family and friends that have offered an encouraging word throughout my graduate studies. Special thanks to Mrs. Lisa Keith, Ms. Betria Stinson, and my extended family.

Thank you to my dissertation chair, Dr. Diane Chapman, for her assistance and patience with me during this process. I am truly grateful for your group advising sessions providing direction and guidance to my colleagues and me. You always have a positive and supportive advising approach that is greatly appreciated. To my committee Dr. Lisa Hervey, Dr. Tuere Bowles, Dr. Brad Mehlenbacher, and Dr. Michelle Bartlett, your support has been greatly appreciated. Thank you to the Friday Institute for sharing data. A special thank you to Dr. Glenn Kleiman and Dr. Mark Samberg at the Friday Institute. A heartfelt appreciation and
gratitude is extended to the writing group and supporters that encourage me every weekend face-to-face or through email/text messages. Special thank you to Mrs. Joyce Valentine, Ms. Holly Basso Sullenger, Ms. Teresa McDonald, Ms. Jill Rushing, Mrs. Jaime Bojarski, Dr. John (JJ) Evans, Dr. Callie Womble, Dr. Tracy Pakornsawat, and Dr. Jennifer Stanigar.

A special thank you to my North Carolina A&T State University (Instructional Technology) professors for encouraging me to pursue a doctorate degree over a decade ago. Thank you, Dr. Simon Whittaker, Dr. Muktha Jost, and Dr. Karen Smith-Gratto. Thank you to my Campbell University colleagues, Mr. Allan Winter and Dr. Terrie Bethea-Hampton, for making my transition into higher education extraordinary! Thank you to the Campbell University Information Technology Services leadership and staff (especially CIO Sherri Yerk-Zwickl, Mr. John Skuce, and Ms. Jill Keegan) for the support during the dissertation process. Your kind words and encouragement helped to keep me uplifted. Also, thank you to my former co-workers at North Graham Elementary (the outstanding educators at North Graham past and present always keep me inspired). Thank you to Mr. Ted Neely for helping realize my ability to be a leader (even though I am an introvert by nature). Finally, thank you to my church family at Hartzell United Methodist Church in Hickory, North Carolina, for all of the prayers and well wishes.
# TABLE OF CONTENTS

LIST OF TABLES ......................................................................................................................... x
LIST OF FIGURES ...................................................................................................................... xi

**Chapter 1: INTRODUCTION** ........................................................................................................ 1

Problem Statement ....................................................................................................................... 3  
Purpose of Study .......................................................................................................................... 5  
Research Questions ..................................................................................................................... 6  
Theoretical Framework .................................................................................................................. 7  
Significance of Study ..................................................................................................................... 9  
Overview of Methodology .......................................................................................................... 11  
Methodology ............................................................................................................................... 11  
Definition of Terms....................................................................................................................... 12  
Barrier ......................................................................................................................................... 12  
Catalyst ....................................................................................................................................... 12  
Challenge ..................................................................................................................................... 13  
Coaching Digital Learning .......................................................................................................... 13  
Common Core and Essential Standards ..................................................................................... 13  
Continuing Education Unit (CEU) .............................................................................................. 13  
Digital Learning .......................................................................................................................... 13  
Driver .......................................................................................................................................... 14  
Information and Technology Essential Standards (ITES) ......................................................... 14  
MOOC .......................................................................................................................................... 14  
MOOC-Ed .................................................................................................................................... 14  
Professional Development (PD) .................................................................................................. 15  
Self-Determination Theory ......................................................................................................... 15  
Self-Efficacy Theory .................................................................................................................... 15  
Summary ..................................................................................................................................... 15  
Organization of the Dissertation ................................................................................................. 16

**Chapter 2: LITERATURE REVIEW** .......................................................................................... 17  
Massive Open Online Courses (MOOCs) ................................................................................... 18  
MOOC Classifications ................................................................................................................ 20  
cMOOCs ....................................................................................................................................... 22  
xMOOCs ....................................................................................................................................... 23  
Hybrid MOOCs ............................................................................................................................ 24  
Professional Development MOOCs ............................................................................................. 24  
MOOC-Ed ..................................................................................................................................... 25  
MOOCs and Course Completion ................................................................................................. 27  
Self-Efficacy Theory .................................................................................................................... 29  
Self-Efficacy Sources .................................................................................................................. 30  
Motivation-Goal Setting ............................................................................................................. 32  
Self-Efficacy Processes ................................................................................................................. 33  
Self-Regulation ............................................................................................................................ 35  
Locus of Control ........................................................................................................................... 36  
Self-Efficacy in Massive Open Online Courses ......................................................................... 37
### Chapter 3: METHODOLOGY

**Introduction**

- Qualitative Research Design
  - Case Study Approach
    - Descriptive case study
- Questionnaires
- Interviews
- Document Analysis
- Data Collection Strategies
  - Procedures for Data Collection
    - Procedure 1
    - Procedure 2
    - Procedure 3
    - Procedure 4
    - Procedure 5
- Data Analysis
  - Questionnaire data analysis
  - Interviews data analysis
  - Document data analysis
- Statement of Positionality
- Validity and Reliability
- Conceptual and Methodological Assumptions
- Summary

### Chapter 4: FINDINGS

**Introduction**

**Participant Overviews**

**In-Depth Participant Descriptions**

- Abigail
- Barbara
- Carolyn
- Casey
- Crystal
- Doug
- Grace
- John
Chapter 5: DISCUSSION

Introduction........................................................................................................... 127
Summary of Findings............................................................................................. 128
Discussion ................................................................................................................... 131
Research Question 1 ............................................................................................ 131
Research Question 2 ........................................................................................... 134
Research Question 3 ........................................................................................... 135
Research Question 4 ........................................................................................... 137
Discussion Summary ............................................................................................ 140
Limitations .............................................................................................................. 142
Study Delimitations ............................................................................................ 143
MOOC-Ed Study Findings and Current Literature .................................................... 143
Theoretical Implications .......................................................................................... 146
Self-Determination Theory ..................................................................................... 147
Self-Efficacy Theory ............................................................................................... 148
Practice Implications ............................................................................................ 149
Peer Evaluation Implication .................................................................................... 149
Instructional Design Implication ............................................................................. 150
Coaching Digital Learning MOOC-Ed (2.0) Implication ..................................... 150
Espoused Theory and Theory-In-Use Implication Learning ................................... 151
Policy Recommendations ........................................................................................ 151
Recommendations for Future Research ................................................................. 153
Conclusion ............................................................................................................... 156

REFERENCES ...................................................................................................... 158
APPENDICES ....................................................................................................... 182
  Appendix A ....................................................................................................... 183
  Appendix B ....................................................................................................... 186
  Appendix C ....................................................................................................... 189
  Appendix D ....................................................................................................... 194
  Appendix E ....................................................................................................... 195
  Appendix F ....................................................................................................... 197
  Appendix G ....................................................................................................... 198
  Appendix H ....................................................................................................... 199
  Appendix I ....................................................................................................... 201
  Appendix J ....................................................................................................... 202
**LIST OF TABLES**

<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1</td>
<td>Maximum Variation Selection</td>
<td>57</td>
</tr>
<tr>
<td>Table 2</td>
<td>Coding Scheme Based on Self-Efficacy and Self-Determination Theories</td>
<td>70</td>
</tr>
<tr>
<td>Table 3</td>
<td>Magnitude Coding Scheme</td>
<td>72</td>
</tr>
<tr>
<td>Table 4</td>
<td>Demographic Overview of Study Participants</td>
<td>82</td>
</tr>
<tr>
<td>Table 5</td>
<td>Employment Descriptions of CDL Study Participants</td>
<td>83</td>
</tr>
<tr>
<td>Table 6</td>
<td>Online Professional Development Descriptions of CDL Study Participant</td>
<td>86</td>
</tr>
<tr>
<td>Table 7</td>
<td>Self-Efficacy and Self-Determination Analytic Components and Markers</td>
<td>105</td>
</tr>
<tr>
<td>Table 8</td>
<td>Overview of Themes and Meanings</td>
<td>107</td>
</tr>
<tr>
<td>Table 9</td>
<td>Research Question 1 Code Descriptions and Codes</td>
<td>108</td>
</tr>
<tr>
<td>Table 10</td>
<td>Research Question 2 Code Descriptions and Codes</td>
<td>115</td>
</tr>
<tr>
<td>Table 11</td>
<td>Research Question 3 Code Descriptions and Codes</td>
<td>119</td>
</tr>
<tr>
<td>Table 12</td>
<td>Research Question 4 Code Descriptions and Codes</td>
<td>122</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

Figure 1 MOOC-Ed Completion Study Conceptual Framework ........................................... 18
Figure 2 The Self-Determination Continuum......................................................................... 40
Figure 3 Visual Model for Qualitative Sequential Design ..................................................... 69
Figure 4 Coaching Digital Learning MOOC-Ed Completion Themes........................................ 141
Figure 5 Proposed Revised Self-Determination Continuum ................................................ 148
Figure 6 Proposed Revised Self-Efficacy Principles............................................................ 149
CHAPTER 1: INTRODUCTION

“Few phenomena in recent memory have rocked the boat of higher education generally, and the field of distance education in particular, more than the advent of massive open online courses (MOOCs)” (Jona & Naidu, 2014, p. 141). The MOOC phenomenon allows diverse learners to enroll and participate in a course to learn specific content. However, numerous MOOC participants fail to finish the course in which they enroll (Rivard, 2013). Currently, many MOOC providers offer incentives to motivate participants to complete the course. For example, “to motivate students to finish a course, many MOOC providers give out some form of incentives such as completion certificates” (Hew & Cheung, 2014, p. 49). According to Hew and Cheung (2014) obtaining course credits is another incentive that motivates course completion. In most cases, participation in a MOOC is not required. Intrinsic and extrinsic motivation factors are drivers for MOOC participants to complete or not complete the course (Wang & Baker, 2015). The completion of a MOOC is an accomplishment that is often rewarded with a certificate of completion or badge.

MOOCs are courses that are typically offered free of charge by higher education institutions (Fischer, 2014). In 2012 “… the US higher education community became aware of an emerging educational innovation called massive open online courses, or MOOCs” (Sandeen, 2013, p. 34). This was the beginning of nationally recognized MOOCs. As an example, North Carolina State University (NCSU) is a higher education institution that has invested time and resources to create a MOOC to address the need for professional development (PD). The North Carolina State University Friday Institute, an entity of the NCSU College of Education, has a mission to advance “education through innovation in teaching, learning and leadership,” and “bring together students, teachers, researchers, policy-makers, educational professionals, and
other community members to foster collaborations in improving education” (North Carolina State University Friday Institute, 2015). The Friday Institute MOOC is a professional development initiative known as MOOC-Ed (massive open online courses for educators). MOOC-Ed is particularly geared toward kindergarten through twelfth grade (K-12) educators from around the world.

The purpose of MOOC-Ed is to provide educators with an opportunity to receive cost effective professional development and share knowledge about various topics of interest with educational leaders (Kleiman & Wolf, 2015). For example, three courses were offered by MOOC-Ed in the Spring 2016 semester (Massive Open Online Courses for Educators, 2016): Coaching Digital Learning, Disciplinary Literacy for Deeper Learning, and Fraction Foundations (Massive Open Online Courses, 2016). Within the Coaching Digital Learning course, technology skills are taught that align with the Common Core and Essential Standards and the North Carolina Information and Technology Essential Standards (ITES) (2016). The Coaching Digital Learning MOOC-Ed course was the focus of this research study for two reasons: (1) The topic of the MOOC-Ed course on digital learning and (2) The completion rates of the course.

The Coaching Digital Learning MOOC-Ed is a comparable sample of numerous MOOCs with relatively low completion rates which has been identified as a problem by many MOOC critics. Instructional Technology Coaches and Facilitators, Technology Integration Specialists, Media Specialists, and/or Mentor Teachers are the primary audience for Coaching Digital Learning (Coaching Digital Learning, 2016). The Coaching Digital Learning MOOC-Ed participants are adult learners and primarily K-12 educators. MOOC-Ed participants that complete the course receive a certificate and continuing education unit (CEU) credits toward teaching license renewal.
Problem Statement

Professional development is costly for many organizations. According to the Association for Talent Development (ATD) (2013), formerly known as ASTD, organizations in the United States spent $164.2 billion on learning and development for employees in 2012. Additionally, a recent Washington Post article revealed findings from a study released by TNTP Reimage Teaching (TNTP) that the “50 largest school districts spend an estimated $8 billion on teacher development annually” (Layton, 2015). TNTP surveyed 10,000 teachers and interviewed more than 100 administrators (Layton, 2015). In the study, school districts disclosed that they spent an average of $18,000 per teacher every year for professional development (TNTP Reimage Teaching, 2015).

MOOCs are unique because they can offer professional development free or for a nominal fee which can target a large number of individuals at a time. For example, two MOOC providers (edX and Coursera) allow participants to pay a fee to receive recognition or a certificate (Sandeen, 2013). Specifically, edX allows for “special recognition” for students who pay to take an exam at a testing center (Sandeen, 2013). “Coursera offers special ‘upgraded’ certificates for students who pay for an authentication of identity” (Sandeen, 2013, p. 36). Incentives such as certificates are motivators to enroll and complete MOOCs.

MOOCs are convenient for working professionals because they are offered online. “In most cases participants sign up for MOOCs free of charge and in some cases for a small or minimal fee to obtain a completion certificate” (Hew & Cheung, 2014, p. 46). However, MOOCs offer numerous benefits such as minimal cost, online access, and certification opportunities, a high number of MOOC participants dropout of a course prior to completion. Dennis (2012) argued that employers “may consider a certificate of completion from a world-class institution as a better indicator of the skills needed for success than a degree from a second
or third tier college or university” (p. 26). Terras and Ramsay (2015) identified and defined three challenges of MOOCs: “Challenge 1: Skills, preferences and individual differences; Challenge 2: Engagement, motivation, learning and performance; Challenge 3: Monitoring contexts of learning” (Terras & Ramsay, 2015, p.483). This research study explored Challenge 2 (engagement, motivation, learning and performance).

According to Terras and Ramsay (2015), researchers such as Milligan, Margaryan and Littlejohn (2013) and Beaven, Hauck, Comas-Quinn, Lewis & de los Arcos (2014) found self-regulation and self-determination to be important factors for understanding MOOC learners’ motivations towards course completion. Terras and Ramsay (2015) also argued that lack of participant-sustained engagement, which leads to a low completion rate, is one of the challenges within MOOCs. MOOCs have a high dropout rate, approximately 90% (Hew & Cheung, 2014), which is similar to numerous MOOC completion rates internationally.

MOOC participants drop out of a course for many reasons. According to Hew and Cheung (2014), “Recently, the contribution of factors more directly related to the nature of MOOCs such as poor incentives to complete, difficulties understanding content and lack of support to address these difficulties have been identified” (cited in Terras & Ramsay, 2015, p. 477). Personal reasons have also been cited as a reason for MOOC non-completion. Specifically, internal factors and external pressures like work demands and life issues are reasons for dropping out of MOOCs (Lee & Choi, 2011; Terras & Ramsay, 2015). Funders of MOOC initiatives often associate high dropout rates with the MOOC being unsuccessful without understanding participant reasons for dropping out and motivations to complete the course.

Jordan (2014) explained the importance of researching aspects of MOOC completion: “Looking at completion rates is a starting point for better understanding the reasons behind them,
and how courses could be improved for both students and course leaders” (Jordan, 2014, p. 151). Understanding drivers and barriers to complete a MOOC should provide guidance to improve MOOCs for current and future learners/participants. This study addressed the lack of information about the barriers to MOOC completion. Therefore, researchers and practitioners cannot provide adequate remedies to address the barriers to MOOC completion. This qualitative case study was designed to investigate drivers, barriers, and strategies associated with MOOC completion to understand why and how individuals successfully matriculate and complete a MOOC. I had several hypotheses about possible study findings. I believed school level leadership like principals encouraged MOOC participants to enroll and complete the online professional development, which is characterized as a “driver”. I believed time would be the common “barrier” and challenge to course completion due to the busy schedules of educators who may only have one short planning period per day. I also believed that lack of time would be described as a challenge and possible reason why many educators do not finish online professional development offerings. Finally, I believed there would be numerous strategies that promote successful MOOC completion. Every individual study participant would have a different description of self-regulation strategies that helped them navigate through the online course.

**Purpose of Study**

The purpose of this study was to describe the drivers and catalysts, barriers and challenges, and strategies used to complete a MOOC and for MOOC providers and participants to understand ways to successfully matriculate and complete a MOOC. This research described strategies used by the MOOC-Ed participants to complete the course. These specific descriptions provided insight into strategies that MOOC participants can utilize when planning to
enroll in and when navigating a MOOC through course completion. The purpose of a professional development MOOC is to improve professional practice. Therefore, the descriptions of how MOOC-Ed participants changed their practices at work after the Coaching Digital Learning MOOC-Ed provided information about the relevance of completing a professional development MOOC for workforce employers and employees.

Research Questions

The Coaching Digital Learning MOOC allows technology savvy online instructors/facilitators to share their expertise with MOOC participants in a free online environment (Massive Open Online Courses for Educators, 2016). Due to cost-effectiveness and the online education opportunity, this professional development offering is changing the landscape of how educators connect with professional development (Kleiman & Wolf, 2015). The purpose of this case study was to describe the MOOC completion barriers and drivers. Descriptions of the strategies that MOOC participants used to complete the course were uncovered. In addition, descriptions of how professional practice changed when the MOOC was completed were revealed. The descriptive case study focused on four research questions:

1. What drivers and catalysts do course completers report encountering in their journey to complete the Coaching Digital Learning MOOC-Ed?
2. What barriers and challenges do course completers report encountering in their journey to complete the Coaching Digital Learning MOOC-Ed?
3. What strategies do course completers report that enabled them to successfully complete the Coaching Digital Learning MOOC-Ed?
4. To what extent do course completers make changes in practice after the Coaching Digital Learning MOOC-Ed?
The second research question addresses barriers and challenges. According to the Merriam-Webster dictionary a barrier is “something immaterial that impedes or separates” and a challenge is “to arouse or stimulate especially by presenting with difficulties”. Therefore, a barrier as it relates to this study was understood as intrinsic and a challenge was implied as extrinsic.

**Theoretical Framework**

Two theories examine course completion within MOOCs with a focus on learner motivation. Self-efficacy theory and self-determination theory were used to frame this qualitative descriptive case study. Self-efficacy was introduced by Bandura (1977) as a concept associated with social cognitive theory (Zulkosky, 2009) and has been used to describe motivation levels. “People’s self-efficacy beliefs determine their level of motivation, as reflected in how much effort they will exert in an endeavor and how long they will persevere in the face of obstacles” (Bandura, 1989, p. 1176). Learning in an online environment can be viewed as an obstacle. Within online learning such as MOOCs, self-efficacy is especially important because of the lack of physical interactions with instructors/facilitators and classmates to support learning goals and achievement. Additionally, “perceived self-efficacy refers to peoples’ beliefs in their capabilities to execute the activities required to achieve different levels of performance” (Wood, Bandura, & Bailey, 1990, p. 183). Performance levels can vary for MOOC participants depending on their performance goals. The completion of a MOOC can include a certificate or badge. The certificate or badge can be extrinsic motivation for a MOOC participant.

Bandura (1997) introduced the theory of self-efficacy based on four core principles/sources: “(1) performance accomplishments (also called inactive mastery experience), (2) vicarious experience, (3) verbal persuasion, and (4) physiological states” (Alqurashi, 2016, p.
The principles based on self-efficacy influence the learner’s performance and overall learning experience. In the study, participants were asked probing questions about self-efficacy principles, completion of online courses, and MOOCs they may have participated in prior to the Coaching Digital Learning MOOC-Ed. Participant responses described self-efficacy mastery experiences. Another probing interview question asked if the study participant knew anyone that successfully completed a MOOC, which provided information about vicarious experiences. During the interviews, participants were asked if family, friends, co-workers, or MOOC-Ed facilitators encouraged MOOC-Ed course completion, which provided a background about self-efficacy verbal persuasion. Finally, self-efficacy physiological states were explored through a probing question about what strategies were used to minimize stress levels and increase mood when facing barriers and/or challenges during the Coaching Digital Learning MOOC-Ed.

Self-efficacy can also be associated with locus of control. Locus of control “refers to an individual’s perception about the underlying main causes of events in his/her life” (Neill, 2006, p. 1). An individual’s locus of control can be perceived to be guided by two perspectives. First, an external locus of control is the belief that outside forces such as luck determine an outcome (Neill, 2006). The second perspective is the internal locus of control. This perspective is the belief that internal forces such as personal decisions and efforts lead to a positive outcome (Neill, 2006). Zulkosky (2009) stated that “a person with a high-level of self-efficacy believes in the utilization of cognitive and affective processes in order to obtain a desired outcome” (p. 96). MOOC participants who successfully complete a course have an internal locus of control. These MOOC participants use their cognitive abilities, social interactions, and feelings/emotions about being a motivated online learner to successfully navigate through a MOOC.
The second theory to frame this study was the self-determination theory. “Self-determination theory (SDT) maintains that an understanding of human motivation requires a consideration of innate psychological needs for competence, autonomy, and relatedness” (Deci, Vallerand, Pelletier, & Ryan, 1991, p. 325). Self-determination theory defines self-determined and non-self-determined behaviors. Both behaviors are motivated and intentional, but regulatory processes differ (Deci et al., 1991). Intrinsic and extrinsic motivation is presented in the context of the various types of regulation based on the self-determination continuum. MOOC participants have intrinsic and extrinsic motivations for completing a course. Motivation was described by study participants through responses probing questions during interviews. Intrinsic motivation was described by participants when asked what motivated MOOC-Ed participants to participate and complete the MOOC. Extrinsic motivation was also described when asked if the course completion certificate was a considerable factor when enrolling and completing the MOOC.

**Significance of the Study**

Within the current literature, gaps in the research exist in two key areas: Motivation for completing MOOCs (self-efficacy and self-determination) and MOOCs designed to provide professional development. Most MOOC research shows that the attrition rate within MOOC courses is high. Baxter and Haycock (2014) believed the high attrition rate in MOOCs could be a result of lack of community integration, which is central to learner motivation. This research study contributes to the body of literature by understanding the motivations and barriers MOOC-Ed participants have for completing a course when MOOC participation is an optional professional development opportunity.
This research described drivers and strategies for MOOC completion, which is significant due to the high number of MOOC participants who drop out of courses before completion. Jordan (2015) collected enrollment and completion data for 221 massive open online courses and discovered that “completion rates (defined as the percentage of enrolled students who completed the course) vary from 0.7% to 52.1%, with a median value of 12.6%” (p. 341). The Spring 2016 CDL MOOC-Ed completion rate was 6.8%, and the Spring 2017 CDL MOOC-Ed completion rate was 10%, similar to Jordan’s findings. MOOCs that are used for professional development like the Coaching Digital Learning MOOC-Ed allow learners to gain and share knowledge. Internet access provides an infrastructure for online courses such as MOOCs, and MOOCs provide adult learners with the opportunity to receive free professional development by highly trained instructors from higher education institutions. A recent study surveyed 103 North Carolina employers and interviewed 20 employers to explore their awareness about MOOCs’ potential to provide professional development opportunities and support recruitment and retention efforts (Radford, et al., 2014). The study revealed that employer awareness of MOOCs was low; however, once they were informed about MOOCs’ potential “the employers perceived MOOCs positively in hiring decisions, viewing them mainly as indicating employees’ personal attributes like motivation and a desire to learn” (Radford et al., 2014, p. 1). North Carolina State University’s Friday Institute provides free professional development targeted for educators. The participants who completed the Coaching Digital Learning MOOC-Ed were motivated to enroll, participate, and complete the six-week course.

Several groups of stakeholders such as MOOC providers, MOOC funders, and MOOC participants, benefit from the study findings. MOOC providers like the Friday Institute benefit from the study findings by understanding ways to promote retention in MOOC-Ed courses. The
drivers and barriers to course completion shared from study participants can be particularly helpful to the Friday Institute. These descriptions from course completers could prompt instructional design modifications in MOOC-Ed courses. MOOC funders can benefit from the study findings by determining if there is a need to modify completion incentives to promote higher completion rates. The study is also beneficial to potential and current MOOC participants. The effective MOOC completion strategies described by study participants can be specifically helpful for individuals enrolled or considering enrollment in a massive open online course. This study contributed to the limited amount of literature available that describes MOOC participant barriers, drivers, and strategies to complete a non-credit professional development MOOC.

**Overview of Methodology**

This Coaching Digital Learning MOOC-Ed study was a qualitative case study focused on four questions. Case study methodology allowed for description of a case through multiple methods of data collection. “The classic case study consists of an in-depth inquiry into a specific and complex phenomenon (the ‘case’), set within its real-world context” (Yin, 2013, p. 321). Successful completion of an optional MOOC is a twenty-first century complex phenomenon. Specifically, to understand the complexities of MOOC completion, this research study uncovered the drivers and barriers to course completion which has been situated within the real-world context of the Coaching Digital Learning MOOC-Ed.

**Methodology**

The descriptive case study methodology was appropriate for this research study because study participants provided descriptions of their MOOC completion experience through multiple forms of data collection. A descriptive case study is “a case study whose purpose is to describe a
phenomenon (the ‘case’) in its real-world context (Yin, 2014, p. 238). The “phenomenon” in this case study was MOOC completion. Descriptions from study participants allowed for comparing and contrasting which provided a holistic view of MOOC completion drivers and barriers. Detailed descriptions of strategies that were used to help MOOC participants successfully complete the course and how professional practice changed after MOOC completion were provided. The study’s population included MOOC participants who completed the Coaching Digital Learning course in the Spring 2016 and Spring 2017 semesters. The study had three forms of data collection methods: interviews, questionnaires, and document analysis. Interviews and questionnaires were selected based on the research questions with the expectation that the data collected would be saturated with thick and rich descriptions of drivers, barriers, and strategies to complete the Coaching Digital Learning course by MOOC-Ed participants. Document analysis was also selected based on the research questions to support descriptions of changes that occurred within professional practice after MOOC completion. The data analysis using NVivo software revealed the findings of the study from interviews, questionnaires, and document analysis.

**Definition of Terms**

The following section provides definitions of terms for this dissertation study.

**Barrier**

Merriam-Webster dictionary defines a barrier as “something immaterial that impedes or separates.”

**Catalyst**

A catalyst is “an agent that provokes or speeds significant change or action” according to Merriam-Webster dictionary.
Challenge

A challenge is “to arouse or stimulate especially by presenting with difficulties” according to Merriam-Webster dictionary.

Coaching Digital Learning (CDL)

Coaching Digital Learning (CDL) is one course offered by the North Carolina State University Friday Institute’s massive open online courses for educators (Massive Open Online Courses for Educators, 2016). The Coaching Digital Learning course is a six-week course that focuses on technology integration in kindergarten through twelfth grade (K-12) schools.

Common Core and Essential Standards

Forty-two states including North Carolina have adopted the K-12 curriculum Common Core Standards to prepare all students for college and careers (Common Core State Standards Initiative, 2016). North Carolina also has Essential Standards to help define target areas within the Common Core.

Continuing Education Unit (CEU)

Continuing education unit (CEU) credits are required for educators with a license that expires June 30, 2016 or later to successfully renew their teaching/administrator license. Teachers receive CEUs by attending professional development training sessions (Public Schools of North Carolina, 2016). Online professional development such as MOOC-Ed offers CEU credits.

Digital Learning

Digital learning focuses on instructional strategies or practices that integrate technology to impact student learning (Alliance for Excellent Education, 2014). Digital learning uses online resources to assist with teaching and learning.
**Driver**

A driver is “one that provides impulse or motivation” as described in the Merriam-Webster dictionary.

**Information and Technology Essential Standards (ITES)**

Information and Technology Essential Standards (ITES) are North Carolina’s curriculum guidelines for Information (Media) and Technology skills taught in K-12 schools. The ITES helps educators integrate the standards within all curricula and every grade level (Information and Technology Essential Standards, 2016). North Carolina educators are expected to utilize technology within the curriculum.

**Massive Open Online Course (MOOC)**

A massive open online course (MOOC) is a twenty-first century offering that allows interested participants to sign up and participate in free courses. The courses have a focus or topic area that allows participants to engage in global transformative online learning (Stephens & Jones, 2014). Retention and completion rates are low ranging from approximately 5% to 15% in MOOCs (Breslow et al., 2013; Liyanaguanawardeena, Adams, & Williams, 2013). MOOCs are often evaluated exclusively based on their low completion rates.

**Massive Open Online Course for Educators (MOOC-Ed)**

A massive open online course for educators (MOOC-Ed) is North Carolina State University Friday Institute’s free professional development initiative designed to target K-12 educators. MOOC-Ed is an acronym for massive open online courses for educators (Massive Open Online Courses for Educators, 2016). Rai and Chunrao (2016) explained that many MOOCs have completions rate of less than 7% on average. The Spring 2016 Coaching Digital Learning MOOC-Ed had a 6.8% completion rate, which is similar to Rai and Chunrao’s findings.
On the contrary, the Spring 2017 Coaching Digital Learning MOOC-Ed had a 10% completion rate.

**Professional Development (PD)**

Professional development includes training sessions provided by individuals enthusiastic about a particular topic such as technology integration. These training sessions give teachers the opportunity to gain CEU credits and learn instructional best practices.

**Self-Determination Theory**

Ryan and Deci (2000b) created a continuum which is commonly used to explain motivation within learning environments. The continuum includes amotivation, extrinsic motivation, and intrinsic motivation. Regulatory styles and processes are associated with self-determination.

**Self-Efficacy Theory**

Bandura (1977) explained self-efficacy theory as it relates to behavior and learning. Individuals who exhibit a high self-efficacy are likely to achieve goals and display positive performance behaviors over individuals with low self-efficacy (Hsu, Ju, Yen, & Chang, 2007). Self-efficacy has a direct impact on goal attainment and completion of tasks.

**Summary**

Professional development initiatives are costly to many school districts and organizations around the world. Free online courses are offered through many higher education institutions in the form of massive open online courses. Specifically, MOOCs are currently being used to address the problem of expensive professional development for educators. The Coaching Digital Learning MOOC-Ed is a free professional development six-week course that provides guidance about how to effectively teach and coach colleagues to integrate technology in the classroom.
This course was offered by the North Carolina State Friday Institute, and several MOOC-Ed participants were able to successfully complete the optional professional development MOOC. Self-efficacy theory and self-determination theory were used to guide the study about course completion drivers and barriers. A qualitative descriptive case study was conducted with questionnaires, interviews, and document analysis data collection methods. These methods were used to investigate the four research questions including strategies used by Coaching Digital Learning MOOC-Ed participants to complete the MOOC and how professional practice was changed after course completion.

Organization of the Dissertation

This dissertation is presented in five chapters. The first section includes the introduction of the MOOC-Ed case study. Chapter 1 also identifies the four research questions. Chapter 2, the literature review, describes the theoretical framework associated with MOOC completion, which includes self-efficacy theory and self-determination theory. Chapter 3, the methodology section, provides justification about the qualitative descriptive case study and the data collection methods that were selected. The methodology section also explains the process of data analysis. Chapter 4 reveals the findings of the embedded case study through the lens of the study participants. Chapter 5 explores significant study findings and implications for research and practice.
CHAPTER 2: LITERATURE REVIEW

The purpose of this case study was to describe MOOC drivers and catalysts as well as barriers and challenges to course completion and the strategies used by MOOC participants who effectively complete the course. This literature review provided context for the study by synthesizing four strands of literature: (a) empirical research on Massive open online courses (MOOCs), MOOC classifications, cMOOCs, xMOOCs, hybrid MOOCs, professional development MOOCs, MOOC-Ed, and course completion in MOOCs; (b) theoretical literature on self-efficacy theory, self-efficacy sources, motivation-goal setting, self-efficacy processes, self-regulation, locus of control, and self-efficacy in MOOCs; (c) empirical and theoretical literature on self-determination theory, intrinsic motivation, extrinsic motivation, autonomy and self-regulation, and self-determination in MOOCs; and (d) empirical studies focused on strategies for successful online learning through the instructor and student perspective. Arguments to explain the four sets of literature, research gaps, and critiques are described in the literature review.

A literature search was conducted using the following online systems: JSTOR, Google Scholar, and the North Carolina State University’s library databases. Specifically, the recommended Adult and Higher Education databases such as ERIC and Proquest Education were searched. Also, the recommended Training and Development PsycINFO database was used during the literature search. The search terms included a combination of the following terms: Massive open online courses (MOOCs), MOOC completion, professional development MOOCs, online learning environments, self-efficacy, self-determination, online learners, and strategies for online learners. The literature was selected based on topic relevance then imported into NVivo, which was used as an electronic literature management system by coding each piece of
literature. Figure 1 illustrates the case study within the theoretical frameworks of self-efficacy and self-determination theory.

Massive Open Online Courses (MOOCs)

A key challenge in researching MOOCs, like any emerging technology, is that the literature seems outdated before it is even published (Bali, 2014; Lakshminarayanan, 2012). However, a plethora of literature about MOOCs has been published since 2008. Liyanagunawardena, Adams, and Williams (2013) identified eight themes in their review of 45 MOOC articles from 2008-2012. The emerging themes included agency, connectivism, actor network theory, dangers, learner experience, pedagogies, technology, and trends (Liyanagunawardena et al., 2013). Motivation and completion was the gap in the early MOOC literature. Hew and Cheung (2014), Wang and Baker (2015), Alraimi, Zo, and Ciganek (2015), and Barba, Kennedy and Ainley (2016) addressed MOOC persistence, motivation, and completion within their studies. Hew and Cheung (2014) found the student and instructor perspective as themes within their study. The student sub themes are significant to this study.
The sub themes include motives for MOOC sign up, attitudes toward MOOC, and challenges of learning in a MOOC (Hew & Cheung, 2014). The “challenges of learning in a MOOC” theme is related to barriers within MOOC completion because the barriers/challenges impact completion rates. Recently, Jordan (2015) explored completion rates and MOOC attrition within the literature and found that in over 200 MOOCs, the completion rates varied according to course length, start date, and assessment type. Ho, Reich, Nesterko, Seaton, Mullaney, Waldo, and Chuang (2014) argued that using a percentage to define completion rates is over-simplistic and is subject to variations in enrollment numbers. MOOCs have several variables that can influence MOOC participant completion. The MOOC literature has evolved from 2008 to the present to address a significant area of MOOC criticism course completion.

Several researchers have explained the “typical” MOOC participant demographic and the common MOOC structures. “The typical MOOC student is an adult who already has a degree and is fully or partly in job” (Gynther, 2016, p. 16). Glass, Shiokawa-Baklan, and Saltarelli (2016) described MOOC participant demographics as being classified in six specific classifications: “age, gender, socioeconomic status, education level, employment status, and world region” (p. 42). MOOCs can vary in size from 54 participants to over 40,000 (Bates, 2014). Massive open online courses have voluntary learners who are eager to learn. MOOCs are an important learning opportunity for knowledge generation and sharing. Fischer (2014) believed that “whether or not a particular learning environment (e.g., a specific MOOC course or MOOC platform) succeeds depends greatly on whether students can learn what they want and when they want it…” (p.151). Bali (2014) believed it is unfair to generalize MOOCs as “all good” or “all bad”. In addition, Beaven et al. (2014) acknowledged specific critiques of MOOCs. For example, Beaven et al. (2014) cited Wiley (2012) who characterized MOOC as a
misnomer. Wiley (2012) also questioned the “massiveness” of MOOCs and if all MOOCs are “open” and truly “courses”. Bali (2014) explained that many MOOC critics believe that MOOCs are not as revolutionary as proponents describe to the public. Butcher and Wilson-Strydom (2013) believed MOOCs were the next logical progress to online learning, and Yuan and Powell (2013) argued MOOCs are a form of open educational resource (OER). The structure or format of a MOOC can impact MOOC participants’ ability to successfully complete the course.

MOOCs can be delivered by numerous platforms or course builders which contribute to the structure of the course. Many institutions that offer MOOCs have various platforms like Coursera, Udacity, edX, Khan Institute, and Connexions (Kern, 2013). The MOOC platform or builder is paramount for sound instructional design and delivery, content creation, and addressing MOOC participant needs. Whether designers use a Google Course Builder like MOOC-Ed or Coursera, the goal of high level instruction and engagement is imperative. The instructional design of the MOOC can be a “driver” and catalyst or “barrier” and challenge to MOOC completion for participants.

**MOOC Classifications**

Many different classifications of MOOCs have been formed over the past decade. Bates (2014) explained the diversity between the various MOOC designs by identifying four categories of MOOCs. The first two types of MOOCs are video based. They include MOOC video-recorded lectures and MOOC video lectures similar to a flipped classroom or tutorial style (Bates, 2014). The final two designs according to Bates (2014) are MOOCs that support on campus face-to-face learning and participatory MOOCs. Currently, many MOOCs use videos as a supporting method of learning and engagement for participants.
Additionally, Sandeen (2013) described different ways in which MOOCs are diverse. Sandeen (2013) categorizes MOOCs into three groups: cMOOCs, xMOOCs, and hMOOCs. According to Vivian, Falkner, and Falkner (2014), cMOOCs have a community of practice learning principle, and xMOOCs have a learning and knowledge retrieval focused learning principle. The cMOOC group is an early version of MOOCs that have an emphasis on open resources and peer learning (Sandeen, 2013). The letter “c” in cMOOC stands for connectivist (Siemens, 2005; 2006), which emphasizes “the social aspects of online learning and the autonomy afforded to learners in directing their own learning” (Wang & Baker, 2015, p. 17). The second type is xMOOC, which is a structured MOOC that focuses on a unidirectional lecture format (Sandeen, 2013). The xMOOC is a more traditional MOOC style. Many xMOOCs have been criticized for their low completion rates (Breslow, et al., 2013; Wang & Baker, 2015;). Finally, the hMOOC is a hybrid of the different types of MOOCs (Sandeen, 2013). This hybrid MOOC mixes features from cMOOCs and xMOOCs to design and deliver a useful learning option for participants.

Stephens and Jones (2014), Rodriguez (2012), Liyanagunawardena et al., (2013), and Gynther (2016) also argued about the existence of cMOOCs and xMOOCs. Fasimpaur (2013) provided descriptions for these categories of MOOC offerings. cMOOCs were described as a connectivist MOOC that focus on participatory learning in peer groups which resonates with Bates and Sandeen’s descriptions (Fasimpaur, 2013). cMOOCs are usually smaller than xMOOCs. Fasimpaur (2013) continues to describe cMOOCs by providing an example of blogging and project creation as learning assignments. Vivian et al. (2014) created a table of MOOC characteristics and online professional development approaches that describes the structure, focus, platform, learning principles, and teacher emphasis differences and similarities.
between cMOOCs, xMOOCs, online teacher professional development (oTPD), and technology-mediated professional learning (TMPL). In contrast, Conole (2015) argued the xMOOC and cMOOC classifications are too simplistic and instead created twelve dimensions to classify MOOCs. The dimensions include “(1) open, (2), massive, (3) use of multimedia, (4) degree of communication, (5) degree of collaboration, (6) learning pathway, (7) quality assurance (8) amount of reflection, (9) certification, (10) formal learning, (11) autonomy, and (12) diversity” (Conole, 2015, p. 11). Researchers have provided various characteristics, classifications, and dimensions to describe the diversity within MOOC types. However, cMOOCs and xMOOCs are the most commonly accepted within the literature.

**cMOOCs.** According to Xu and Yang (2015), George Siemens and Stephen Downes offered the first cMOOC in 2008. According to Ross, Sinclair, Knox, and Macleod (2014), “The cMOOC are designed on what are described as ‘connectivist’ (Siemens, 2005) principles… involving a networked and collaborative approach to learning that is not primarily curriculum driven, and does not involve formal assessment.” (p. 59). Siemens (2012) explained in a later work that cMOOCs are more structured with timelines and deliverables such as weekly topics and assignments. The structured format allows more MOOC participants to work towards course completion.

Downes (2009) claimed that connectivist learning has four principles: “autonomy, diversity, openness, and connectedness/interactivity” (Milligan, Littlejohn, & Margaryan, 2013, p. 150). cMOOCs are known for collaboration and creating a network of learners often associated with social media. Xu and Yang (2015) also described the social nature of cMOOCs, stating they are “based on the idea that learning happens within a network, where learners use digital platforms such as blogs, wikis, social media platforms to make connections with content”
In this way, “learners can create and construct knowledge by themselves” (Xu & Yang, 2015, p. 1). Creation and social networked learning are two aspects of connectivist MOOCs mentioned by Siemens (2012) cited in Beaven et al., (2014). Specifically, “there is evidence of a growing interest in technology by the large number of teachers who have reportedly participated in cMOOCs (Ross et al., 2014), but these are probably still small in proportion to the teaching population” (Bali, 2014. p. 52). This type of social networked learning and cMOOCs can be useful for professionals and lower MOOC attrition with the opportunity for increased MOOC completion.

**xMOOCs.** The contrast to cMOOCs are xMOOCs. xMOOCs emerged in 2011 and were based on a behaviorist pedagogy that used media such as video lectures with the goal of individual learning (Conole, 2015). Early in the MOOC phenomenon, some xMOOCs were classified as AI-Stanford by Rodriguez (2012). Liyanagunawardena et al. (2013) described Rodriguez (2012) and Daniel (2012) as classifying xMOOCs in the same way but using different terms. Ross et al. (2014) explained the xMOOC as “a highly structured, content-driven course, designed for large numbers of individuals working mostly alone, guided by pre-recorded lectures, assessed by automated or peer-marked assignments” (p. 59). Similarly, xMOOCs have a traditional learning approach with video based lectures and quizzes (Beaven et al., 2014). According to Xu and Yang (2015), these adapted courses have an advantage as xMOOCs extend university courses to a larger number of students through short videos and automated content testing. A general critique of xMOOCs is that they are less collaborative than cMOOCs because they are more content lecture based. Xu and Yang (2015) explained that “critics of xMOOCs argue that xMOOCs are inferior to the university courses they mimic because they eliminate teacher-student interactions and involve limited student-student interactions” (p. 1). Many
MOOC critics doubt the need to offer xMOOCs because of negatively associated completion rates.

**Hybrid MOOCs.** Hybrid MOOCs are a combination of cMOOCs and xMOOCs. According to Ross et al. (2014), “The notion of a hybrid MOOC may be useful in describing courses that do not neatly fit the categories of cMOOC or xMOOC, but it seems more likely that the categories themselves are oversimplified and require critical attention” (p. 58). Literature addresses the critique of the MOOC classifications as oversimplified. Researchers continue to explore the characteristics that comprise a MOOC classification. Suárez Guerrero (2010) described cooperation experienced in a hybrid MOOC as a pedagogical resource that decreases MOOC dropout through measured achievement, social integration, and personal development (Fidalgo-Blanco, Sein-Echaluce & García-Peñalvo, 2016). Particularly, Beaven et al. (2014) noted that “in an attempt to move away from the cMOOC/xMOOC binary, Lane (2012) rejects the ‘good vs. bad’ MOOC model and instead proposes three classifications: network-based, task-based, and content based MOOCs” (p. 33). An example of a network-based MOOC is EDUMOOC, which neither identifies as an xMOOC or cMOOC because it focuses on the experiences and expertise of its teachers (Ross et al., 2014). A small number of hybrid MOOCs exist that target educators with the goal of professional development.

**Professional development MOOCs.** A limited number of research studies about professional development MOOCs exist. Research from the University of Pennsylvania explained that more than two-thirds of MOOC participants are employees (Radford et al., 2014). According to Christensen, et al. (2013), findings from research uncovered that “…13% are taking MOOCs to gain knowledge to earn a degree, 44% are taking them to gain specific skills to do their job better and 17% are doing so to gain specific skills to get a job” (Radford et al., 2014,
p. 2). Most MOOC participants, according to Christensen et al. (2013), use MOOCs for professional development opportunities. Vivian et al. (2014), Kellogg, Booth, and Oliver (2014), and King, et al. (2014) explained that most participate in MOOCs for professional development to satisfy intellectual curiosity or gain a work skill (Gynther, 2016). Olsson (2016) critiqued the weaknesses of online learning such as MOOCs by stating that “in general, the lack of social dimensions and of motivating ingredients are the weak points of many e-learning efforts” (p. 230). A literature gap exists about MOOC completion for participants who use the course to service professional development needs.

International examples of professional development MOOCs provide an example/model for national MOOCs. Global employers such AT&T and Microsoft are planning and piloting MOOCs for professional development specifically to develop employee competence (Meister, 2015; Olsson, 2016). However, Radford et al. (2014) found MOOC skepticism in their employer research that “MOOCs’ well-publicized low completion rates (Parr, 2013; Reich & Ho, 2014) gave HR staff pause as to the quality and level of student engagement in MOOCs.” (p. 20). International examples of MOOCs being used for teacher professional development are being researched. Because of their evolving curriculum that involves integrating computing in schools, New Zealand schools are exploring and researching MOOCs for teacher development (Vivian et al., 2014). International and national MOOC examples can contribute to the empirical literature about MOOC completion.

**MOOC-Ed.** MOOC-Ed is a national example of professional development MOOCs. Vivian et al. (2014) described MOOC-Ed as a hybrid MOOC with features of a cMOOC and xMOOC. Kleiman, Wolf, and Frye (2014) addressed the need for a professional development MOOC such as MOOC-Ed. Kleiman et al. (2014) acknowledged the large education workforce,
which included 3.7 million full-time K-12 school teachers in the fall of 2011 (National Center for Education Statistics, 2016). Thus, the Friday Institute recognized the need for massive open online courses among educators. One of the needs was driven by the substantial K-12 educational changes, including “technologies to enhance teaching, learning, assessment, communications and school management” (Kleiman et al., 2014, p. 1). Utilizing these technologies is a requirement in many schools to assist with student learning and engagement.

Prior to the Internet, educators had to rely on traditional professional development training workshops that included attending face-to-face workshops for numerous days (Kleiman et al., 2014). In addition, the National Staff Development Council/Learning Forward (Darling-Hammond, Wei, Richardson & Orphanos, 2009) reports “nearly half of all U.S. teachers are dissatisfied with their opportunities for professional development” (Kleiman et al., 2014, p. 2). Technological advances allow organizations such as The Friday Institute to develop several design principles needed to create high quality online professional development courses.

MOOC-Ed has four design principles that include self-directed learning, peer supported learning, case study/project-based approaches, and blended learning programs (Kleiman et al., 2014). These design principles have driven the technology platforms for maximum participant use. Kellogg et al. (2014) recognized that professional development MOOCs designed for educators encounter several challenges such as a scarcity of instructional and social support. These challenges can impact MOOC-Ed participation and completion. MOOC-Ed designers use engaging technology tools within the Google Course Builder such as Vanilla Forums, Survey Gizmo, Google Hangouts, and Vimeo (Kleiman et al., 2014). All of these tools are used to provide an interactive and engaging online environment for MOOC participants to encourage active participation and course completion.
Kleiman et al. (2014) found that approximately 50% of individuals who registered for a MOOC participated in the first unit, but their participation continuously declined across course units (Kleiman et al., 2014). MOOC participants are often eager to take part in the first unit, especially if they are MOOC novices. This is a common occurrence within MOOCs because course enrollment is a simple process that only requires a few mouse clicks on the registration page, and participation in the course is free (Fischer, 2014). However, the Friday Institute acknowledges that completion rates within MOOC-Ed are not their focus. The NCSU Friday Institute stated, “We are more concerned about whether participants met their own professional learning goals than in whether they ‘completed’ the courses” (Kleiman et al., 2014, p. 9). When participants create their own learning goal, the process for becoming successful and reaching their personal achievement level is straightforward. The Digital Learning Transition MOOC-Ed course had a completion rate of 12.2%, which is consistent with other MOOC completion rates (Kleiman et al., 2014). The Spring 2016 and Spring 2017 CDL MOOC-Ed course has similar participant enrollment and completion numbers as the Fall 2015 Coaching Digital Learning course, which was 7.6%. An ongoing critique of MOOCs is the low completion rate. On the contrary, Fischer (2014) provided a meaningful example of MOOC completion: “If 100,000 individuals register for a MOOC and only 4% complete the course that equals 4,000 participants finished the MOOC course” (p.150). Four thousand individuals sharing knowledge and learning together is beneficial for the participants and their professional organizations’ growth and development.

**MOOCs and Course Completion**

Dropping out of a MOOC can have adverse consequences for participants, instructors/facilitators, and providers. “The high drop-out rate is a major concern, especially to
those who have invested time and effort and did not complete.” (Gütl, Rizzardini, Chang, & Morales, 2014, p. 38). What is the purpose of higher education institutions investing time and resources with low completion rates? The time invested to work on course content is not fully utilized by MOOC participants and instructors if MOOC learners do not complete the course. Milligan et al. (2013) found three levels of engagement by MOOC participants that led to support or barriers associated with MOOC completion in their study. The engagement levels included: “Active participants, lurkers, and passive participants” (Milligan et al., 2013, p. 152). Milligan et al. (2013) discovered “lurkers” were the largest engagement level within their study. This finding contributes to the understanding of high drop-out rates within many MOOCs. In contrast, Milligan et al. (2013) recognized MOOC completers were “active participants” within the course: “Active participants were highly motivated to persist with the course and were able to overcome challenges in the course that might have proved a barrier to participation for others” (p. 153). Additional researchers addressed MOOC participants’ motivations and challenges. Terras and Ramsay (2015) believed a need to investigate “…internal factors such as ability and motivation, and to understand learners’ expectations and how they cope with the specific challenges that are associated with MOOCs” (p. 477). Hew and Cheung (2014) found six challenges of learning in a MOOC that also contribute to MOOC completion. The challenges included (1) A lack of incentive (Fini, 2009; Instructure, 2013); (2) A lack of focus on the discussion forum (Rice, 2013); (3) Having insufficient prior knowledge about the topic (Belanger & Thornton, 2013); (4) Ambiguous assignments and course expectations (Young, 2013); (5) Failure to understand the content and having no one to turn to for help (Belanger & Thornton, 2013); and (6) A lack of time due to other more important priorities and commitments (Belanger
& Thornton, 2013; Rice, 2013). All of these common challenges have a negative impact on MOOC retention.

However, a recent study provided hopeful findings about MOOC non-completers. “Interestingly, 98% of those who had not completed the MOOC consider MOOC as a useful way to study and would undertake a MOOC in the future” (Gütl et al., 2014, p. 47). Understanding MOOC participants’ drivers, barriers, and strategies to complete courses helps instructors/facilitators design support opportunities and incentives to encourage course completion. The need for future research on MOOC learners’ internal motivation and challenges verifies the need to research MOOC completion.

**Self-Efficacy Theory**

Self-efficacy was first introduced by Albert Bandura (1977). Bandura explained self-efficacy through the lens of “social learning theory that was renamed social cognitive theory in 1986” (Zulkosky, 2009, p. 94). Bandura’s social cognitive theory (1986) stated “an individual will take an action that has personal cognition in a social environment” (as cited in Hsu et al., 2007, p. 154). An individual’s performance influences self-efficacy and outcome expectations (Hsu et al., 2007). Self-efficacy can describe the drivers that motivate individuals to complete online courses. Self-efficacy theory/concept has been defined by Bandura (1994) as an individual’s understanding “about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives” (p. 71). An individual’s self-efficacy can impact their motivation and ability to achieve a goal. Boyd and Vozikis (1994) explained that self-efficacy impacts an individual’s beliefs about their abilities to achieve a goal. Specifically, “efficacy beliefs influence how people think, feel, motivate themselves, and act”
(Bandura, 1995, p. 2). Individuals with high self-efficacy expectations believe that when faced with a challenge through perseverance, completion and achievements can be reached.

**Self-Efficacy Sources**

Bandura (1995) described four sources of efficacy beliefs: mastery experiences, vicarious experiences, social persuasion, and physiological and emotional states. The mastery experiences help individuals believe that they can accomplish a goal because they have been successful with previous accomplishments. Bandura (1995) explained, “successes build a robust belief in one's personal efficacy. Failures undermine it, especially if failures occur before a sense of efficacy is firmly established” (p. 3). If an individual experiences an increase in “success,” then self-efficacy increases. However, “failure” undermines self-efficacy, which can skew the view of an individual’s efficacy to become successful. Boyd and Vozikis (1994) explained that a sustained effort is needed to achieve success when performance challenges occur. Specifically, as the number of online courses that an individual successfully completes for credit or certification increases, efficacy increases because the individual believes that achievement goals are obtainable. A resilient efficacy is necessary through barriers and challenges, which involves perseverance to overcome challenges (Bandura, 1995). For example, within an online environment, challenges such as lack of time for completing course content arise. Online learners need perseverance and time management skills for a resilient efficacy.

The second self-efficacy source is observing vicarious experiences. Individuals can also increase and strengthen their efficacy beliefs with vicarious experiences. When individuals observe associates or colleagues succeed through perseverance, then those same individuals believe they can master similar activities (Bandura, 1986; Schunk, 1987). In a learning environment, these vicarious experiences provide a sense of empowerment and motivation to
continue the learning process with a heightened efficacy. However, the opposite effect can occur when individuals witness failed endeavors. In this situation, they begin to lack motivation and experience a lower personal efficacy (Bandura, 1995; Brown & Inouye, 1978). Vicarious experiences can explain one reason why MOOC enrollment numbers start extremely high and then dwindle throughout the progression of the course when fellow MOOC participants begin dropping out of the course.

Bandura’s third source of self-efficacy stems from social persuasion. People are often verbally persuaded that they have the capability to accomplish specific activities which allows them to sustain their efforts despite self-doubts and personal insecurities (Bandura, 1995; Litt, 1988; Schunk, 1989). The alternative belief to social persuasion occurs when individuals believe they lack capabilities and evade difficult and challenging activities (Bandura, 1995). Social persuasion is particularly difficult within massive open online courses. Due to the “massiveness” of MOOCs, it is difficult for MOOC facilitators to verbally persuade participants to remain engaged with the course and encourage participants to complete the course.

The fourth and final source of self-efficacy is physiological and emotional states. Boyd and Vozikis (1994) explain, “Empirical support exists for a negative relationship between anxiety level and self-efficacy expectations” (p. 68). Individuals who possess a positive mood have a higher perceived personal efficacy, and individuals who exhibit a negative mood have a lower perceived self-efficacy (Bandura, 1995; Kavanagh & Bower, 1985). Learners’ positive or negative moods impact their perceived self-efficacy, which has implications for completion of an online course.
Motivation-Goal Setting

Individuals set goals to assist with motivation and goal attainment. When a learner observes goal progress, then self-efficacy is validated (Elliott & Dweck, 1988; Schunk, 1991). As learners recognize that their goals are being accomplished, their self-efficacy increases to complete a task. In an academic environment (online or face-to-face), it is important for students to receive feedback to assess their goal progress (Bandura & Cervone, 1983; Schunk, 1991). In a massive open online course, it is difficult for facilitators to provide constant feedback for all students, due to time constraints and the number of participants. Bandura and Cervone (1983) explained that providing feedback to learners increases self-efficacy. Schunk (1991) stated “heightened self-efficacy sustains motivation and improves skill development” (p. 211). Improving skill development is a critical mission for many online professional development offerings. Therefore, understanding the need for feedback to increase self-efficacy and motivation is necessary, especially in online environments. Schunk (1991) explained various properties that contribute to motivational benefits of goals. Distinctively, “the motivational benefits of goals depend on their properties: proximity, specificity, and difficulty” (Schunk, 1991, p. 211). According to Schunk (1991) “proximal (close-at-hand) goals promote self-efficacy and motivation better than distant goals, because students can judge progress toward the former easier than toward” (p. 211). The proximity of reaching goals in an online course is immediate and can increase self-efficacy and motivation if learners achieve weekly/unit goals in the course.

According to Schunk (1991), students respond to goals with specific performance standards because the explicit and specific description of the goals raises efficacy. Providing goals with performance standards is important for online course designers and facilitators. It is
important that course designers and facilitators understand the need to provide clear course and weekly goals/objectives to raise self-efficacy. Goal setting for adult learners has been proven necessary, especially for difficult goals. Locke, Frederick, Lee and Bobko (1984) studied college students and their behaviors when assigned difficult goals or when students were told to set difficult goals. Schunk (1991) explained study results: “Efficacy for moderate to difficult goals predicted students' performances. Efficacy and goal commitment related positively among subjects who set their goals” (p. 211). Online learners who set course and weekly course goals are more likely to commit to those goals, and when each goal is achieved, self-efficacy improves along with continued motivation.

**Self-Efficacy Processes**

Bandura (1995) explained the concept of four self-efficacy processes that regulate human functioning. The efficacy processes include cognitive, motivational, affective, and selection processes. These processes explain the rationale for individuals to achieve goals and how they regulate their goal-setting. The cognitive process includes personal goal setting, which is influenced by self-efficacy and appraisal of capabilities (Bandura, 1995). Online learners who set specific achievement goals should also self-assess their cognitive capabilities and time commitment capabilities. Locke and Latham (1990) described how individuals with a high perceived self-efficacy set high (difficult) goals to challenge themselves and firmly commit to those goals. Motivational processes include efficacy beliefs and self-regulating motivation (Bandura, 1995). Three forms of cognitive motivators exist according to Bandura: casual attribution, outcome expectancy, and cognized goals. Parallel theories correspond with these cognitive motivators: attribution theory, expectancy-value theory, and goal theory (Bandura,
Within each of these cognitive motivators/theories, efficacy beliefs are included in the literature.

Casual attribution or attribution theory explains how “people who regard themselves as highly efficacious attribute their failures to insufficient effort or adverse situational conditions, whereas those who regard themselves as inefficacious tend to attribute their failures to low ability” (Bandura, 1995, p. 7). Motivation has a direct connection to casual attribution along with self-efficacy and ability to perform a task and achieve a goal. Individuals with high self-efficacy rarely question their ability; however, they could question their effort and motivation. Outcome expectancy is also known as expectancy-value theory. This theory recognizes that “motivation is regulated by the expectation that a given course of behavior will produce certain outcomes and the value placed on those outcomes” (Bandura, 1995, p. 7). The outcome of a task has a direct relationship to motivation, perceived self-efficacy, and effort expended.

Cognized goals, which are also referred to as goal theory, focus on goals as self-influencers instead of regulating motivation and action (Bandura, 1995). Bandura (1995) explained that matching motivation based on goal setting involves cognitive comparison. Specifically, “by making self-satisfaction conditional on matching the standard, people give direction to their behavior and create incentives to persist in their efforts until they fulfill their goals” (Bandura, 1995, p. 7). Creating incentives is important for goal achievement and positively influences motivation.

Affective processes address the amount of stress and depression encountered by an individual which influences coping capabilities and self-efficacy (Bandura, 1995). If individuals experience a high amount of stress and depression in a particular task, their self-efficacy and motivation decreases. Sanderson, Rapee, and Barlow (1989) explained that individuals who
think they can manage stressors often view these stressors as non-debilitating, and they possess
the ability to overcome these stressors. These individuals also have a strong self-efficacy.
Online learners who encounter participation barriers such as time restraints and feelings of
isolation in a large online course can experience stress. Selection process includes how
individuals purposefully select tasks and goals that they believe they can successfully
accomplish. Bandura (1995) explained that “beliefs of personal efficacy can shape the courses
people's lives take by influencing the types of activities and environments they choose to get
into” (p. 10). The higher level of self-efficacy an individual has, the more likely the individual
will attempt challenging activities. Self-efficacy can play a role in continuing education
selection. Selecting an online professional development/continuing education option could be
viewed as a challenging activity for some individuals. Therefore, a high self-efficacy is
necessary to actively participate and complete online continuing education.

Self-Regulation

According to Barnard-Brak, Paton, and Lan (2010), self-regulated learning is active
behavior that leads individuals to achieve learning goals. Self-regulated behaviors and strategies
encourage success. Behaviors that are understood as self-regulated “include but are not limited
to goal setting, time management, task strategies, environment structuring, and help seeking”
(Barnard-Brak, Paton, & Lan., 2010, p. 61). Online learners who successfully navigate through
an online course use strategies such as goal setting and task strategies such as completing
readings for assignments on a certain day of the week. These strategies allow learners to self-
regulate their schedules, which promotes time management to accomplish required tasks.
Zimmerman and Schunk (2001) researched self-regulating behaviors and discovered that self-
regulated learning integrates motivation and cognitive skills in an academic setting. In addition,
Sun and Rueda (2012) conducted a study that surveyed 203 online students to gauge their efficacy, self-regulation, and levels of engagement within online environments. They provided these relevant study findings: “In a distance education environment, personal factors such as self-efficacy, self-regulation and interest are influenced by persons, their behaviour and their environment through reciprocal interactions” (Sun & Rueda, 2012, p. 201). Students/participants in online learning environments with high self-efficacy and self-regulation skills can remain motivated through their active engagement behavior. Sun and Rueda (2012) also recommended distance educators to provide strategies for students to increase their self-regulation skills in online environments. Sharing self-regulation strategies can assist virtual learners with approaches to successfully navigate through an online course.

**Locus of Control**

Locus of control has been commonly associated with self-efficacy and self-regulation strategies within the literature. Neill (2006) described locus of control as perceptions about specific life events. Two types of locus of control exist: internal and external. Individuals who believe “destiny or luck” (external forces) controls an outcome have an external locus of control (Neill, 2006; Zulkosky, 2009). On the contrary, people who think decisions and personal effort (internal forces) control an outcome have an internal locus of control (Neill, 2006; Zulkosky, 2009). Consequently, external and internal loci of control are two different belief systems. Individuals who have a high level of self-efficacy possess internal locus of control (Zulkosky, 2009). For example, online learners who believe their personal decisions and hard work can produce positive outcomes like active participation, social networking, and course completion hold an internal locus of control with high self-efficacy. Joo, Lim, and Kim (2013) and Lefcourt (1982) explain that individuals with a high internal locus of control have the qualities of
curiosity, readiness to learn, and are active knowledge seekers. Learners with high levels of self-efficacy and internal locus of control exhibit continued efforts for enrollment in educational endeavors (House, 1992; Joo et al., 2013; Martinez, 2003). High self-efficacy and internal locus of control can motivate learners to complete an online course despite challenges.

**Self-Efficacy in Massive Open Online Courses**

Self-efficacy was researched by Bandura (1977) before the existence of informal and formal online learning environments, which began in the early 1990s (Alqurashi, 2016; Hodges, 2008). Understanding the connection between self-efficacy and online learning when exploring the interplay between high self-efficacy and MOOC completion is important. Alqurashi (2016) explained that much of the research about self-efficacy and online learning was conducted in higher education. According to Hodges (2008), “Research on self-efficacy in online environments is in its infancy” (p.10). Hodges (2008) also explained that additional research is needed in self-efficacy within online learning. The research gap that exists between online learning and self-efficacy also exists within MOOCs and self-efficacy.

The majority of self-efficacy and online learning research has been focused on computer self-efficacy, which explains the “technology factor” (Jan, 2015; Lee & Hwang, 2007; Lim, 2001; Pellas, 2014; Simmering, Posey, & Piccoli, 2009; Womble, 2007; Wu, Tennyson, & Hsia, 2010). Specifically, computer self-efficacy relates to an individuals’ beliefs that they can properly use a computer to perform tasks (Compeau & Higgins, 1995). Hodges (2008) identified 31 studies that addressed self-efficacy within an online learning environment between 1997 and 2015. Three main categories were uncovered regarding self-efficacy and online learning: “Computer self-efficacy, Internet and information-seeking self-efficacy and LMS (Learning Management Systems) self-efficacy” (Hodges, 2008, p. 45). However, the studies and categories
in Hodges’s (2008) research did not include massive open online courses. Limited research has been published on self-efficacy and MOOCs, which gained popularity in the United States beginning in 2012.

According to Willis (2013), a lack of scholarly literature exists on MOOCs. However, Willis (2013) describes an opportunity for self-efficacy to align theories of MOOC participation and low completion rates. The active participation within MOOCs has a correlation to completion rates. Bates and Khasawneh (2007) explained that prior experience within online learning has proven to increase self-efficacy. Previous online experience is especially important for MOOC participants due to the large number of participants and the need for participants to be self-directed. According to Chu and Tsai (2009), the more Internet experience an adult has, the more their self-efficacy increases within an online environment. Specifically, adult learners who have a high level of Internet prior experiences often participate and complete online courses such as MOOCs.

Self-efficacy can be a descriptor of motivation, participation, and achievement for students participating in MOOCs (Willis, 2013). Wang and Baker (2015) found domain specific self-efficacy (Bandura, 1982) evidence in their study. The study showed evidence for relationships between the expectations of the students’ course completion and their actual MOOC completion (Wang & Baker, 2015). Willis (2013) explained that MOOC participants need to feel a sense of community to increase self-efficacy and completion rates. Rovai (2002) described dimensions that comprise a “sense of community”. One dimension includes common expectations such as learning goals within a community. Common learning goals and expectations can increase student motivation to participate and possibly complete an online course such as a MOOC. Willis (2013) asked the question: “What motivates individuals to
participate in, and more importantly successfully complete, MOOCs?” (p. 3). Motivation is important to MOOC completion. The motivation to complete a MOOC can be extrinsic (such as receiving a certificate) or intrinsic (the desire from within to complete a goal).

**Self-Determination Theory**

Self-determination theory (SDT) was formulated by Deci and Ryan (1985, 1991) in the mid-1980s and can be directly applied to education. Specifically, self-determination theory “…is concerned primarily with promoting in students an interest in learning, a valuing of education, and a confidence in their own capacities and attributes” (Deci et al., 1991). MOOC students/participants are voluntary learners who share an interest in learning and education with fellow course participants. Gagné and Deci (2005) explained the two primary elements of self-determination theory which include extrinsic and intrinsic motivation in addition to the psychological needs behind motivation. According to Sørebø, Halvari, Gulli, and Kristiansen (2009), motivation within this theory refers to reasons for carrying out an activity which vary along a self-determination continuum, where “amotivation (i.e. lack of motivation) and intrinsic motivation (i.e. genuine interest and enjoyment) are the extremities” (p. 1179). The MOOC participants who drop out of courses often have several reasons for not returning to a free learning opportunity. One reason can include the lack of motivation or amotivation for course completion.

An individual’s intrinsic and extrinsic motivation may not be high enough to overcome the barriers to online learning. On the self-determination continuum, amotivation includes individuals who are “nonsel-determined” with non-regulation (Sørebø et al., 2009). These individuals lack intrinsic and extrinsic motivation. Intrinsic motivation is on the other side of the continuum and includes intrinsic regulation and being self-determined. Sørebø et al., (2009)
stated, “Extrinsic types of motivation refer to a spectrum of four intermediate regulations, where the reason for carrying out an activity may be external (e.g., a reward), introjected (e.g., avoid shame), identified (e.g., personal importance), or integrated (e.g., fully volitional)” (p. 1179). Ryan and Deci (2000b) created a figure to explain behavior, motivation, and regulatory styles. This figure also explains the perceived locus of causality and relevant regulatory processes associated with amotivation, extrinsic motivation, and intrinsic motivation on the self-determination spectrum.


The self-determination spectrum is a useful continuum to gauge motivation in online environments. Ryan and Deci (2006) explained critiques of self-determination such as equating “...self-determination which choice in the very narrow sense of making decisions between (often meaningless) options” (p. 1558). Additional self-determination critics such as Schwartz (2000) explained self-determination as tyranny due to the belief that decision making is not always
viewed as educational or enriching. Ryan and Deci (2006) explained that critiques of self-determination, autonomy, and choice (Skinner, 1971) continue (Eisenberger & Cameron, 1996) to be debated within the literature. A limited number of scholarly articles and studies explain the relationship between self-determination and MOOCs.

**Intrinsic Motivation**

According to Deci and Ryan (1985), “intrinsic motivation is based in the innate, organismic needs for competence and self-determination” (p. 32). Notable proponents of several conceptualizations of intrinsic motivation exist (Deci & Ryan, 1985). The most significant conceptualizations of intrinsic motivation to this study include the view of self-determination by Angyal (1941) and interest/excitement by Izard (1977). Self-determination and interest are critical to this study because MOOC participants voluntarily participate and complete the professional development MOOC. The MOOC participants in this study have an interest in digital learning. Individuals who have intrinsic motivation engage in learning for themselves to gain pleasure and/or satisfaction from performance outcomes (Deci et al., 1991). Intrinsic motivation comes from within an individual to gain knowledge for the purpose of learning and personal growth. Deci and Ryan (1985) explained three characteristics based on previous literature that indicate intrinsic motivation: “…greater creativity (Amabile, 1983), flexibility (McGraw & McCullers, 1979), and spontaneity (Koestner, Ryan, Bernieri, & Holt, 1984), and the presence of those characteristics can signify intrinsic motivation” (p. 35). In online environments, these characteristics are necessary for individuals to support self-directed and self-regulated learning.
Extrinsic Motivation

Contrary to intrinsic motivation is extrinsic motivation. Individuals are extrinsically motivated when they perform a task to obtain a distinguishable outcome (Ryan & Deci, 2000b). According to Gagne and Deci (2005), “activities that are not interesting (i.e., that are not intrinsically motivating) require extrinsic motivation, so their initial enactment depends upon the perception of a contingency between the behavior and a desired consequence such as implicit approval or tangible rewards” (p. 334). When intrinsic motivation does not exist for an individual, then some form of meaningful extrinsic motivation needs to be obtainable. Extrinsic rewards for online learners can come in many forms such as a degree or certificate.

Gorozidis and Papaioannou (2014) also explained the four types of extrinsic motivation based on the Ryan & Deci (2000b) low to high self-determination continuum. Gorozidis and Papaioannou (2014) interpreted 1) external regulation as reasons for engagement to gain recognition or rewards, 2) introjected regulation as involvement in an activity motivated by avoiding guilt or shame, and 3) identified regulation as a high self-determined form of extrinsic motivation. The fourth type of extrinsic motivation on the continuum is integrated regulation which provides awareness and synthesis of one’s self (Ryan & Deci, 2000b). Understanding the various types of extrinsic motivation is central to self-determination theory. Consequently, extrinsic and intrinsic motivation, through the lens of “self-determination theory has the potential to address learning problems such as student attrition in the online learning environment” (Chen & Jang, 2010, p. 742). Addressing student attrition can assist with online course completion.

Autonomy and Self-Regulation

argued “the concept of autonomy has become increasingly accepted, refined, and applied within the discipline of philosophy” (Ryan & Deci, 2006, p. 1557). Durksen, Chu, Ahmad, Radil, and Daniels (2016) described autonomy in an educational online environment: “While there is evidence showing how online learning can meet students’ needs of autonomy and competence, the challenge often remains with satisfying the need for relatedness through computer-mediated interactions (p. 5). Kuhl (1996) believed that “self-regulation and autonomy concern the processes through which an organism initiates, coordinates, and governs its behavior” (Ryan et al., 1997, p. 706). Ryan et al. (1997), stated that “what becomes identified or understood as the self of self-regulation is thus inexorably intertwined with that vital activity characterized by interest, curiosity, and coordinated striving” (p.712). Self-regulation is integrated with an individual’s level of interest and curiosity which can positively or negatively affect their motivation or endeavors toward a task.

**Self-Determination in Massive Open Online Courses**

Self-determination within MOOCs can explain motivation to participate and complete a course. Espinosa, Sepulveda, and Montoya (2015) conducted a study about an Open Educational Resources (OER) MOOC that focused on self-motivation and the challenges to MOOC participation. In this study, self-determination theory was discussed in relationship to motivation. Espinosa et al. (2015) explained that “motivation is linked to the self-determination shown by students who perform well academically and demonstrate autonomous commitment behaviors such as self-regulated learning, goal definition and self-motivation regulation” (p. 93). According to Zhou (2016), a limited number of researchers such as Kop (2011) and Tschofen and Mackness (2012) are studying learning autonomy within MOOCs. Conversely, the studies did not focus on intentions to complete the MOOC and primarily focused on the levels of learner
autonomy (Zhou, 2016). Alraimi et al. (2015) also acknowledged the limited quantity of research describing factors that impact MOOC completion. Alraimi et al. (2015) found that two specific predictors, perceived reputation and perceived openness of a MOOC, impacted participants’ intentions to continue using a MOOC. These predictors can also impact MOOC participant motivation and persistence to complete a MOOC.

Successful online learners discover ways to stay motivated and determined by creating goals and self-regulating their learning experience. Espinosa et al. (2015) explained that 88% of MOOC participants in the study began the MOOC immediately after enrollment; however, only 3% completed weekly assignments/activities and the final evaluation. MOOC barriers were apparent within this study, which is consistent with previous MOOC research literature. These studies uncovered challenges for the MOOC participants as well as the motivations used to overcome the challenges.

**Online Learning Strategies**

Several researchers have studied online learning strategies through the lens of the instructor and student perspective. Lee, Pate and Cozart (2015) stated that “despite the rapid growth of online learning in higher education, the dropout rates for online courses have reached 50 percent. Lack of student engagement ranks as a critical reason for frequent online course dropout” (p. 54). Guo, Kim and Rubin (2014) also described student engagement as a prerequisite for online learning. Consequently, the online learning strategies body of literature comes from two divergent perspectives. The strategies have the same purpose: assisting online learners to reach achievement goals/objectives and completing the course. The two perspectives are the online instructor and the online student/participant. The online instructor perspective
focuses on course design and online student support/engagement strategies. The student perspective focuses on tangible work and management strategies in online courses.

**Instructor Perspective**

The instructor perspective has been abundantly researched to understand specific online learning strategies. Tirrell and Quick (2012) argued the attrition rate in online courses is disproportionate to face-to-face or hybrid courses. Despite the rapid growth of online learning in higher education, the dropout rates for online courses have reached 50 percent (Tirrell & Quick, 2012). Consequently, online instructors are looking for attrition solutions. Tirrell and Quick (2012) described the seven principles of good instructional practice by Chickering and Gamson’s (1987) rubric which provides strategies for online instructors to increase online student participation and completion in courses. The seven principles include: (1) Encourage student-faculty contact, (2) Encourage cooperation among students, (3) Encourage active learning, (4) Give prompt feedback, (5) Emphasize time on task, (6) Communicate high expectations, and (7) Respect diverse talents and ways of learning (Chickering & Gamson, 1987; Tirrell & Quick, 2012). These principles apply to online learning environments such as MOOCs.

Razzak (2016) has shared specific instructor strategies for effective learning outcomes. Virtual discussion boards, weekly reflections (through tools such as blogs), and grouping students into smaller clusters are useful instructor strategies to promote engagement and course completion (Razzak, 2016). Lee et al. (2015) described three strategies that online instructors can use to provide autonomy support for online learners. Chen and Jang (2010) explained the importance of autonomy in online environments due to self-regulation and motivation implications for successful online learning. Lee et al. (2015) provided three strategies to promote autonomy online: Instructors should provide choices (such as completing assignment
individually or in a group), provide rationale and reasoning, and provide opportunities for personalization (such as presenting intrinsic and explicit course objectives to students). These instructor strategies promote purposeful learning.

Boton and Gregory (2015) described four main learning strategies for online instructors to consider which include, “…collaborative activities for different learning styles, exchange of ideas through social interaction, multiple case studies for group activities and videos and mini lectures for team work” (p. 72). Howard (2009) explained four strategies for instructors to use to engage and sustain online communities that can influence course completion. The strategies included remuneration, influence, belonging, and significance (Howard, 2009). Remuneration is the belief that participating in online groups and communities will be beneficial. Influence gives online learners the ability to create their own voices and be autonomous. Belonging focuses on ways to allow online students to feel involved and included in the learning process. Finally, significance is the importance of the online community of learners. Hew (2016) expressed five strategies that a MOOC instructor should follow to encourage student participation. The strategies include, “(1) problem-centric learning with clear expositions, (2) instructor accessibility and passion, (3) active learning, (4) peer interaction, and (5) using helpful course resources” (Hew, 2016, p. 320). Learning strategies that focus on engagement and interaction is a common theme for online instructors. Engagement and interaction within online environments can reduce attrition and increase course completion.

**Student Perspective**

Online learning strategies from the student perspective differs from the instructor perspective. The instructor perspective addresses the design and delivery of the online course. This contrasts the student perspective which focuses on goal setting and additional self-
regulation strategies. Zimmerman (2008) explained self-regulated learning as an “…iterative, goal-directed activity that involves interpreting tasks, setting goals, selecting, adapting or even inventing strategies effective for achieving those goals, monitoring progress, and adjusting approaches as needed” (Lawanto, Santoso, Lawanto & Goodridge, 2014, p. 3). Similarly, Cho (2012) explained that online learners have a self-efficacy (Bandura, 1986) to self-regulate learning through the belief of their capabilities through planning, monitoring, evaluating, and adjusting. Lawanto et al. (2014) provided an example of self-regulated learning skills in a web-intensive course in which Zimmerman’s self-regulated learning model (1998) was used in the course questionnaire. The online learning strategies were broken into three categories: forethought strategy, performance control strategies, and self-reflection (Lawanto et al., 2014). Goal setting and environmental structuring were viewed as forethought strategy. Task strategies, time management, and help seeking were a part of the performance control strategies, and self-evaluation was a self-reflection strategy (Lawanto et al., 2014). Time management was also a critical online strategy found in an online learner satisfaction study. “Time and study environment strategy refers to the degree to which students manage their time and set up a study environment conducive to learning” (Choi, 2016, p. 4). Self-regulated strategies can assist online learners with learning persistence and course completion.

Additional researchers have studied the relationships between self-regulated learning strategies and autonomy. Koc and Liu (2016) found self-regulation strategies were used by online students when help seeking or asking questions was a necessary part of learning. However, some online students did not want help and wanted to problem solve autonomously, which indicated their goal orientation (Koc & Liu, 2016). Some cynics about the applicability of the self-regulated learning (SRL) framework to online learning environments compared to
traditional environments exist (Koc & Liu, 2016). Cho, Demei, and Laffey (2010) and Dettori and Persico (2008) argued that researchers consider the SRL framework a useful theoretical account of how online students effectively learn in online environments (Adesope, Zhou & Nesbit, 2015). Choi (2016) and King, Harner, and Brown (2000) expressed the need for self-regulated learning for students in online learning environments. Massive open online courses have diverse learners who self-regulate their learning by using various strategies influenced by course design and learner motivation. Kop (2011) argued that “there is evidence that learning strategies in MOOCs are influenced not only by learners’ motivation and confidence, but also by the structure of the course, the delivery environment, and the perceived value of learning” (Milligan & Littlejohn, 2014, p. 200). The gap in the learning strategies literature exists in understanding the strategies and behaviors necessary for autonomous learning in MOOCs (Liyanagunawardena et al., 2013; Milligan & Littlejohn, 2014). Identifying and understanding these strategies can inform MOOC providers, instructors, and participants of appropriate self-regulation strategies that encourage MOOC participation and completion.

**Summary**

The literature on massive open online courses is extensive with a reoccurring critique of low completion rates among MOOC participants. Self-efficacy theory and self-determination theory have been used by researchers to guide studies about motivation and completion within MOOCs. High levels of self-efficacy within MOOCs can motivate learners and encourage participation and achievement (Willis, 2013). Similarly, self-determination theory (Ryan & Deci, 2000b) has the amotivation, extrinsic motivation, and intrinsic motivation spectrum to explain the motivational levels of MOOC participants. Understanding the interplay between self-efficacy and motivation as it relates to goal-setting and other self-regulated learning
strategies can provide MOOC learners with useful online learning strategies that they need to successfully navigate through and complete a massive open online course.
CHAPTER 3: METHODOLOGY

Introduction

This qualitative case study was designed to investigate drivers, barriers, and strategies associated with MOOC completion to understand why and how individuals successfully matriculate and complete a MOOC. The Coaching Digital Learning MOOC-Ed supports educators who need to learn how to integrate technology into their classrooms and/or school districts. Specifically, the Spring 2016 and Spring 2017 Coaching Digital Learning course was the population and focus of this research study. The purpose of this study was to provide descriptions about drivers and catalysts as well as barriers and challenges to completing the Coaching Digital Learning MOOC-Ed. The research study also described strategies used by the MOOC-Ed participants to complete the course within the six-week MOOC. Also, descriptions about how MOOC-Ed participants changed their practices at their jobs after the Coaching Digital Learning MOOC-Ed were provided by the study sample.

The study was a qualitative descriptive case study with research questions serving as the interpretive guide to the study. The four research questions guided the selection of data collection method and analysis. The research questions were:

1. What drivers and catalysts do course completers report encountering in their journey to complete the Coaching Digital Learning MOOC-Ed?
2. What barriers and challenges do course completers report encountering in their journey to complete the Coaching Digital Learning MOOC-Ed?
3. What strategies do course completers report that enabled them to successfully complete the Coaching Digital Learning MOOC-Ed?
4. To what extent do course completers make changes in practice after the Coaching Digital Learning MOOC-Ed?

**Qualitative Research Design**

Qualitative research includes research findings not generated by quantitative/statistical procedures (Strauss & Corbin, 1998). Qualitative research was appropriate for the MOOC-Ed study because MOOC participants described their completion drivers and barriers in the course and strategies used to complete the course. The MOOC participants also provided a description of how their professional practice changed after completing the Coaching Digital Learning MOOC-Ed. Creswell (2013) explained qualitative research with Denzin and Lincoln’s (2011) definition: “Qualitative research is a situated activity that locates the observer in the world. Qualitative research consists of a set of interpretive, material practices that make the world visible” (p. 3). Through qualitative methods, MOOC-Ed participants provided an account that rationalized their MOOC participation and completion.

Quantifying drivers, barriers, and strategies in the context of course completion would be a challenging task; therefore, understanding MOOC completion required descriptions from course participants. Therefore, quantitative methodology was not the most appropriate method for this study. Qualitative methods clarified the drivers and barriers of successfully completing a MOOC. Specifically, case study methodology provided the necessary data collection methods that highlighted MOOC-Ed participant responses.

The Coaching Digital Learning MOOC-Ed was the single embedded case under study. The case was “bounded” by participants in the Coaching Digital Learning MOOC-Ed who completed the course. According to Merriam and Tisdell (2016), “the ‘what’ is a bounded system (Smith, 1978), a single entity, a unit around which there are boundaries” (p. 38).
Embedded case studies have multiple units of analysis (Yin, 2014). The two embedded units of analysis in this study were the Spring 2016 and Spring 2017 Coaching Digital Learning MOOC-Ed course completers. Within the single case study, interviews, questionnaires, and document analysis data collection methods were used. Through these data collection methods, MOOC participants provided a first-hand account of the drivers, barriers, and strategies used to complete the course. Once the information about drivers, barriers, and strategies was collected, follow up questions were asked about how professional practice was changed after the completion of MOOC-Ed. This line of inquiry was best described and explained through qualitative data collection methods and data analysis.

Researchers select a qualitative design for many reasons. A researcher should select a qualitative design when “an issue under study needs to be comprehended in a complex and detailed level” (Tavallaei & Talib, 2010, p. 570). The MOOC-Ed program is complex, and the impact and interactions within courses such as Coaching Digital Learning should be investigated in detail through the guidance of research questions. Qualitative research also allowed research participants to tell their stories or thoughts through understanding participant perspectives within the MOOC program (Tavallaei & Talib, 2010). Global participation within Coaching Digital Learning MOOC-Ed existed through international participants from different countries and national participants from numerous states including North Carolina. The variety of MOOC-Ed participant backgrounds and perspectives allowed study participants to provide a detailed description about why they completed MOOC-Ed. I received institutional review board (IRB) approval before collecting all qualitative research from MOOC-Ed participants.

Creswell (2013) provided a detailed description of nine characteristics of qualitative research. Each characteristic is related to a reason why qualitative research was selected for this
study. The first characteristic included conducting research and data collection in a natural setting (Creswell, 2013). The natural setting for the Coaching Digital Learning MOOC-Ed was an online environment. Therefore, data collection occurred through document analysis, online questionnaires, and telephone or web conference interviews. The second characteristic includes researchers as the key instruments who design their own instrument such as interview questions (Creswell, 2013). In this study, I created open ended interview questions that informed and assisted with answering the research questions. The third characteristic involves researchers using multiple methods of data collection (Creswell, 2013). Three methods of data collection, interviews, questionnaires, and document analysis, were used in the MOOC-Ed study.

The next characteristic includes the use of complex inductive and deductive reasoning skills (Creswell, 2013). During the study, particularly in the data analysis section, I used inductive-deductive thinking skills to determine patterns and themes within the data. The fifth characteristic is a focus on participants’ multiple perspectives and views (Creswell, 2013). For example, I distributed the questionnaire to multiple participants with different perspectives to form codes and themes within the data. The next characteristic addresses the context or setting of participants (Creswell, 2013). The setting of the MOOC-Ed study was a MOOC online environment. The online environment is the context/setting for learning and professional interactions that occur within the Coaching Digital Learning course that impacts participants to feel supported and motivated to complete the course. The seventh characteristic is an evolving and emergent qualitative design (Creswell, 2013). An example of an emergent design includes my interview questions being semi structured with questions developed through probing.

The eighth characteristic that Creswell (2013) described was reflexivity and how researchers should explain their backgrounds that influence the interpretation of the study. In
this study, I have a researcher subjectivity section that explains my experience in instructional technology, e-learning, and my participation and completion of the Coaching Digital Learning MOOC-Ed. The ninth and final characteristic of a qualitative study according to Creswell (2013) is a holistic account of the phenomena under study presented by the researcher. An example within this study was the reporting of multiple perspectives from participants who completed the Coaching Digital Learning course in interview transcripts that were used for data analysis and theme development.

Case Study Approach

The qualitative research characteristics help researchers determine if their study is qualitative or quantitative in nature. Researchers should use their research problem and question(s) to determine the appropriate qualitative approach. Clissett (2008) believed qualitative research “…covers a wide range of approaches for the exploration of human experience, perceptions, motivations and behaviors” (p. 100). Five commonly recognized approaches to qualitative research include narrative, phenomenology, grounded theory, ethnography, and case study research (Creswell, 2013). The case study research approach was suitable for this study of participants who completed the Coaching Digital Learning MOOC-Ed.

A qualitative case study approach was selected because it involves the study of a case or cases in a real and current context or setting (Yin, 2009). In this study, the Coaching Digital Learning course served as the context/setting. Stake (1978) argued that a case does not have to be a person or enterprise within a case study. However, the case can be whatever “bounded system” is of interest to the research study (Stake, 1978). Several aspects or characteristics of a case study approach were considered when designing this case study. Creswell (2013) explained that it is important for researchers to develop an in-depth description of a single case or multiple
cases then analyze data. In the MOOC-Ed study, there were in-depth descriptions of each of the participants through interviews and questionnaires.

According to Creswell (2013), case studies have a unit of analysis focused on “studying an event, a program, an activity, or more than one individual” (p. 104). The unit of analysis in this research was the course participants who completed the Coaching Digital Learning MOOC-Ed. Case studies should utilize multiple data collection forms such as interviews, observations, artifacts, and documents (Creswell, 2013). This MOOC-Ed case study had multiple data collection forms through interviews, documents, and questionnaires. After data was collected, data analysis strategies were utilized. Data analysis should occur in various ways like analyzing data through case descriptions and analyzing case themes (Creswell, 2013). Data analysis of the case study occurred in the software NVivo using three coding structures. In the Coaching Digital Learning MOOC-Ed dissertation, explanations of the data analysis process and study findings were presented.

In a case study, “a particular individual, program, or event for instance is deeply and thoroughly studied in a specific time period” (Tavallaei & Talib, 2010, p. 574). This characteristic of a case study is similar to Creswell’s characteristic. Consequently, this characteristic included the note about a case study being studied within a specific time period. The Coaching Digital Learning MOOC-Ed was a six-week course. The course was a “current real-life case” because the course included the six-week time period during the Spring 2016 semester and Spring 2017 semester. This case study was a single embedded case study because of the similarities in enrollment and completion numbers in the Spring 2016 and Spring 2017 Coaching Digital Learning MOOC-Ed. The Spring 2016 enrollment was approximately 924 with 63 participants completing the course. The Spring 2017 enrollment was approximately 704
with 71 participants completing the course. The focus of this research study was the Spring 2016
and Spring 2017 Coaching Digital Learning MOOC-Ed.

**Descriptive case study.** The MOOC-Ed research was a descriptive embedded single
case study. According to Merriam (1998), a descriptive case study “means that the end product
of a case study is a rich, ‘thick’ description of the phenomenon under study” (p. 29). The
participants in the study informed and describe the drivers, barriers, and strategies to complete
the Coaching Digital Learning MOOC-Ed. Yin (2014) provided types of compositional
structures within a descriptive case study: linear-analytic, comparative, chronological, and
unsequenced. The linear-analytic structure “…starts with the issue or problem being studied and
a review of relevant prior literature” (Yin, 2014, p. 188). Methods, data collection, and data
analysis are also explained within linear structures. The problem being studied is explicitly
explained in the Chapter 1 Introduction. The review of literature is described in Chapter 2
Literature Review, and the methodology is addressed in Chapter 3.

The study was also designed to have a comparative structure. “A comparative structure
repeats the same case study material two or more times, comparing alternative descriptions or
explanations of the same case” (Yin, 2014, p. 188). This comparative structure presented with
16 interviews provided different MOOC-Ed experiences and descriptions. The chronological
structure of a descriptive case study allows researchers to have an introduction of the case and
provide a current status of the case (Yin, 2014). Finally, descriptive case studies can have an
unsequenced structure. The sequence of the sections or chapters in the descriptive case study
does not have a particular importance (Yin, 2014). The sections within a descriptive case study
can be interchangeable with the consideration that the study participants are providing detailed
information about the case under study ensuring complete descriptions.
The study had a sample size of 16. Eight study participants completed the Spring 2016 CDL MOOC-Ed, and an additional eight study participants completed the Spring 2017 CDL MOOC-Ed. Including data points for more than one year was important to get thick and rich descriptions from multiple groups, providing validity, reliably and repeatability of the study. The inclusion of 16 study participants from two different years allowed the complete sample to have representation from more than one massive open online course for educators. I had two years of the most recent data from Spring 2016 and Spring 2017. I compared individual responses based on the demographic questionnaire, interviews and documentation from MOOC-Ed. Patton (2002) explained “qualitative inquiry typically focuses in depth on relatively small samples, even single cases (N=1), selected purposefully” (p. 230). Hence, 16 study participants was a relatively small sample (appropriate for qualitative research) that was selected purposefully for maximum variation. According to Patton (2002), maximum variation “…aims at capturing and describing the central themes that cut across a great deal of variation” (p. 234). The 16 study participants were purposefully selected based on a predetermined set of criteria designed to achieve variation in the study (seen in Table 1.)

Table 1

<table>
<thead>
<tr>
<th>Participant Criteria (select one from each group)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
</tr>
<tr>
<td>Less than 26-45 years of age</td>
</tr>
<tr>
<td>46-Older than 55 years of age</td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
</tr>
<tr>
<td>Undergraduate college degree</td>
</tr>
<tr>
<td>Graduate degree</td>
</tr>
<tr>
<td>Professional degree</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>“I do not identify”</td>
</tr>
<tr>
<td><strong>Employment Status</strong></td>
</tr>
<tr>
<td>Full Time Student</td>
</tr>
<tr>
<td>Part Time Student</td>
</tr>
</tbody>
</table>
Table 1 (continued)

<table>
<thead>
<tr>
<th>World Region</th>
<th>Employed Full Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Employed Part Time</td>
</tr>
<tr>
<td></td>
<td>Retired</td>
</tr>
<tr>
<td>North Carolina MOOC-Ed participant</td>
<td></td>
</tr>
<tr>
<td>National (non-North Carolinian) MOOC-Ed participant</td>
<td></td>
</tr>
<tr>
<td>International MOOC-Ed participant</td>
<td></td>
</tr>
</tbody>
</table>

All participants were selected through purposeful sampling using maximum variation specifically because of their demographic profile and course completion status of the Coaching Digital Learning course. Merriam and Tisdell (2016) described maximum variation as “purposefully seeking variation or diversity in sample selection to allow for a greater range of application of the findings by consumers of the research” (p. 259). I used criteria based on Table 1 to select diverse study participants. According to Creswell (2013), “a case study is a good approach when the inquirer has clearly identifiable cases with boundaries and seeks to provide an in-depth understanding of the cases or a comparison of several cases” (p. 100). The case had clearly defined boundaries because the Coaching Digital Learning MOOC-Ed participants successfully completed the course requirements. Sixteen participants agreed to complete the study based on the requirements of receiving a certificate of completion. Sandelowski (2000) explained “…the ultimate goal of purposeful sampling is to obtain cases deemed information-rich for the purposes of study” (p. 338). The site selection for this study was a virtual environment. Two virtual groups of the CDL MOOC-Ed completers consisted of embedded units of analysis. I selected the virtual environment because the CDL MOOC-Ed was an online course with national and international web-based participants.

**Questionnaires**

The first data collection method was questionnaires. The terms questionnaire and survey will be used interchangeably throughout this section. Groves et al. (2004) explained that "the
survey is a systematic method for gathering information from (a sample of) entities for the purpose of constructing quantitative descriptors of the attributes of the larger population of which the entities are members" (p. 4). Questionnaires have some quantitative descriptors. However, surveys/questionnaires serve as an effective data collection strategy. Jansen (2010) argued that the term “survey” has a reference to the study of a particular population and its members. Questionnaires provided the data that informed the study and provided demographic information about study participants.

Vogt, Gardner, and Haeffle (2012) explained five important criteria to decide if a survey is needed in research design. The first survey criteria listed by Vogt et al. (2012) was when the information researchers seek is “best obtained directly from the respondents” (p. 16). The demographic information such as employment status and age were obtained by directly questioning the MOOC participants. Second, survey data can be answered briefly with structured questions (Vogt et al., 2012). The Coaching Digital Learning MOOC-Ed instrument was a brief demographic/background questionnaire that was filled out quickly. Third, surveys can be used when “you can expect respondents to give you reliable information” (Vogt et al., 2012, p. 16). The questionnaire was based on background information retrieved about each study participant. The questions asked MOOC-Ed completers for demographic information that was accurate. Fourth, survey designs are useful when the researcher knows how responses will be used (Vogt et al., 2012). The demographic survey/questionnaire responses helped select study participants with purposeful sampling. Fifth, surveys are useful when an adequate response rate is expected (Vogt et al., 2012). The questionnaire response rate was relatively high because these individuals are “course completers” with high self-efficacy and self-determination. Jansen (2010) explained a pre-structured survey should be guided by a structured protocol for
questioning. The interview protocol guide complemented the electronic surveys which was sent to the sample of MOOC-Ed participants.

The Coaching Digital Learning MOOC-Ed participants who successfully completed the course were surveyed. These participants were being surveyed because only individuals who completed the course were able to answer and describe drivers, barriers, and strategies for completing the six-week MOOC-Ed. These MOOC-Ed participants were also able to describe how their professional practice changed upon completion of the Coaching Digital Learning MOOC-Ed. The participants were identified in the questionnaire through their name and email address. Once the MOOC-Ed participant agreed to participate in the study, during the interview I asked the study participant to provide a pseudonym (false name). This pseudonym followed the study participants throughout the surveys and interviews. Once the pseudonym was selected by the study participant, I changed the name on the questionnaires and all documents related to the study participant with the new pseudonym.

Interviews

The second data collection strategy that I used were interviews. Vogt et al. (2012) explained “surveys and interviews can tap different aspects of social life, and they usually ask different questions” (p. 33). The interview questions in the study were different from the questionnaire. Merriam and Tisdell (2016) explained that “interviewing is also the best technique to use when conducting intensive case studies of a few selected individuals” (p. 108). I used purposeful sampling to select participants who provided a variety of perspectives. According to Bishop-Clark and Dietz-Uhler (2012), interviews provide researchers an opportunity to understand the participant perspective. The population of CDL MOOC-Ed participants who completed the course in Spring 2016 was 63 participants. In addition, the CDL
MOOC-Ed participants that completed the course in Spring 2017 was 71 participants. I had purposeful sampling by selecting study participants based on five demographic criteria including world region. The maximum variation criteria explained in Table 1 was my selection criteria. The diverse attributes and perspectives of participants brought a variety of responses to the MOOC interview questions. The population sample was Coaching Digital Learning MOOC-Ed participants who completed the course. The number of case study participants recommended by Creswell (2013) is five participants. To sufficiently retrieve the information necessary for the study, I added to Creswell’s recommendation by interviewing 16 study participants (half of the study participants were Spring 2016 completers and the other half were Spring 2017 completers). Guest, Bunce, and Johnson (2006) explained that if the research “…aim is to understand common perceptions and experiences among a group of relatively homogenous individuals, twelve interviews should suffice” (p. 79). Sixteen interviews with the MOOC-Ed participants who completed the Coaching Digital Learning provided the necessary descriptive data for the study.

Patton (2002) suggested that interviewing is necessary to obtain information that researchers cannot observe. Consequently, I had a standard open-ended interview protocol that guided each interview. Patton (2002) also explained that “qualitative interviewing begins with the assumption that the perspective of others is meaningful, knowable, and able to be made explicit” (p. 341). The perspectives of the educators who participated in the Coaching Digital Learning course were meaningful and provided guidance for future online professional development.

During the interviews, there was an interview guide that had the questions listed to allow participants to respond to similar questions. Specifically, “an interview guide is prepared to
ensure that the same basic lines of inquiry are pursued with each person interviewed” (Patton, 2002, p. 343). The semi-structured format with an interview guide allowed for consistency and probing of study participants when necessary during the interview process. Several characteristics of a standard open-ended interview existed. Patton (2002) explained that all interview questions are determined prior to the interview, and the same basic questions are asked to all interview participants in a standardized open-ended interview. The interviews lasted approximately forty-five minutes to one hour.

All study participants were given the same questionnaire and semi-structured interview questions with probing. Probing is used to “deepen the response to a question, increase the richness and depth of responses, and give cues to the interviewee about the level of response that is desired” (Patton, 2002, p. 372). Within the interview section, I conducted member checks with the participants of the study. Interview notes were written during the interview. All phone call interviews were recorded using NoNotes.com. I selected NoNotes.com because they specialize in dissertations and delivering accurate and secure transcripts. In addition, the process of setting up and retrieving transcripts was a seamless process. I created an account, and then I called the NoNotes.com 800 number and selected record the call. The call/interview was recorded when I dialed the interview participant’s number. Once the interview ended, the transcription process began, and the audio uploading process began. The transcripts were delivered to my email address, and I imported the transcripts into NVivo for coding.

All online web conference interviews were recorded, as well. Some study participants chose to conduct the interview via web conference, and I used the WebEx conference tool. I selected the WebEx conference tool because I was familiar with this tool and it has recording capability that can be easily transcribed. I emailed the interview participants a link to my
personal WebEx room, and I recorded the interview within WebEx. I uploaded the WebEx
interview file into Scribie.com, paid for the transcription service, and downloaded the transcript.
I selected Scribie.com for the WebEx transcription service because they also specialize in
academic transcripts and have the capability to transcribe a WebEx file. Member checks and
recording the interviews assisted with reliability and validity because member checking allowed
participants to review interview transcripts to guarantee accuracy.

Document Analysis

Document analysis was important while researching the Coaching Digital Learning
MOOC-Ed. Common forms of document data collection included “records, documents,
artifacts, and archives” (Patton, 2002, p. 293). I used discussion posts, unit artifacts,
Instructional Technology Coaching Action Plan, and end of course surveys as documents. Vogt
et al. (2012) explained that once the study population has been selected, sampling among the
records will occur. Many pieces of documentation about the MOOC-Ed from the Friday
Institute were available via its online website and information from conference presentations.
Many programs such as MOOC-Ed have program records that provide a “behind-the-scenes
look” at how a specific program came into existence (Patton, 2002). This information and
additional information about MOOC-Ed and the Coaching Digital Learning course helped with
answering the four research questions. Also, Creswell (2013) recommended that researchers
keep a journal throughout the research process. A research study journal allowed me as the
researcher to reflect on my thoughts and the research process through notetaking and questions
on each interview protocol.

Additionally, document analysis provides a “…look at the program that may not be
directly observable and about which the interviewer might not ask appropriate questions without
the leads provided through documents” (Patton, 2002, p. 307). Document analysis served as an additional data collection strategy that helped develop the interview protocol. Document analysis was useful when paired with additional data collection methods which was a triangulated approach. The documents that were analyzed were required by the Friday Institute to successfully “complete” the course and receive a MOOC-Ed certificate of completion. These pieces of documentation primarily supported descriptions about how professional practice was changed after the Coaching Digital Learning MOOC-Ed. The Friday Institute’s requirements for completion included:

- Discussion posts (six or more)
- Unit activity artifacts (two or more)
- Coaching Digital Learning MOOC-Ed End-of-Course survey
- Instructional Technology Coaching Action Plan

**Data Collection Strategies**

Case studies should have multiple forms of data collection. The data collection methods for this study were interviews, electronic questionnaires, and document analysis. These three methods reduced the potential for bias through the use of triangulation. Interviews provided information about participant feelings and perceptions (Patton, 2002), specifically about the drivers, barriers, and strategies to complete the Coaching Digital Learning MOOC-Ed.

Interviews, surveys, and document analysis are common types of data collection strategies. Each data collection strategy helped inform the research study and address the research questions. Corbin and Strauss (1990) challenged researchers to explicitly provide procedural steps in qualitative research. The procedures section provides clear and explicit data collection steps used in this study.
Procedures for Data Collection

Procedure 1. Identifying the necessary information “gate keepers” was the first step in the MOOC-Ed study. The North Carolina Friday Institute delivers the Coaching Digital Learning course. Therefore, Friday Institute research associates had MOOC-Ed data and contact information for participants who completed the Coaching Digital Learning course in Spring 2016 and Spring 2017. Prior to collecting data for my study, I conducted a pilot study to “test” and validate my interview protocol. There was a pilot test of the interview questions with two individuals who have completed a MOOC-Ed course (not the Coaching Digital Learning MOOC-Ed course) in Spring 2017.

I recruited for my pilot study via email. I emailed MOOC-Ed completers from the Spring 2017 Teaching Statistics Through Data Investigations, Teaching Mathematics with Technology, and Disciplinary Literacy for Deeper Learning MOOC-Eds (not the Coaching Digital Learning MOOC-Ed). In the email invitation to members of the pilot study population (not the final study population), there was a link to the online survey. I selected the first two individuals that completed the questionnaire and agreed to the pilot study interview. There was a $25 eGift card incentive to participate in the pilot study. I sent a follow up email with the interview transcript. The transcripts were de-identified and were sent in a generic email that would not identify the recipient of the email as the participant in the transcript. After pilot testing, the interview questions were reworded with revisions. The revisions to the interview protocols were submitted to the IRB as an amendment request prior to implementation.

After final IRB approval, I wrote down my responses to the interview questions so that I understood my biases before conducting my research study (I was a MOOC-Ed completer in 2015). Understanding my biases through answering the research questions impacted the validity
and reliability of my study through bracketing. For my final study, the Friday Institute research associates provided MOOC-Ed data and contact information for participants who completed the Coaching Digital Learning (CDL) course in Spring 2016 and Spring 2017. In the email invitation to members of the CDL study population there was a link to the online survey/questionnaire. The questionnaire was created in Qualtrics (Appendix B). The Friday Institute provided enrollment and completion data for the Spring 2016 and 2017 Coaching Digital Learning MOOC-Ed. In Spring 2016, 63 participants completed the course out of approximately 924 individuals who initially enrolled. In Spring 2017, 71 participants completed the course out of approximately 704 registrants.

I used two different recruitment strategies to increase the number of study participants. The two recruitment strategies consisted of emailing CDL MOOC-Ed completers and using Twitter to encourage study participation. I contacted all 63 participants and 71 participants from Spring 2016 and Spring 2017 with an email and questionnaire link (Appendix B and Appendix D). In addition, I used the CDL Twitter hashtag #CDL_MOOCEd and sent a tweet with less than 140 characters to promote study participation from Spring 2016 and 2017 completers. To send the tweet, I used my @crleerus Twitter account. I emailed all 63 and 71 for a total of 134 MOOC-Ed completers to receive demographic data and address the participant’s willingness to participate in the study. There was a goal to receive a minimum of 16 interviews. The goal was achieved by eight completers of the Spring 2016 CDL MOOC-Ed and eight completers of the Spring 2017 CDL MOOC-Ed agreeing to participate in the study.

Procedure 2. For this study, I proceeded with data collection by contacting (through email and phone call/web conference) the Coaching Digital Learning MOOC-Ed participants who completed the course and agreed to participate in the study. The participant selection
process was based on a diverse cross-section of the MOOC completer population. The selection was based on five criteria. However, I did not need to use selection criteria because there were exactly 16 participants that agreed to participate in the study. I was able to determine age, education level, employment status and world region directly from the demographic questionnaire. Maximum variation existed within the study participant group due to their demographic differences in age, educational attainment, employment, and world region. Participants from different world regions were included; I selected study participants from North Carolina, from another state outside of North Carolina, and an international study participant. Once the MOOC participants agreed to contribute to the research, they were emailed the form for informed consent for research. All forms were completed and returned prior to participation in the study.

**Procedure 3.** Interviews were conducted for each MOOC-Ed participant who returned informed consent in the final study with Coaching Digital Learning MOOC-Ed completers. The majority of the interviews lasted 45-60 minutes per study participant. The interviews were conducted through telephone or web conference and the interview questions were semi structured. Following the interviews, each telephone interview recording was sent to the transcription service, NoNotes.com. Each web conference interview recording was sent to the transcription service, Scribie.com. As the researcher, I also checked the transcripts for accuracy and then sent the transcripts to the interview participants to guarantee accuracy (member check). In the same email, I told final study participants that the Amazon eGift card would be delivered to their email address. I attached the transcript within the email. Transcripts were de-identified and sent in a generic email that would not identify the recipient of the email as the participant in the transcript.
Procedure 4. After the questionnaire and interviews were completed, document analysis was used to triangulate the study. I emailed the transcripts to the interview participants to member check for accuracy and send the Amazon eGift card for participation in the study. Next, I obtained documentation from Coaching Digital Learning MOOC-Ed. The documentation included artifacts for each Coaching Digital Learning MOOC-Ed participant:

- Discussion posts (six or more)
- Unit activity artifacts (two or more)
- Coaching Digital Learning MOOC-Ed End-of-Course survey
- Instructional Technology Coaching Action Plan

Procedure 5. The questionnaire results, interview transcriptions, and documentation were input into NVivo. NVivo organized the data and assisted with analyzing all of the study documentation. The NVivo software also helped create themes after I manually coded. Code families were created, and the data analysis process continued until saturation of data findings occurred. Within NVivo, I searched for terms and specific text to identify word count/frequency Figure 3 visually explains the phase, procedure, and product of the case study adapted Ivankova, Creswell and Stick (2006).

Data Analysis

Qualitative data analysis involves “organizing the data, conducting a preliminary read through of the database, coding and organizing themes, representing the data, and forming an interpretation of them” (Creswell, 2013, p. 179). The data analysis process was inductive and deductive. Patton (2002) explained that using structured questionnaires “…requires a deductive approach because items must be predetermined based on some theory or preordinate criteria” (p. 56). There were several structured questions (yes, no, or other) in the demographic
questionnaire. In contrast, the open-ended interview questions with probing provides an inductive approach (Patton, 2002). During the Coaching Digital Learning MOOC-Ed data analysis, multiple coding methods were used to analyze the data. I used the constant comparative method to analyze my data by using three coding cycles.

---

**Figure 3.** Visual model for qualitative sequential design. Adapted from “Using Mixed-Methods Sequential Explanatory Design: From Theory to Practice” by N. Ivankova, J. Creswell and S. Stick, *Field Methods, 18*(3), p. 3-20. Copyright by the 2006 Sage Publications.

“The constant comparative method involves systematically examining and refining variations in emergent and grounded concepts” (Patton, 2002, p. 239). A priori coding was the first that I used to analyze the data. Saldaña (2013) acknowledged that in certain studies, methodologists
recommend a priori coding which means creating a list of codes to guide the analysis process with the theoretical/conceptual framework. Table 2 explains the a priori coding scheme which includes the theory (self-efficacy principles, self-efficacy processes, and self-determination continuum), analyzing component, and markers.

Table 2

*Coding Scheme Based on Self-Efficacy and Self-Determination*

<table>
<thead>
<tr>
<th>Self-Efficacy Principles (Bandura)</th>
<th>Analyzing Component</th>
<th>Markers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastery Experiences</td>
<td>ME</td>
<td>Online PD course completion</td>
</tr>
<tr>
<td></td>
<td>Accomplished online PD or MOOC completion</td>
<td></td>
</tr>
<tr>
<td>Vicarious Experiences</td>
<td>VE</td>
<td>Knowledge of individuals that have taken or completed a MOOC or MOOC-Ed</td>
</tr>
<tr>
<td></td>
<td>Knowledge of individuals that have taken a MOOC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Knowledge of individuals that have completed a MOOC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Knowledge of individuals that have taken a MOOC-Ed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Knowledge of individuals that have completed a MOOC-Ed</td>
<td></td>
</tr>
<tr>
<td>Social Persuasion</td>
<td>SP</td>
<td>Encouraged to continue participation and complete MOOC-Ed</td>
</tr>
<tr>
<td></td>
<td>Family/Friend encouragement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Co-worker encouragement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CDL MOOC-Ed facilitator encouragement</td>
<td></td>
</tr>
</tbody>
</table>
A priori coding was used with the grounded concepts of Bandura’s self-efficacy theory and Deci and Ryan’s self-determination theory for a pre-structured code list. Eclectic (open) coding was a coding cycle used in this study. This coding method was considered a type of open coding by Glaser and Strauss (1967). Finally, magnitude coding was another coding cycle used in the MOOC-Ed study. I used magnitude codes to ensure that my data results were not quantitatively descriptive. Magnitude coding was necessary to analyze and code research questions one and two about drivers and barriers/challenges to MOOC-Ed completion. Therefore, using magnitude codes “consists of and adds a supplemental alphanumeric or symbolic code or subcode to an existing coded datum or category to indicate its intensity, frequency, direction, presence, or evaluative content” (Saldaña, 2013, p. 72). Table 3 represents the presence or absence of information within a category (Saldaña, 2013).

### Table 2 (continued)

<table>
<thead>
<tr>
<th>Physiological and Emotional states</th>
<th>PES</th>
<th>Strategies to minimize stress and increase mood when encountering a barrier or challenge within MOOC-Ed</th>
<th>PES1</th>
<th>Minimize stress</th>
<th>PES1a</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Self-Determination (Deci/Ryan)</th>
<th></th>
<th>Analyzing Component</th>
<th>Markers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amotivation</td>
<td>AM</td>
<td>Not motivated</td>
<td>AM1</td>
</tr>
<tr>
<td>Intrinsic Motivation</td>
<td>IM</td>
<td>Internally motivated</td>
<td>IM1</td>
</tr>
<tr>
<td>Extrinsic Motivation</td>
<td>EM</td>
<td>Externally motivated</td>
<td>EM1</td>
</tr>
</tbody>
</table>

A priori coding was used with the grounded concepts of Bandura’s self-efficacy theory and Deci and Ryan’s self-determination theory for a pre-structured code list. Eclectic (open) coding was a coding cycle used in this study. This coding method was considered a type of open coding by Glaser and Strauss (1967). Finally, magnitude coding was another coding cycle used in the MOOC-Ed study. I used magnitude codes to ensure that my data results were not quantitatively descriptive. Magnitude coding was necessary to analyze and code research questions one and two about drivers and barriers/challenges to MOOC-Ed completion. Therefore, using magnitude codes “consists of and adds a supplemental alphanumeric or symbolic code or subcode to an existing coded datum or category to indicate its intensity, frequency, direction, presence, or evaluative content” (Saldaña, 2013, p. 72). Table 3 represents the presence or absence of information within a category (Saldaña, 2013).
Table 3

*Magnitude Coding Scheme*

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>PRESENT</td>
</tr>
<tr>
<td>O</td>
<td>ABSENT</td>
</tr>
<tr>
<td>!</td>
<td>UNKNOWN OR UNCLEAR</td>
</tr>
<tr>
<td>Y</td>
<td>YES</td>
</tr>
<tr>
<td>N</td>
<td>NO</td>
</tr>
<tr>
<td>M</td>
<td>MAYBE</td>
</tr>
</tbody>
</table>

I analyzed data using magnitude coding to provide an additional descriptive layer to the data analysis process. Additionally, I purchased NVivo software to store documents, interview transcripts and questionnaire responses and assist with coding and theme generation. Patton (2002) explained that the challenge of collecting large amounts of data in a qualitative study is transforming the data into findings with patterns and themes. The NVivo software helped create codes and categories graphically (Creswell, 2013). NVivo was useful because it stored all data such as interview transcripts, scanned or imported PDF documents from the Friday Institute, and questionnaires as I progressed through my three coding cycles.

According to Sandelowski (2000), “qualitative content analysis is similarly reflexive and interactive as researchers continuously modify their treatment of data to accommodate new data and new insights about those data” (p. 338). The data analysis in the MOOC-Ed study involved computer software NVivo. Additionally, software such as NVivo can graphically depict codes and categories within the data (Creswell, 2013). Developing codes and themes was my primary focus of data analysis. Coding was understood as the process of putting text and/or visual data into categories of information from various research study databases then developing a label to code each category (Creswell, 2013). I used NVivo to store data, complete coding, and create categories of codes to describe the case study. Limiting the amount of codes was important. A
list of codes should be between approximately 25-30 tentative codes (Creswell, 2013). The open
code names within my study were In Vivo codes or words directly used by study participants in
interviews, surveys, and document analysis. These codes allowed me as the researcher to
collapse the codes into case study themes.

While developing the data collection codes, I took the study information apart and
created dimensions of information known as themes (Creswell, 2013). My goal was to have the
recommended number of themes to make my research study manageable and to help draw useful
conclusions of the study. Creswell (2013) also recommended classifying five to seven overall
themes. I used common ideas to explain similarities and differences between the cases and draw
study conclusions. Kaplan and Maxwell (2005) explained how using visual representations such
as tables and figures serves the purpose of data presentation and data reduction. These strategies
were used to approach MOOC-Ed data analysis

**Questionnaire data analysis.** The demographic questionnaire and end-of-course survey
from the Friday Institute were analyzed in NVivo. I input the Coaching Digital Learning
MOOC-Ed (demographic) questionnaire into NVivo to find commonalities with the study
participants based on their demographic questionnaire responses. Codes were determined
through NVivo as differences in questionnaire/surveys were recognized. The similarities and
differences (constant comparative method) in the questionnaire responses were illuminated
through magnitude coding.

**Interviews data analysis.** According to Patton (2002), “case analysis involves
organizing the data by specific cases for in-depth study and comparison” (p. 447). The data
(interview transcripts) received from the participants were imported into NVivo for the three
cycles of coding. During my first coding cycle, I used a priori coding, which are codes generated
from the literature review (self-efficacy theory and self-determination theory). Next, magnitude
coding was used with the interview transcripts to understand presence or absence of specific
information during the interview. Finally, I used eclectic coding (open coding) to understand
which codes emerged from the transcript.

Next, Kaplan and Maxwell (2005) suggested for the qualitative researcher to take written
memos to stimulate reflection and insight. I used this strategy of memoing when interviewing
MOOC-Ed participants. Creswell (2013) explained that case study data should be classified into
codes and themes thorough categorical aggregation. In the Coaching Digital Learning MOOC-Ed
study, I used NVivo software to assist with data storage and coding, selecting
themes/patterns, and category creation during my three coding cycles. Maxwell (1992) stated,
“Generalizability refers to the extent to which one can extend the account of a particular situation
or population to other persons, times, or settings than those directly studied” (p. 293).
Generalizations were explained in the conclusion section of the dissertation. Visual
representations such as tables and figures explained the Coaching Digital Learning MOOC-Ed
interview results and were included in the findings to assist with the explanation of case data.

**Document data analysis.** I used the same three coding cycle methods to analyze
documents. First, I used the a priori coding structured list based on my two theoretical
frameworks. Next, I used magnitude coding then eclectic (open) coding. The documentation
from the research study was input into NVivo. I imported the documents into the software
system. Specifically, I selected the “analyze” tab in NVivo, selected “code,” and then typed in
code names. To create themes, I selected the “create” tab in NVivo and selected “node” to type a
theme name that has been generated from codes. The NVivo tool was useful to generate
concepts, categories, and themes (Hilal & Alabri, 2013). NVivo served as the primary data analysis research tool.

**Statement of Positionality**

In the Spring 2015 semester, I (the researcher) enrolled and participated in the Coaching Digital Learning MOOC-Ed. I participated in the six-week course, completed the course, and received a certificate of completion. Patton (1999) explained three related elements that assist with credibility in qualitative research: rigorous data collection methods, the credibility of the researcher, and belief in the significance of qualitative inquiry. The statement of subjectivity was specifically important to establish the credibility of the researcher. Patton (1999) expressed the value of “the credibility of the researcher, which is dependent on training, experience track record, status, and presentation of self” (p. 1190). The study design included validity and reliability strategies to assist with eliminating bias in the research study.

**Validity and Reliability**

Validity and reliability were important considerations when designing a research study. Due to my position as the researcher and Coaching Digital Learning MOOC-Ed participant, I was able to “Bracket” (avoiding assumptions, biases, and prejudices) my experiences as an educator for 10 years and MOOC-Ed completer to strengthen validity and reliability of the study. Merriam and Tisdell (2016) identified two methods of bracketing: to write about the phenomenon experiences under study and for the researcher to “be interviewed by a colleague in order to ‘Bracket’ their experiences prior to interviewing others” (p. 113). I answered the same interview questions with the same interview protocol before interviewing study participants to bracket and ensure validity and reliability. Merriam and Tisdell (2016) explained the importance of providing reliability and validity in a research study in an ethical manner. All MOOC-Ed
study participants had institutional review board (IRB) informed consent signed prior to participation as a human subject in the research study. In this case study, validation strategies such as triangulation occurred. Triangulation of data with surveys, interviews, and document analysis assisted with validity of the study. After triangulating the data, the analysis stage included using a priori coding then open coding to identify codes and themes.

According to Maxwell (1992), reliability refers to addressing validity threats. Research studies should also provide reliability. Merriam and Tisdell (2016) described reliability as the findings in the research study that can be replicated by other researchers. Creswell (2013) explained that “reliability can be enhanced if the researcher obtains detailed field notes by employing a good-quality tape for recording and by transcribing the tape” (p. 253). During the research study, field notes were taken during the interviews, and interviews were recorded for transcription. Member checking interview transcripts also provided study reliability. Merriam and Tisdell (2016) provided eight strategies to promote validity and reliability. One of the eight strategies was maximum variation which has been applied in this study through the study participant demographic differences (age, education level, gender, employment status, and world region). Kaplan and Maxwell (2005) also explained five strategies to insure validity. These strategies include, “(1) collecting rich data, (2) paying attention to puzzles, (3) triangulation, and (4) feedback or member checking and (5) searching for discrepant evidence and negative cases” (p. 44). This methodology chapter addressed the eight strategies to ensure that this study is conducted ethically and with appropriate validity/reliability.

This research study also included trustworthiness. Shenton (2004) explained there are four criteria that can be used to address Guba’s (1981) guidelines for trustworthiness. The quality criterion included credibility, transferability, dependability, and confirmability.
Credibility tactics were used by providing member checks with study participants to assist with interview response accuracy. Shenton (2004) described transferability as “provision of background data to establish context of study and detailed description of phenomenon in question to allow comparisons to be made” (p. 73). Within this study, the background describing MOOCs was presented in Chapter 1, and a detailed literature review was provided in Chapter 2. Dependability of this study was outlined through detailed methodological descriptions in Chapter 3 that also allows for repeatability of the study. This study also provided confirmability through triangulation methods to help reduce researcher bias and increase study trustworthiness.

**Conceptual and Methodological Assumptions**

Several theoretical/conceptual assumptions about massive open online courses exist. The first assumption was understanding that massive open online courses (MOOC) typically have low completion rates. Therefore, the number of participants that were used for purposeful sampling was limited. However, this limitation did not have a negative impact on the research study because I delimited the study participants to individuals who successfully completed the Coaching Digital Learning MOOC-Ed. Selecting a relevant twenty-first century topic such as MOOCs as a researchable topic was an additional assumption. Massive open online courses used for professional development are a relatively new area of study. This study will contribute to the current MOOC body of available literature.

As the researcher, I had several methodological assumptions entering the Coaching Digital Learning MOOC-Ed research study. Patton (2002) explained that within basic research, a key assumption is the understanding that “the world is patterned, these patterns are knowable and explainable” (p. 224). The design of this study was a case study; it was my goal to find patterns and themes within the cases during data analysis. I held the assumption that qualitative
research is a scholarly accepted research methodology. Patton (2002) stated that the “philosophical belief in the value of qualitative inquiry, that is, a fundamental appreciation of naturalistic inquiry, qualitative methods, inductive analysis, purposeful sampling, and holistic thinking” (p. 573). Quantitative and mixed method research studies should be held with a comparable value as a well-designed qualitative research study.

Patton (2002) explained that rigorous methods should be used in a qualitative study to promote credibility of a study. Interviews, document analysis, and questionnaire strategies were used for triangulation to assist with creating a rigorous study. The internal validity of the study reduced researcher bias. Consequently, Bernard and Ryan (2009) recommended that researchers follow five guidelines to provide a constant validity check. These guidelines included watching for disagreements between informants, checking study participant accuracy, acknowledging and welcoming negative evidence, continually looking for alternative explanations/reasons for a phenomenon, and trying to “fit” any negative cases into your theory (Bernard & Ryan, 2009). Additionally, a study should have credibility by using consistent methods, and the research should utilize high ethical standards when conducting, analyzing, and reporting research.

**Summary**

Qualitative case study methodology was used to describe the drivers, barriers, and strategies to complete the Coaching Digital Learning MOOC-Ed professional development. The case study design uncovered descriptions about how MOOC-Ed completers changed their professional practice after the course. Three types of data collection methods were used to provide answers and descriptions to the research questions. Questionnaires, interviews, and document analysis were the data collection methods in this research study. Purposeful sampling occurred by emailing the demographic questionnaire to all 63 and 71 MOOC-Ed participants

Interviews were conducted and transcribed with individuals who agreed to participate in the study through a choice of interview, telephone call or web conference. Data analysis occurred through a priori coding, eclectic (open) coding, and magnitude coding in NVivo (data analysis software). All questionnaire responses, interview transcripts, and documents were input into NVivo to identify codes and themes.
CHAPTER 4: FINDINGS

Introduction

The purpose of this study was to describe the drivers and catalysts, barriers and challenges, and strategies used to complete a MOOC. In addition, descriptions of how MOOC-Ed participants changed their practices at work after the Coaching Digital Learning (CDL) MOOC-Ed were also revealed. Four research questions were used to guide the study: 1. What drivers and catalysts do course completers report encountering in their journey to complete the Coaching Digital Learning MOOC-Ed? 2. What barriers and challenges do course completers report encountering in their journey to complete the Coaching Digital Learning MOOC-Ed? 3. What strategies do course completers report that enabled them to successfully complete the Coaching Digital Learning MOOC-Ed? 4. To what extent do course completers make changes in practice after the Coaching Digital Learning MOOC-Ed?

To provide detailed descriptions about MOOC-Ed completion, it was necessary to have adequate participation within the study to uncover reliable and valid findings. The questionnaire data helped recruit study participants and provided demographic information about the participants. The demographic questionnaire was created in Qualtrics, and a link to the questionnaire was emailed to all Spring 2016 and Spring 2017 CDL MOOC-Ed completers. The questionnaire served as a gateway to study participation. Completers that were interested in a follow up interview provided their email address and indicated their preferred interview communication method (telephone interview or web conference interview).

Sixteen MOOC-Ed completers agreed to schedule and complete a semi structured interview. Once study participants were selected, the Qualtrics questionnaire was imported into NVivo, and the questionnaire was analyzed with magnitude coding. The magnitude coding
structure had six possible codes: present, absent, unknown or unclear, yes, no, and maybe. Each demographic questionnaire response was coded accordingly. Study participant interviews were conducted in November and December of 2017.

The 16 study participants had a choice of phone interview or web conference interview. Nine study participants were interviewed via telephone, and seven study participants were interviewed via WebEx. The interview protocol had 10 semi-structured questions that gained responses from each of the participants (Appendix C). The interviews were transcribed, and the interview transcripts were input into NVivo for data analysis. All interview transcripts were analyzed through a priori coding with theoretical frameworks (self-efficacy theory and self-determination theory) as the guide, magnitude coding, and open/eclectic coding. The documents from the Coaching Digital Learning MOOC-Ed were also used to support information provided within interviews. The detailed coding structure and analysis process is described in Chapter 3.

Participant Overviews

In this study, eight participants were from the Spring 2016 Coaching Digital Learning (CDL) MOOC-Ed, and eight participants were from the Spring 2017 CDL MOOC-Ed. The study participant ages ranged from less than 26 years old to greater than 55 years old. There were 14 female and two male participants. There was a wide range of education levels. Three study participants had completed their undergraduate degrees, 11 study participants had completed their graduate degrees, and two study participants completed terminal degrees such as a Ph. D or Ed. D. Two study participants were students in addition to being full time employees. One study participant was a part-time student, and one was a full-time student. The full-time student, “Doug,” described himself as a Ph. D candidate. The majority of participants were highly educated with 13 participants having an advanced degree. All participants were employed
full time except one participant who is retired and working as an online instructor. An overview of all study participants is described in Table 4 based on demographic information.

Table 4

Demographic Overview of Study Participants

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>CDL MOOC-Ed Completion</th>
<th>Age Range</th>
<th>Gender</th>
<th>Highest Education Level</th>
<th>World Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abigail</td>
<td>Spring 2016</td>
<td>46-55</td>
<td>Female</td>
<td>Two Graduate Degrees</td>
<td>Illinois, USA</td>
</tr>
<tr>
<td>Barbara</td>
<td>Spring 2017</td>
<td>26-35</td>
<td>Female</td>
<td>Graduate Degree</td>
<td>North Carolina, USA</td>
</tr>
<tr>
<td>Carolyn</td>
<td>Spring 2016</td>
<td>Older than 55</td>
<td>Female</td>
<td>Terminal Degree</td>
<td>Doha, Qatar</td>
</tr>
<tr>
<td>Casey</td>
<td>Spring 2017</td>
<td>36-45</td>
<td>Female</td>
<td>Undergraduate Degree</td>
<td>Florida, USA</td>
</tr>
<tr>
<td>Crystal</td>
<td>Spring 2016</td>
<td>36-45</td>
<td>Female</td>
<td>Terminal Degree</td>
<td>North Carolina, USA</td>
</tr>
<tr>
<td>Doug</td>
<td>Spring 2016</td>
<td>46-55</td>
<td>Male</td>
<td>Educational Specialist (Graduate) Degree</td>
<td>Alabama, USA</td>
</tr>
<tr>
<td>Grace</td>
<td>Spring 2016</td>
<td>26-35</td>
<td>Female</td>
<td>Graduate Degree</td>
<td>Ohio, USA</td>
</tr>
<tr>
<td>John</td>
<td>Spring 2017</td>
<td>36-45</td>
<td>Male</td>
<td>Undergraduate Degree</td>
<td>Mississippi, USA</td>
</tr>
<tr>
<td>Kanette</td>
<td>Spring 2016</td>
<td>46-55</td>
<td>Female</td>
<td>Graduate Degree</td>
<td>Texas, USA</td>
</tr>
<tr>
<td>Margaret-Leigh</td>
<td>Spring 2017</td>
<td>Older than 55</td>
<td>Female</td>
<td>Graduate Degree</td>
<td>Illinois, USA</td>
</tr>
<tr>
<td>Max</td>
<td>Spring 2017</td>
<td>46-55</td>
<td>Female</td>
<td>Graduate Degree</td>
<td>New York, USA</td>
</tr>
<tr>
<td>Nicole</td>
<td>Spring 2017</td>
<td>26-35</td>
<td>Female</td>
<td>Graduate Degree</td>
<td>North Carolina, USA</td>
</tr>
<tr>
<td>Paige</td>
<td>Spring 2016</td>
<td>36-45</td>
<td>Female</td>
<td>Graduate Degree</td>
<td>North Carolina, USA</td>
</tr>
<tr>
<td>Sarah</td>
<td>Spring 2017</td>
<td>Less than 26</td>
<td>Female</td>
<td>Graduate Degree</td>
<td>Florida, USA</td>
</tr>
<tr>
<td>Sasha</td>
<td>Spring 2017</td>
<td>36-45</td>
<td>Female</td>
<td>Graduate Degree</td>
<td>Florida, USA</td>
</tr>
<tr>
<td>Savannah</td>
<td>Spring 2016</td>
<td>Older than 55</td>
<td>Female</td>
<td>Undergraduate Degree</td>
<td>North Carolina, USA</td>
</tr>
</tbody>
</table>

Study participants lived in diverse world regions, which is typical of MOOC learners. Five study participants lived in North Carolina. The high number of North Carolinians participating in this study was likely due to the MOOC-Ed provider being North Carolina State
University. Three study participants lived in Florida, and two study participants were from Illinois. Five other states in the United States were represented in the study. Those study participants lived in Alabama, Ohio, Mississippi, Texas, and New York. There was one international participant who lived in Doha, Qatar. This participant “Carolyn” was unique due to her world region and holding a terminal degree as her highest level of education. The diverse demographics and the number of study participants provided opportunities to uncover themes and findings through maximum variation (differences/variations between the study participants).

The Spring 2016 CDL MOOC-Ed study participants were primarily employed within the field of educational technology. Five of the eight study participants in this group had the specialty area or job title of technology specialist, coach, or facilitator. These individuals were already working in the digital learning field. The other three participants in the Spring 2016 group were Reading Resource Educator, Media Specialist, and Online Instructor. “Grace” the Reading Resource Educator, was the only participant in this group that did not directly interact with digital learning/technology integration as part of her job responsibilities and duties. The years of experience in the Spring 2016 study participant group ranged from 10 to over 30 years of experience in education. Two study participants in this group, “Carolyn” and “Savannah,” both had over 30 years of experience in the education field. Table 5 explains an overview of employment for each study participant.

Table 5.

Employment Descriptions of CDL Study Participants

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Specialty Area/Job Title</th>
<th>Employment Status</th>
<th>Years of Experience</th>
<th>K-12 or Higher Education</th>
<th>Institution Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abigail</td>
<td>Instructional Technology Coach and Adjunct Instructor</td>
<td>Employed Full-time</td>
<td>20 + years</td>
<td>K-12 and Higher Education</td>
<td>Public School</td>
</tr>
<tr>
<td>Barbara</td>
<td>Spanish Teacher</td>
<td>Employed Full-time</td>
<td>5 + years</td>
<td>K-12</td>
<td>Private School</td>
</tr>
<tr>
<td>Name</td>
<td>Title</td>
<td>Employment Status</td>
<td>Years</td>
<td>Education Level</td>
<td>Setting</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------------</td>
<td>-------------------</td>
<td>-------</td>
<td>-----------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Carolyn</td>
<td>Learning Technologist</td>
<td>Employed</td>
<td>30 +</td>
<td>Higher Education</td>
<td>Technical School</td>
</tr>
<tr>
<td>Casey</td>
<td>Digital Integration Specialist</td>
<td>Full-time</td>
<td>15 +</td>
<td>K-12</td>
<td>Public School</td>
</tr>
<tr>
<td>Crystal</td>
<td>Instructional Technology Facilitator</td>
<td>Employed</td>
<td>15 +</td>
<td>K-12 and</td>
<td>Public School</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Higher Education</td>
<td></td>
</tr>
<tr>
<td>Doug</td>
<td>Educational Technology Specialist</td>
<td>Full-time</td>
<td>20 +</td>
<td>K-12</td>
<td>Public School</td>
</tr>
<tr>
<td>Grace</td>
<td>Reading Resource Educator</td>
<td>Employed</td>
<td>10 +</td>
<td>K-12</td>
<td>Private School</td>
</tr>
<tr>
<td>John</td>
<td>Technology Coordinator</td>
<td>Employed</td>
<td>10 +</td>
<td>K-12</td>
<td>Public School</td>
</tr>
<tr>
<td>Kanette</td>
<td>Instructional Technology Specialist</td>
<td>Employed</td>
<td>20 +</td>
<td>K-12</td>
<td>Public School</td>
</tr>
<tr>
<td>Margaret-Leigh</td>
<td>Instructional Technology Facilitator</td>
<td>Employed</td>
<td>25 +</td>
<td>K-12</td>
<td>Public School</td>
</tr>
<tr>
<td>Max</td>
<td>Media Specialist/Librarian</td>
<td>Employed</td>
<td>15 +</td>
<td>K-12</td>
<td>Public School</td>
</tr>
<tr>
<td>Nicole</td>
<td>Instructional Coach</td>
<td>Employed</td>
<td>10 +</td>
<td>K-12</td>
<td>Public School</td>
</tr>
<tr>
<td>Paige</td>
<td>Media Specialist/Librarian</td>
<td>Employed</td>
<td>20 +</td>
<td>K-12</td>
<td>Public School</td>
</tr>
<tr>
<td>Sarah</td>
<td>Application Support Specialist</td>
<td>Employed</td>
<td>1-5</td>
<td>K-12</td>
<td>Public School</td>
</tr>
<tr>
<td>Sasha</td>
<td>Instructional Coach</td>
<td>Employed</td>
<td>15 +</td>
<td>K-12</td>
<td>Public School</td>
</tr>
<tr>
<td>Savannah</td>
<td>Online Instructor</td>
<td>Retired</td>
<td>30 +</td>
<td>K-12</td>
<td>Public School</td>
</tr>
</tbody>
</table>

Most Spring 2016 participants worked in kindergarten-twelfth (K-12) education. Seven out of the eight study participants worked in K-12 with the exception being “Carolyn” who works in higher education. Other exceptions included two study participants who both worked in K-12 and higher education. “Abigail” and “Crystal” both worked in the K-12 environment and as adjunct instructors/professors within higher education. Six of the eight study participants worked in a public-school setting. There are two exceptions: “Carolyn” worked at a technical school, and “Grace” worked at private school. All Spring 2016 study participants had flexible work and home schedules. The amount of time allocated to online professional development
opportunities varied among participants. The weekly amounts ranged from 15 minutes to five hours. Many participants had experience in online professional development sessions or MOOCs in the past five years. However, “Paige” had only participated in one MOOC.

“Abigail” and “Crystal” had participated in two MOOCs or online professional development offerings. “Doug” and “Grace” had participated in three. “Carolyn”, “Kanette”, and “Savannah” had the most experience in online learning courses and had participated in more than six online professional development opportunities.

Five study participants had only participated in one MOOC-Ed, the Coaching Digital Learning course. In contrast, “Doug” had participated in Coaching Digital Learning in 2015. “Doug” and “Savannah” had participated in the Computational Thinking and Design MOOC-Ed in 2017. “Grace” had participated in the Teaching Foundational Reading Skills MOOC-Ed in 2017, and “Savannah” had participated in the Teaching Statistics Through Data Investigations in 2017. This information is explained in Table 6 which provides an overview of online professional development (PD) and the participant’s PD background.

The Spring 2017 participants had a variety of job titles and duties. “Nicole” and “Sasha” were both Instructional Coaches. Four Spring 2017 participants had technology related occupations such as a technology or media specialist. “Sarah” also had a job that focused on technology as an Application Support Specialist. In contrast, “Barbara” was a Spanish teacher whose job does not emphasize technology integration. The years of experience in education varied with these participants. “Sarah” had 1-5 years in the field, and “Margaret-Leigh” had more than 25 years in education. All Spring 2017 participants worked in a K-12 setting. “Barbara” taught in a private school. However, all other Spring 2017 participants worked in public schools. Participants’ employment descriptions are explained in Table 5.
There were many similarities and differences with the Spring 2017 study participants’ schedules. Four study participants described having a flexible schedule at home only. The other four participants described having both a flexible work and home schedule. Having a flexible work and home schedule can positively influence MOOC participation. The Spring 2017 participants reported various times to complete professional development opportunities. “Barbara” and “Sasha” had only participated in one online professional development offering in five years. “Margaret-Leigh” had participated in two, and multiple study participants had experienced three MOOCs or online professional development. “Max” had participated in the most online professional development (four) of the group. The online professional development descriptions for the study participants are summarized in Table 6.

**Table 6.**

*Online Professional Development Descriptions of CDL Study Participant*

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Time to work on PD opportunities (weekly)</th>
<th>MOOCs or Online PD in past five years</th>
<th>MOOC-Ed Participation (Coaching Digital Learning 2016= *) (Coaching Digital Learning 2017=**)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abigail</td>
<td>2 Hours</td>
<td>Two</td>
<td>*</td>
</tr>
<tr>
<td>Barbara</td>
<td>3 Hour</td>
<td>One</td>
<td>**</td>
</tr>
<tr>
<td>Carolyn</td>
<td>1 Hour</td>
<td>More than Six</td>
<td>*</td>
</tr>
<tr>
<td>Casey</td>
<td>1-2 Hours</td>
<td>Three</td>
<td>**</td>
</tr>
<tr>
<td>Crystal</td>
<td>2 Hours</td>
<td>Two</td>
<td>*</td>
</tr>
<tr>
<td>Doug</td>
<td>2-3 Hours</td>
<td>Three</td>
<td>*</td>
</tr>
<tr>
<td>Grace</td>
<td>1 Hour</td>
<td>Three</td>
<td>*</td>
</tr>
<tr>
<td>John</td>
<td>3-4 Hours</td>
<td>Three</td>
<td>*</td>
</tr>
<tr>
<td>Kanette</td>
<td>15 Minutes</td>
<td>More than Six</td>
<td>*</td>
</tr>
<tr>
<td>Margaret-Leigh</td>
<td>3-4 Hours</td>
<td>Two</td>
<td>**</td>
</tr>
<tr>
<td>Max</td>
<td>5-8 Hours</td>
<td>Four</td>
<td>**</td>
</tr>
<tr>
<td>Nicole</td>
<td>4.5 Hours</td>
<td>Three</td>
<td>**</td>
</tr>
</tbody>
</table>
Table 6 (continued)

<table>
<thead>
<tr>
<th>Name</th>
<th>Hours</th>
<th>Participation</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paige</td>
<td>1 Hour</td>
<td>One</td>
<td>*</td>
</tr>
<tr>
<td>Sarah</td>
<td>1-4 Hours</td>
<td>Three</td>
<td>** Teaching Mathematics with Technology 2017</td>
</tr>
<tr>
<td>Sasha</td>
<td>3 Hours</td>
<td>One</td>
<td>** Computational Thinking and Design 2017</td>
</tr>
<tr>
<td>Savannah</td>
<td>5 Hours</td>
<td>More than Six</td>
<td>* Teaching Statistics Through Data Investigations 2017</td>
</tr>
</tbody>
</table>


In-Depth Participant Descriptions

In the Coaching Digital Learning study, 16 participants completed a survey and interview. After the interviews, documentation from the Coaching Digital Learning MOOC-Ed was accessed to support the information provided by the study participants. The documentation included the Coaching Action Plan, discussion posts, and course artifacts. The next section will provide detailed information about each study participant, including a demographic overview and direct quotes from interviews. Supporting documentation is also described when relevant in the participant descriptions.

**Abigail.** Abigail is a female between 46 and 55 years old who is employed full time as an Instructional Technology Coach. She has two master’s degrees and works in an elementary
school in an urban school district in Illinois. She has 25 years of experience in education.

Abigail has participated in professional development through Twitter chats and reading books about educational technology. She stated: “I read a lot about educational technologies. So, I read a lot of books and very active in my professional learning network and also attend a lot of conferences.” Abigail has taken two MOOCs in the past five years. The Spring 2016 Coaching Digital Learning MOOC-Ed was her first MOOC. She successfully completed another MOOC after finishing the Coaching Digital Learning MOOC.

During the interview, Abigail revealed the reason she enrolled in the Coaching Digital Learning course was three-fold. First, she was interested in learning the latest trends and technology resources to share with co-workers/teachers. Second, she wanted to learn technology integration information to assist her and “drive” instruction within her university classes. Finally, Abigail enrolled in the course to increase her personal/professional learning network. Her intentions for enrolling in the Coaching Digital Learning MOOC-Ed focused on talking to other technology coaches to ensure her practices were relevant.

Abigail had several motivations to participate in the course. She stated: “The course on Digital Learning just seemed to fit my needs. It was the closest one that related to my job as a coach.” This course was relevant because she was the only technology coach in her school and her school district had a limited number of coaches within the school system. Consequently, Abigail was interested in Coaching Digital Learning because “the group title intrigued me because I knew it would put me in touch with other coaches that were in similar roles as mine.” She wanted support and a network of technology coaches that she could ask for assistance and brainstorm ideas. Abigail was not motivated to complete MOOC-Ed to obtain a certificate. She described, “It was a nice addition, but it was not a factor.” Abigail’s final thoughts about the
Coaching Digital Learning MOOC-Ed included: “I love that they’re offered for free, I thought the layout was well done and the content was up to date.” She added, “… because I had success in this first one, I was open to participating in another MOOC course with a different organization.” Abigail said the Coaching Digital Learning course met her expectations, and if another relevant course was offered, she would enroll to participate in another MOOC-Ed.

**Barbara.** Barbara is a middle school foreign language educator with seven years of teaching experience. She lives in North Carolina and works at a private school. Barbara received a master’s degree in the Northeast and was a Teaching Fellow in graduate school. She does not have a flexible work schedule but has a flexible home schedule to participate in professional development. She had participated in several webinars as online PD prior to MOOC-Ed.

During the interview, Barbara explained her intentions for enrolling in the Coaching Digital Learning MOOC-Ed. She described the positive and negative aspects of MOOC-Ed enrollment and participation:

I was hoping to meet up with the other teachers who are also working on it. Because when we did our action plan or coaching action plan, I believe, I had started a group one, the collaborative one. I ended up doing the whole thing by myself. But I intended for it to be something I did with the team.

Despite her negative team experience, Barbara managed to complete the course. Barbara explained the check boxes within the design of the MOOC-Ed helped her stay on task to motivate her course completion. She said, “I have to have everything checked.” The check boxes served as a motivation strategy. Another motivation strategy was receiving feedback. She said, “We know that somebody was looking at my work and getting specific feedback on the
things that I was doing is the biggest motivator in actually completing the MOOC-Ed.” The feedback from the MOOC-Ed participants or facilitators proved to encourage course persistence.

In the interview, Barbara also explained how the course exceeded her expectations: “I would say it exceeded expectations to some extent and then I wasn’t expecting to be of collaborative as it was with other participants.” Barbara also said the course completion certificate was motivation to enroll and complete the course. She said the MOOC-Ed completion certificate is still hanging up in her office.

**Carolyn.** Carolyn is a 64 year-old female who is employed full time. She has a Ph.D. and lives in Doha, Qatar. Carolyn is the only international participant in this study; therefore, she provides a global perspective. She has 20-25 years of experience in Educational Technology (Ed Tech) at a university/college level. Carolyn has a flexible schedule that allows her to work on a MOOC at home, though, sometimes her work schedule does not permit time to work on a MOOC. Carolyn has participated in more than six MOOCs over a five-year period. She stated: “I often sign up and do MOOCs. I don't always complete all the assignments. Sometimes I just troll them for information or tools that are useful for me or my institution.” Her focus is to look for ideas in MOOCs through courses such as MOOC-Ed and other MOOC providers.

Carolyn had several reasons for enrolling in the course. She said “It was from a reputable source. It looked well organized and I had the options to do it for free, because I don't care about a certificate personally.” Carolyn participated in the course because of the relevance: “I work as a digital coach and I wanted to know if there was any way I could improve what I do or learn about new coaching techniques or tools.” Due to Carolyn’s education level and working in technology within higher education, she had an interesting understanding about MOOCs:
I think there's been a lot of talk about the value for educational institutions of producing MOOCs. A lot of big names jumped on at the beginning. And I bless their hearts for doing so, because they've given a lot to me. But I know they're not getting anything back from me. I'm not paying for their courses. Students who join their programs or pay… I think that MOOCs are going to pass away. That's just a personal opinion but a lot of institutions have decided not to create MOOCs because of the intensive requirements to produce a good one. You can't produce a goofy one or a poorly designed one. It has to be professional.

Carolyn’s insight about MOOCs and MOOC providers was an interesting perspective. Her statement about MOOCs speaks to the importance of instructional design in a high-quality MOOC.

Casey. Casey is a Digital Integration Specialist with more than 15 years in the education field. She works in a public-school setting in Florida. Casey has an undergraduate degree and is currently a part-time student pursuing a graduate degree. She described her work and home schedule as flexible with an average of one to two hours a week to work on professional development opportunities. Casey has participated in three MOOCs or online professional development sessions over the past five years.

The Coaching Digital Learning MOOC-Ed was the first MOOC that she completed. She worked on a team with colleagues that started a MOOC but did not finish. Casey said, “We had actually tried a Coursera one and didn't like it, didn't feel it was structured very well.” The team members were searching for other professional development MOOCs after they dropped out of the Coursera MOOC. Casey explained how the team learned about MOOC-Ed: “So it was actually just online searches, is how we found this MOOC-Ed.” Casey’s supervisor was a driver
of MOOC-Ed enrollment and participation. She said, “So we had a directive from our immediate supervisor, that we needed professional development, and we needed some guidance in our roles.” The MOOC-Ed provided the team and Casey skills to help their constituency with technology integration.

Casey also explained her additional motivation for MOOC-Ed participation: “It was information I wanted. So, the personal gratification of gaining the knowledge and improving my skills and my position.” Casey had two suggestions to improve MOOC-Ed for future participants: giving grades and adding another level of the Coaching Digital Learning MOOC-Ed. She explicitly stated, “I really would have liked grades or some kind of mark.” Casey also explained “…I know we've looked a couple times to look and see if there's a level two course so, we're ready for another one.” Both of these suggestions addressed MOOC-Ed design or development.

Crystal. Crystal is a 36-45 year-old female with a Ph.D. living in North Carolina. She has spent 16 years in the education field. She is an Instructional Technology Facilitator in a public school setting. Crystal is also an adjunct instructor/professor in higher education. In the past five years, she has participated in two MOOCs. She also had several online PD experiences prior to the Coaching Digital Learning MOOC-Ed. She said, “Master’s degree was online; I would consider that training. I have participated in several webinars.” Crystal’s motivation to participate and complete MOOC-Ed was different from the majority of the study participants. She explained her participation perspective: “It was required by my boss.” Obtaining a completion certificate was not a deciding factor to enroll or complete the course; the expectation from her supervisor was her primary completion driver.
During the interview, Crystal explained the benefits of completing the course: “I did learn some new strategies that I could implement with my teachers. I also gained some new resources that I could view later.” Consequently, Crystal’s Coaching Action Plan stated that one of her action steps was to “survey teachers to determine needs and desires.” Crystal also mentioned the action plan during her interview:

I feel that the information and report was good, but I did think it was hard to fill out that action plan. It would've been good to have an example. Also, if some of the activities have been a little bit more interactive, it would have been good.

Crystal thought participating in the course with a colleague would have been beneficial. She did not participate in the MOOC-Ed with a co-worker. If she had the support of a colleague (not her supervisor), there is a possibility of feeling more supported when completing the Coaching Action Plan.

Doug. Doug is an Educational Technology Specialist who lives in Alabama. He is currently an educator with more than twenty years in the profession and is pursuing a terminal degree. He described his work schedule as “fairly flexible in that if I know about something ahead of time, I can usually fit it in if it's related to my job.” Doug had several drivers (professionally and personally) for enrolling and participating in MOOC-Ed:

I had learned about the MOOC and my job relates, and also my dissertation relates directly to technology coaching and so it was a perfect avenue to gain better understanding of what was happening nationally and to see what others were deeming as important.

In the interview, Doug also shared that a main motivation to enroll in the course was personal: “…it actually was the second time that I had enrolled in it, and I didn't complete it the
first time simply because of time issues and things like that.” Doug described the value he found in MOOC-Ed and was determined to enroll and complete the course when his schedule permitted. Doug also used humor when explaining his intentions for enrolling in the course:

I also felt like I would learn better techniques and topics that I should be presenting in my work to others who may not be able to take that MOOC but would be in professional development sessions that I presented that I could share some of those things with. Down here we call that Edu-steal.

Doug explained his “Edu-steal” comment by stating that he incorporated resources from the CDL MOOC-Ed modules into his workshops and presentations. He also described that he enjoyed the course, saying, “…they should make a push to let alumni come back in so that we can participate in the discussions.” Doug found value in the MOOC and was willing to enroll and participate in the Coaching Digital Learning MOOC-Ed again if time in his schedule permitted.

Grace. Grace is a Reading Resource teacher with ten years’ experience in the education field. She lives in Ohio and works in a Catholic private school. Grace has participated in three MOOCs in the past five years. The Coaching Digital Learning MOOC-Ed was the first MOOC with the Friday Institute. She participated in Teaching Foundational Reading Skills MOOC-Ed in Fall 2017.

There were several reasons why Grace was motivated to participate in MOOC-Ed. One reason was the digital learning initiatives occurring at her school. She said, “It was perfect timing. I was taking on – we became a Google school and we were doing one-to-one Chrome books at the time…” Another reason Grace participated in the MOOC was “…the freedom and
the timeline. I also enjoyed how deadlines were not set that was just extremely appealing.”
Grace appreciated the flexibility of the course.

Grace was not motivated to participate or complete the course to obtain a certificate of completion. However, she was more interested in the professional development hours. Grace explained that her expectations were met after completing the course. She rated her course satisfaction as a “four” on a “scale of one to five.” She completed the Coaching Action Plan and described her vision as a technology coach through the lens of leadership acknowledging “to be a leader in the area of digital learning and help it fit into teacher’s curriculum as a useful tool.”
During the interview, Grace discussed MOOC-Ed as a whole and the coaching action plan from her perspective:

I enjoyed them in general. I think this one in particular, the action plan was really heavier I think than the rest of the activities I have come across in MOOC-Ed. It wasn’t a barrier for me. I didn’t — not complete it but it’s the redundant nature of it did make it a little difficult to stick with.

Grace explained that she applied the coaching strategies from the Coaching Action Plan, but not in totality. She said she “did utilize parts of the action plan” at her job and applied several resources from the action plan in faculty meetings and programs at work.

John. John was one of two male study participants. He is a Technology Coordinator in a small public-school system in Mississippi. John has an undergraduate degree and has worked in education for more than ten years. He has a flexible work and home schedule where he can typically spend three to four hours weekly for professional development. John has participated in three MOOC-Eds since 2015. He participated in a similar technology integration MOOC in 2015 known as Leading the Digital Learning Transition.
(Coaching Digital Learning and Computational Thinking and Design) at the same time in Spring 2017.

John mentioned teacher and student buy-in as drivers toward MOOC-Ed enrollment and participation. John explained, “Well, getting the students to buy into what the teachers are teaching with the technology, and then also getting the teachers to buy into using the technology in the first place.” He wanted to participate in the Coaching Digital Learning course to help teachers integrate technology and use technology tools in the classroom. John also described the demographics of teachers in his school district: “We have a lot of older teachers that it's just hard to make them use the new tools.” John believed the Coaching Digital Learning MOOC-Ed would help him learn to coach and train teachers to integrate technology.

The course completion certificate was not a factor in John’s MOOC-Ed enrollment. He explained “…The way my district is set up, depending on the certificates you get, they may acknowledge it for pay increase and whatnot, but I just really want to have the knowledge.” Gaining knowledge was a reoccurring motivator for John as his enrollment and participation driver. John described the coaching action plan in the course as useful to gain knowledge and outline a technology integration plan. He stated “…the action plan deal was really good. If you know anybody who's in charge of all the MOOC-Ed courses, they need to incorporate that in every one of them.” John also explained his desire to participate in more technology focused MOOC-Eds. He said, “I think they need to offer more technology-based courses.”

Kanette. Kanette is a veteran educator with 25 years of experience. She lives in Texas and works as an Instructional Technology Specialist. Kanette has a flexible work schedule and has participated in more than six MOOCs or online professional development/classes in the last five years.
Kanette was interested in the Coaching Digital Learning MOOC-Ed because of her school district’s coaching initiative. She explained, “I wanted to enroll to see if I could learn about what coaching is, and how to best implement in the district…” She also described that this digital coaching initiative was supported by the district leadership. Therefore, she wanted to have the Coaching Digital Learning MOOC-Ed course completion certificate. Kanette described that the certificate “…became something really good to have when we were approaching the assistant associate superintendent and superintendent and to say that we had that certificate, and that we had gone through that initiative.” She also wanted to participate in MOOC-Ed to “understand the why behind coaching as well and all of the different theories that we were exposed to in that particular course.” Kanette wanted to learn technology and coaching theories to support her role as a technology specialist.

In the interview, Kanette explained her thoughts about online learning and MOOC-Ed: “I would say that online learning is difficult because it's so time consuming, but I really got a lot out of that particular course...” She also described that her expectations were met and exceeded in retrospect after completing the course.

**Margaret-Leigh.** Margaret-Leigh is an Instructional Technology Facilitator in a K-12 public school. She has more than 25 years of education experience and holds a graduate degree. Margaret-Leigh lives in Illinois and typically has three-four hours a week to work on professional development to improve her practice. She has participated in two online professional development offerings in the past five years. Margaret-Leigh had two main reasons for enrolling and participating in the Coaching Digital Learning MOOC-Ed. First, she stated “Some of my colleagues had discussed it and we decided to do it together.” The second driver of course participation was the subject/content. She said, “I think their subject matter was relevant
at the time.” The course subject matter and content helped her professionally. Margaret-Leigh said, “I think the discussions I had with my colleagues have…it was a motivational factor to look at the practice of our jobs.” Understanding her role as a coach with other technology specialists was helpful.

The interview revealed that Margaret-Leigh had used goal setting to help her complete the course. She also explained completing the Coaching Action Plan was a challenge for her during the course. She completed the Team Action Plan with five other team members contributing to the plan. One of the goals listed on the plan was, “We would like to focus on how technology integration can be transformational. Focusing on what transformational looks like and how that specific teacher can take steps to achieve the goal.” It was expressed in the action plan that transformational change for educators begins by encouraging social media (Twitter) use and promoting positive interactions/relationships with teachers and technology facilitators.

Margaret-Leigh ended her interview by giving advice for potential MOOC participants. She said, “You need to be a self-directed learner.” Completing a MOOC requires participants to set their own pace and log into the course regularly. MOOC participants, similar to all online learners, should understand the responsibility of self-regulating their time and tasks.

Max. A Spring 2017 MOOC-Ed course completer and study participant, named “Max” is a Media Specialist with more than fifteen years in the field of education. Max works in a public school and has a graduate degree in Library Science. She lives in New York and has a flexible home schedule to work on MOOCs. Max typically has five to eight hours a week to work on professional development offerings. In the past five years, Max has participated in four online professional development sessions such as MOOCs. The Coaching Digital Learning course was
her first MOOC-Ed experience. After completing Coaching Digital Learning, Max participated in two more MOOC-Eds (Learning Differences and Supporting Learning Differences in Post-Secondary Environments) in Fall 2017.

Max described her motivation for MOOC-Ed enrollment and participation as relevant to her teaching practice:

As a librarian, I really serve as a leader in the school for facilitating digital learning, the use of digital tools and technology in general. So, I thought it would be very applicable to what I do as a teacher.

Being a school leader to encourage technology integration was an important participation “driver” for Max. She explained, “Well, I was able to find courses that were of interest to me and applicable to what I do and I could receive the credentials. And there was no cost to them.” She continued the interview by explaining the benefits of MOOC-Ed completion: “First and foremost was that I got that certificate. I picked up some additional information. I probably confirmed some of my own prior knowledge.” Max explained receiving the credential, specifically the course completion certificate, was the motivation for enrollment, participation, and completing MOOC-Ed.

The relevance of content and videos were described by Max as a benefit to MOOC-Ed participation and completion. She stated, “…I always loved the videos. The videos are great for me. They're good, they're timely. And when I say timely, they're recent. They're a good selection.” The videos were Max’s favorite part of MOOC-Ed because of the video content.

Nicole. Nicole has been an educator for more than ten years and is an Instructional Coach living in North Carolina. Nicole works in a public school and has a flexible work and home schedule where she can spend approximately four and a half hours a week on professional
development. In the past five years, Nicole has participated in three MOOCs. All of these MOOCs were Friday Institute MOOC-Eds. She participated in the Fraction Foundation MOOC-Ed in Spring 2016. However, Nicole had to “drop-out” of that MOOC-Ed to going on maternity leave. After completing the Coaching Digital Learning MOOC-Ed, Nicole participated in another course. Most recently, she participated in the Teaching Foundational Reading Skills in Spring 2018.

Nicole had two primary motivations for MOOC-Ed enrollment and participation. She wanted to learn more about her new school role and build relationships. She explained:

It was my first year as an instructional coach and I thought that the description of the class would help me learn more about what my job is and how to better work with people in my building and maybe try to build some cross-county relationships online instead of just having face-to-face meetings all the time.

Before participating in MOOC-Ed, Nicole explained how she looked at the course description and requirements and determined the Coaching Digital Learning MOOC-Ed would fit into her schedule. Nicole was also motivated to participate in the course because “…It was something that, well, I was interested at the content first and I knew it was going to help me become a better coach and a better leader.”

At the end of the interview, Nicole was asked if she wanted to share any additional information about completing MOOC-Ed. She described, “I thought it was fantastic. I actually just checked the website a couple of days ago. I keep looking to see if there’s going to be any new ones open soon…” Several other study participants in addition to Nicole were interested in participating in another relevant MOOC-Ed.
Paige. Paige is a Media Specialist who lives in North Carolina. She has 24 years of experience in education and works in a public-school setting. Paige participated in one MOOC in the past five years. Her motivation for enrolling in the MOOC-Ed was due to her job role. She said, “At that particular time, my position was going through a transition from being more student centric to being more teacher centric.” She explained her rationale for enrolling in the course: “I hoped to be able to glean some strategies to use while working with teachers in their specific classrooms, just to kind of see what the concept is about.” Helping teachers/colleagues and students work with online courses was a motivation to understand coaching digital learning in schools.

Paige described one of the benefits of completing the course was the coaching action plan:

I remember one of the assignments, for lack of a better word, was to create an instructional plan and that really helped me hone in on what we were doing at my particular school. And so I did wanna see that through to be able to have the plan that I could take with me that I felt like helped me finish the course, if nothing else.

The coaching action plan served as a guide for course completion according to Paige. She also described that she appreciated the MOOC: “I would like to have more opportunities to take a MOOC course because I did like it and I like to work at my own pace and like I said, I liked how I couldn't work ahead.” The flexibility of the MOOC was a benefit of online learning recognized by Paige, a time-strapped adult learner.

Sarah. Sarah is an Application Support Specialist new to the education field with one to five years of experience in public schools. She lives in Florida and has earned a graduate degree. Sarah depicted her home and work schedule as flexible. She described having one to four hours
a week to work on professional development offerings. Sarah has participated in three MOOCs or online professional developments in five years. She participated in two MOOC-Eds concurrently (Spring 2017). The other course was the Teaching Mathematics with Technology MOOC-Ed.

Sarah described in the interview that she participated in the CDL MOOC-Ed with a team of co-workers. She wanted to learn how to improve her job performance because of her role in the district. Sarah stated, “I feel like being a digital coach is a very unique position. The position has only existed in our school district for about four to five years.” She continued to explain her MOOC-Ed motivation as being a novice coach: “I only been in the position for about six months and it was a big adjustment period. So, just learn more ways in how to coach digital literacy or digital learning.” The course content also served as Sarah’s motivation to continue MOOC-Ed participation until the end of the course.

During the interview, Sarah explained the importance of the course credits and resources:

I would definitely say the 20 hours helped motivated me to complete the course. Also, the resources all the way through the end of the last unit, I wanted to make sure that I was able to read every different resource available and save them as necessary.

Sarah also described the course completion certification was a motivational factor to complete all six weeks of the course. At the end of the interview, Sarah described her participation and completion of another MOOC-Ed: “I decided to do another one separate from my teammates. I was the only one from my team to do the – to do the second course.” It was evident in the interview that Sarah was proud she participated in another MOOC-Ed without the assistance of her teammates.
Sasha. Sasha is fifteen plus year veteran of education who currently serves in the role of Instructional Coach. She works in a public-school setting and lives in Florida. Sasha has completed graduate work and has a flexible home schedule. She can typically allocate three hours a week for professional development. The Coaching Digital Learning MOOC-Ed was her first MOOC and MOOC-Ed.

Sasha explained that she did not know about MOOCs until she was told by a colleague about the professional development opportunity. She said, “So someone forwarded me the link and so that’s how I got involved with that.” Sasha was interested in participating in the Coaching Digital Learning because of her career transition. She explained, “Coaching was my next thing that I want to pursue. I was a curriculum leader, digital learning leader at my school.” Sasha thought the MOOC-Ed would help her with technology integration coaching.

Once Sasha enrolled in the MOOC-Ed, she was driven to participate in the course because she wanted to learn about the role of digital coaching:

And so, I wanted to try to incorporate what I did already on a daily basis and then learn more about it, so I can get into a role either at my school or within the district, as an instructional coach to include digital learning as a part of it.

Sasha explained one of her completion barriers was participating in two professional development courses at the same time. She said “I was also taking another course for the district as well, at the same time. One that I had to take before the end of the school, year so. So, juggling the two was kind of a challenge.” Nevertheless, Sasha was motivated to complete the course by feeling a sense of accomplishment. Sasha concluded the interview by expressing, “I would just say that these are very valuable – very valuable course and I would look into taking
more of the courses if another one came up that I was interested in.” She enjoyed participating and completing the MOOC due to valuable course resources.

**Savannah.** Savannah was a Spring 2016 course completer and is a retired educator who works as an online instructor. Savannah has over 40 years of experience in education and lives in North Carolina. She participated in more than six MOOCs or online professional developments (PD) in the past five years. After completing the Coaching Digital Learning MOOC-Ed, she participated in two more MOOC-Eds in 2017 (Computational Thinking and Design and Teaching Statistics Through Data Investigations).

Savannah said her initial motivation for MOOC-Ed participation was obtaining professional development hours to renew her teaching certificate. Savannah also described:

> When I do this MOOC-Eds I find things I look through for things that might not only they have interest me and also, they have to help me in my course so I’m looking for things that are digital or business related.

She also was pleased with MOOC-Ed, and the Coaching Digital Learning course met her expectations. Savannah explained, “I can tell that somebody has put a lot of thought a lot of planning into these courses not just from the content of the courses but from the way it’s laid out.” The positive experience with the Coaching Digital Learning course encouraged her to continue participation with additional MOOC-Eds.

**Coaching Digital Learning MOOC-Ed Codes**

Coding was conducted in NVivo. The process of coding for each research question occurred four times for each question. A table/matrix was created with the four research questions inserted into the table/matrix and the 16 study participants’ pseudonyms. Next, similar responses of each study participant were coded to develop themes in the table/matrix. During the
progression of moving from coding to theme formation, inductive processes were used to understand patterns between data.

**Findings**

The coding process of the Coaching Digital Learning MOOC-Ed study was three-fold. The coding structure was broken into three cycles, and a code or “short phrase” was generated prior to coding and during the coding process (Saldaña, 2013). The first coding cycle was based on the theoretical framework of self-efficacy and self-determination theory through a priori codes (Table 7).

Table 7.

**Self-Efficacy and Self-Determination Analytic Components and Markers**

<table>
<thead>
<tr>
<th>Analytic Component</th>
<th>Markers</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastery Experiences</td>
<td>Completed online professional development before the CDL MOOC-Ed or MOOC completion or MOOC-Ed completion</td>
<td>ME1</td>
</tr>
<tr>
<td>Vicarious Experiences</td>
<td>Colleague(s) have taken or completed a MOOC or MOOC-Ed</td>
<td>VE1</td>
</tr>
<tr>
<td>Social Persuasion</td>
<td>Colleagues or family/friends encouraged MOOC-Ed participation and completion</td>
<td>SP1</td>
</tr>
</tbody>
</table>
Table 7 (continued)

<table>
<thead>
<tr>
<th>Physiological and Emotional states</th>
<th>Improving mood and emotions when encountering a barrier or challenge within MOOC-Ed</th>
<th>PES1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amotivation</td>
<td>Motivation was not present during MOOC-Ed</td>
<td>AM1</td>
</tr>
<tr>
<td>Extrinsic Motivation</td>
<td>Motivation was internal (interested in learning and resources) and not totally focused on a completion certificate or CEU credits</td>
<td>IM1</td>
</tr>
<tr>
<td>Extrinsic Motivation</td>
<td>Motivation was external (interested in recognition, completion certificate, or CEU credits)</td>
<td>EM1</td>
</tr>
</tbody>
</table>

There were 15 detailed codes that were generated through the literature. Twelve codes were generated through Bandura’s self-efficacy principles. Next, magnitude coding was conducted with six options: present, absent, unknown or unclear, yes, no, and maybe. Finally, open coding was conducted to uncover the findings of the study. Open coding was necessary when there was repetition in interview responses.

The results were organized by the four research questions in the study. An explanation of the coding process for each research question is provided. A description of the theme(s) found to conceptualize the findings of each research question is also provided. Seven themes are explained throughout the findings section based on each research question.
Coaching Digital Learning MOOC-Ed Themes

Interviews and documents were coded into 15 themes based on self-efficacy and self-determination theories. All interviews were coded using magnitude coding with coding schemes such as present and absent. Ten codes were determined through open/eclectic coding. The themes were generated by the four research questions. After the coding process, each research question code was counted for frequency to assist with theme creation. Also, each research question’s relevant codes were generated into themes by expanding the codes to create phrases that were longer than the codes (Saldana, 2013). The themes also put the codes into context based on the research questions after synthesizing. The seven themes include: personal motivation, relevance, online course completion, personal obligations, time (management), knowledge, and personal learning network. Table 8 explains the study themes and meanings associated with the themes.

Table 8.

Overview of Themes and Meanings

<table>
<thead>
<tr>
<th>Theme</th>
<th>Explanation/Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Personal Motivation</td>
<td>• Accomplishment</td>
</tr>
<tr>
<td></td>
<td>• Completion Driver and Catalyst</td>
</tr>
<tr>
<td></td>
<td>• Self-Determination Theory</td>
</tr>
<tr>
<td></td>
<td>• Intrinsic Motivation</td>
</tr>
<tr>
<td>2. Online Course Completion</td>
<td>• Professional Development Completion</td>
</tr>
<tr>
<td></td>
<td>• MOOC Completion</td>
</tr>
<tr>
<td></td>
<td>• Completion Driver and Catalyst</td>
</tr>
<tr>
<td></td>
<td>• Self-Efficacy Theory</td>
</tr>
<tr>
<td></td>
<td>• Mastery Experiences</td>
</tr>
<tr>
<td>3. Relevance</td>
<td>• Relevant Content</td>
</tr>
<tr>
<td></td>
<td>• Valuable Resources</td>
</tr>
<tr>
<td></td>
<td>• Instructional Design</td>
</tr>
<tr>
<td></td>
<td>• Completion Driver and Catalyst</td>
</tr>
</tbody>
</table>
The personal motivation and relevance themes were found to be drivers and catalysts of MOOC completion (research question one). In addition, online course completion is a theme uncovered from participants that found a self-efficacy (mastery experience) belief was promoted by previous successful online professional development prior to the Coaching Digital Learning MOOC-Ed completion. Personal obligations and time were found to be barriers to MOOC completion (research question two). Time served as a dual theme. Lack of time was a barrier, but time (management) was also situated as a theme to describe strategies for successful MOOC completion (research question three). The knowledge gaining and personal learning network themes described changes made to professional practice that was impacted by MOOC-Ed completion (research question four). Each theme is described in detailed which will explain how the themes address the four research questions.

**Findings for Research Question 1.** *What drivers and catalysts do course completers report encountering in their journey to complete the Coaching Digital Learning MOOC-Ed?*
The three coding structures (a priori, magnitude, and open coding) were used to uncover the themes of research question one. In research question one, 17 codes that were used to describe the drivers related to MOOC-Ed completion (Table 9).

Table 9.

**Research Question 1 Code Descriptions and Codes**

<table>
<thead>
<tr>
<th>Research Question 1 Code Description</th>
<th>Research Question 1 Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Professional Development Completion</td>
<td>ME1a</td>
</tr>
<tr>
<td>MOOC Completion</td>
<td>ME1b</td>
</tr>
<tr>
<td>MOOC-Ed Completion</td>
<td>ME1c</td>
</tr>
<tr>
<td>Knowledge of an individual that has taken a MOOC</td>
<td>VE1a</td>
</tr>
<tr>
<td>Knowledge of individual that has completed a MOOC</td>
<td>VE1b</td>
</tr>
<tr>
<td>Knowledge of individuals that have taken a MOOC-Ed</td>
<td>VE1c</td>
</tr>
<tr>
<td>Knowledge of individuals that have completed a MOOC-Ed</td>
<td>VE1d</td>
</tr>
<tr>
<td>Identify family/friend encouragement</td>
<td>SP1a</td>
</tr>
<tr>
<td>Co-worker encouragement</td>
<td>SP1b</td>
</tr>
<tr>
<td>CDL MOOC-Ed facilitator encouragement</td>
<td>SP1c</td>
</tr>
<tr>
<td>Motivation was internal with no tangible incentives</td>
<td>IM1a</td>
</tr>
<tr>
<td>Motivation was external with tangible incentives</td>
<td>EM1a</td>
</tr>
<tr>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Demographic</td>
<td>DEM</td>
</tr>
<tr>
<td>Accountability</td>
<td>ACC</td>
</tr>
<tr>
<td>Value</td>
<td>VA</td>
</tr>
</tbody>
</table>

Three codes described mastery experiences which include code markers ME1a, ME1b, and ME1c. These codes were derived from the literature to support mastery experiences that addressed completion drivers. The codes were developed to explain online professional development completion (ME1a), MOOC completion (ME1b), and MOOC-Ed completion (ME1c). The vicarious experiences code structure had four code markers that included VE1a, VE1b, VE1c, and VE1d. The codes highlighted the knowledge of individuals that have taken or completed a MOOC or MOOC-Ed by coding through specific descriptive markers. The markers include knowledge of an individual that has taken a MOOC (VE1a), knowledge of individual that has completed a MOOC (VE1b), knowledge of individuals that have taken a MOOC-Ed (VE1c), and knowledge of individuals that have completed a MOOC-Ed (VE1d). Bandura’s
The social persuasion principle was also coded in the study. The coding markers identify family/friend encouragement (SP1a), co-worker encouragement (SP1b), and CDL MOOC-Ed facilitator encouragement (SP1c).

The self-determination theory by Deci and Ryan (1985) was used to generate codes and coding markers for this study. For research question number one, there were two codes that focused on motivation that positively influenced completion: Motivation was internal with no tangible incentives (IM1a) and motivation was external with tangible incentives (EM1a). The second cycle of the coding process was magnitude coding. There were six coding schemes that were used in data analysis. The coding scheme included present, absent, unknown or unclear, yes, no, and maybe. The primary codes used in research question one were “present” and “yes”.

The third-round coding included two open codes for the first research question. The three codes that were found were DEM=Demographic, ACC=Accountability and VA=Value. There were three themes found to describe the drivers and catalysts for MOOC-Ed completion after coding: personal motivation, online course completion, and relevance.

**Personal motivation.** The personal motivation theme was found to be important with 10 study participants believing that their need of accomplishment and self-motivation was their completion driver. Spring 2016 completer, Abigail, described her completion driver: “It’s a form of professionalism. I don’t start something and then not see it through for completion. Again, seeing it through for completion is just my own personal trait.” Max, Spring 2017 course completer, also explained similar motivation: “Typically, once I start something I'm always gonna complete it. It's just that personal motivation.” Sasha, Spring 2017 completer, also explained her personal completion motivation: “I always start what I finish. So, I had to complete it. Just that sense of completion.” Savannah, Spring 2016 course completer, held
similar personal motivations which also included learning by explaining: “If I’m going to go into it then I’m going to finish it. I’m going to make sure that I get to learn all I can about that subject while I’m there.” The attributes of achievement and personal accountability were a commonality between many study participants.

Nicole, Spring 2017 completer, described two motivations that included personal and content enjoyment. She explained: “Well, I'm one of those people that once I start something I like to finish it and it wasn’t anything that was difficult. I enjoyed the content in it.” Spring 2017 course completer, Casey, echoed her intrinsic and personal motivation of “finishing what you start” and group accountability:

Well, I'm very much a Type A personality, so when I start something, I finish it. I also had the... I had the, not competition factor, but like I said, we did it as a group. So, for one of us to quit it and not complete the course wasn't an option.

There were numerous examples of study participants describing their personal motivations as internal/intrinsic motivation and personal traits. Kanette, Spring 2016 completer, described a combination of intrinsic and extrinsic motivation as her completion drivers: “So, the thing that really did cause me to complete is one was it's personal, accountability, I really like to complete things that I start. And the other is again, getting the certificate…” Kanette, had intrinsic motivation to finish what she started because of her personal accountability and extrinsic motivation to complete and receive the certificate of completion. Paige, Spring 2016 completer, also explained her intrinsic and extrinsic motivation: “I don't know, once I've started something, I knew that I was gonna finish it and then the CEUs that I got were certainly a motivator.” Paige’s motivation was intrinsic and extrinsic because she wanted to receive certification renewal credits for her job. The responses of the study participants align with self-
determination theory. The detailed descriptions provided insight into intrinsic motivation as personal satisfaction of completing the online course and having confidence in the ability to complete (Deci et al., 1991).

**Online course completion.** Study participants had previous online course completion experiences that gave them confidence they could successfully complete the Coaching Digital Learning MOOC-Ed. Fifteen participants had previous online course completion successes prior to participating in MOOC-Ed. Many participants experienced online professional development through webinars (which is not a formal course). Three participants mentioned participating in webinars such as Margaret-Leigh, Spring 2017 course completer, who stated, “I took up classes or webinars from ISTE or from coding organizations…”

Two participants mentioned they completed an online professional development course through community colleges. Savannah, Spring 2016 course completer, described: “I have taken a couple with colleges especially community colleges, but I didn’t like those as well because they do not seem to center on the classroom as much as the MOOC-Ed and some of those do.” Similarly, Paige, Spring 2016 course completer, stated, “In 1999, I took a class, an online class about creating online classes, and that was with Fayetteville Tech, and it was just kind of whatever Blackboard and learning management systems like that.” Doug, Spring 2016 course completer, also participated in online professional development through a learning management system (LMS). He said, “I had participated in several... LMS based distance learning courses that were just professional development.”

Coaching Digital Learning MOOC-Ed study participants had previous online professional development experience by completing online courses for certifications. John, Spring 2017 completer, stated, “I've done Network Plus certification courses. I've done Security Plus...
certification.” Kanette, Spring 2016 completer, also described online professional development to gain certifications: “I've done certifications like in (Edmodo and Symboloo), Microsoft, those type of things online with type of certifications.” In addition to completing online courses to gain professional development certifications, two study participants participated in a formal online professional development course called the Technology Integration Matrix through the University of South Florida. Casey, Spring 2017 completer, stated “…before we took the MOOC-Ed, we used the technology integration matrix with the University of South Florida and they offer online training courses. So, we had taken their introductory course on the TIM.” Also, Sarah, Spring 2017 completer, explained, “prior to the MOOC-Ed, I completed one online course on similar MOOC-Ed through a different program on the technology integration matrix.”

Several study participants completed a MOOC or MOOC-Ed successfully before attempting to enroll in the Coaching Digital Learning MOOC-Ed. Carolyn, Spring 2016 completer, stated, “I've done lot of MOOCs, and online courses, sort of programs delivered online.” She also described, “And do 'em from all over the places, I guess although my major sources these days are Coursera, edX and FutureLearn.” Additionally, Max, a Spring 2017 completer, explained, “I think I've done two other courses with the Friday Institute. And I've taken a few online classes at just at a variety of places where I've been able to receive graduate credit.” Having previous experiences with similar online courses as MOOC-Ed are known as mastery experiences from the self-efficacy theory that provide confidence in online learners that they can accomplish and complete other online professional development endeavors. Responses from the study participants support the self-efficacy principle of mastery experiences. These mastery experiences helped MOOC participants believe they could complete the Coaching Digital Learning MOOC-Ed because of previous successful online course participation and
completion.

**Relevance.** MOOC-Ed course completers described valuable and relevant content/resources as a main completion driver. Abigail, a Spring 2016 completer, explained, “The course on Digital Learning just seemed to fit my needs. It was the closest one that related to my job as a coach.” Another study participant described the relevancy of the MOOC to her job. Carolyn, a Spring 2016 course completer, stated, “Well first, I saw the topic as highly relevant and immediately applicable to my current work.” She continued describing the additional drivers as having value and useful topics. Carolyn added, “…I think it would be that I saw the continued value.” She also stated “…I felt the topics were useful to me and the final assignment was useful.”

Another course completer had a unique perspective on the course’s relevance because he was a Coaching Digital Learning MOOC-Ed 2015 “drop-out”. Doug, a Spring 2016 course completer, explained his desire to complete the course after dropping out because he understood the value and relevance of the course content:

I didn't complete it the first time simply because of time issues and things like that. But had seen its value and when it started the next round I made sure that I did it and I spoke with my supervisors and made sure that time was made for it because of the value that I saw in it. I think the content would probably be the first and foremost driver for it.

Additional MOOC-Ed completers discussed the content and relevance as a completion driver. Sarah, Spring 2017 course completer, described, “I really enjoy the content in the course, so, after the first week, I was hooked.” Other study participants discussed the content and the instructional design (course design/layout) of the course as a completion driver. Max, Spring 2017 course completer, discussed the instructional design of the course, explaining, “…if I
remember the syllabus correctly, there were just things in future lessons that I wanted to learn about. They're always laid out fairly well.” John, Spring 2017 course completer, also echoed a similar statement, “The way the MOOC-Eds are set up, it's a nice progression which I really like, so they kinda give you some tidbits and you're slowly building…” Also, Grace, Spring 2016 course completer, discussed the course layout as a completion driver. She stated, “It was fairly clear that every week would be a different portion, a different aspect. So, I guess you’re kind of driven to go to the end to see the next topic.” The course design and content/resources of the Coaching Digital Learning MOOC-Ed proved to be completion drivers for many study participants. Several participants found value in the course, which encouraged them to continue to participate throughout the six-week course.

**Findings for Research Question 2.** *What barriers and challenges do course completers report encountering in their journey to complete the Coaching Digital Learning MOOC-Ed?*

For the second research question, the same process was conducted as the first research question coding procedure. For the second research question, eight codes were used to devise findings to understand the barriers associated with MOOC-Ed course completion (Table 10).

<table>
<thead>
<tr>
<th>Research Question 2 Code Description</th>
<th>Research Question 2 Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimizing stress</td>
<td>PES1a</td>
</tr>
<tr>
<td>Increasing mood</td>
<td>PES1b</td>
</tr>
<tr>
<td>Motivation was not present</td>
<td>AM1a</td>
</tr>
<tr>
<td>Absent</td>
<td>Absent</td>
</tr>
<tr>
<td>Unknown or Unclear</td>
<td>Unknown or Unclear</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Demographic</td>
<td>DEM</td>
</tr>
<tr>
<td>Time</td>
<td>T</td>
</tr>
</tbody>
</table>
Fifteen codes from the literature (a priori) were used to code. Twelve codes from Bandura’s self-efficacy theory and 3 three codes from Deci and Ryan’s self-determination theory were the origins of the first-round coding. Two codes were important in research question two from Bandura’s self-efficacy theory. Bandura’s physiological and emotional states principle had two code markers that included minimizing stress (PES1a) and increasing mood (PES1b). These two codes acknowledged there were certain barriers and challenges in the MOOC-Ed. Deci and Ryan’s self-determination codes were applied to this research question also. The primary code that explained MOOC-Ed barriers/challenges was motivation and was not present (AM1a). The second-round coding involved magnitude codes that focused on “absent,” “unknown or unclear,” and “no” for research question two. The third-round open coding process found in research question number two included DEM=Demographic and T=Time. Based on the coding structures, two themes were revealed: personal obligations and time.

**Personal obligations.** Study participants discussed two primary completion barriers (personal obligations and time). Personal obligations can affect adult learners with legitimate intensions of course completion. Two study participants mentioned their personal obligation with their young children. Personal and family obligations were noted as completion barriers. Barbara, Spring 2017 course completer, stated, “I have a small child at home, so he would sometimes need a little more attention that I was able to give.” Grace, Spring 2016 completer, was also a mother of a young child who shared the difficulty of working on the MOOC-Ed at home:

I did a lot of this online course at work before, after school, on breaks because I was a new mom, a very new mom at the time. So, when I did get off work and come home I
was full mom mode. So, my personal life made it difficult to find the extra time I suppose.

John, Spring 2017 course completer, also described similar personal obligations that made working on MOOC-Ed a barrier:

Got a family, kids, and if I'm coming home from work late already, I'm tired of looking at the computer all day long. Sometimes I struggle to really get in that mind frame and sit and go through the MOOC-Ed, but once I got started doing it, I was okay.

Spring 2016 completer, Carolyn, also explained, “…sometimes life happens, and the MOOC goes. Somebody in the family gets sick or something happens, and you have to drop that, you have to choose.” Many study participants struggled to find a work-life balance when trying to find time to work on professional obligations and family obligations. Sasha, Spring 2017 course completer, explained, “I take care of my elderly parents. And so, I would just pretty much do my work after they – after they had gone on to bed.” Casey also described the challenge of balancing work and family: “…when I was behind on a deadline or when I was struggling to find the time to do it, it was because of the home expectation and obligations.” Doug, Spring 2016 course completer, explained his personal obligation position as “…trying to make an effort to balance that work-life balance.” However, the online format for professional development in the MOOC-Ed encouraged Savannah, Spring 2016 completer, who stated, “Good thing about working online like this with the MOOC-Ed can do it when I can do it.” Finding a work-life balance is challenging for many adult learners, Savannah suggested the online structure helped minimize completion barriers.

**Time.** The theme of time was the most abundant completion barrier suggested by all study participants except for one (15 out of 16). Lack of time was the dominant barrier to
MOOC-Ed completion according to participants. The lack of time barrier coincides with the work-life balance/personal obligation barrier. Crystal, Spring 2016 course completer, stated, “I think the main thing was finding the time to do it.” The lack of time barrier would cause some participants to work on MOOC-Ed assignments at home in their personal time. Abigail, Spring 2016 course completer, explained, “So, I have that hour and a half of time that is more or less my own personal time. So, I always had a carved-out piece of time that I was able to work.” Sarah, Spring 2017 course completer, also explained her time barrier: “I did have to intentionally build office time in my schedule to be able to complete the course work and if I wasn’t able to at work, then, I would just finish it at home.”

Working at home due to lack of time proved to be a commonality among participants. Carolyn, Spring 2016 course completer, described, “…most of the time I do MOOCs on my own time, so if work is slow and there's a gap, I will fill it with coursework or watch some videos or do something.” Spring 2017 course completer, Casey, used the majority of her time at home to work on the MOOC despite the fact that her supervisor encouraged MOOC participation. Casey stated:

Really, it was just finding the time to do it. We were great, we had a supervisor who felt like the MOOC-Ed was part of our job, so allowed us to do it on the job. But then of course, that's nice to say, but then you never actually get the time during the work day to get it done.

Study participants also explained the importance of balancing time and having extending time to work in the course. Kanette, Spring 2016 course completer, explained the completion barrier candidly, “Of course, time. Because it's an addition too. You go to work and then of course you need time to complete the activity, time of course to – logging in.” When at work or
at home, finding prolonged time to complete assignments proved to be challenging. Spring 2016 course completer, Paige, explained her primary completion barrier

   The only real barrier that I would say I experienced at all would be starting to get to work on something and then being interrupted and not have a chance to finish until later on. So, being able to devote an extended amount of time was probably a barrier.

   Two study participants discussed the lack of time barrier in relationship to the MOOC-Ed content. Barbara, Spring 2017 course completer, explained a barrier of spending extra time learning how to create the animated presentation assignment (Powtoon): “So, I found myself watching a lot of YouTube videos trying to figure out how to use this tool. I ended up spending quite a few hours on one particular week.” In contrast, Doug, Spring 2016 completer, described that the content for the assignments were not the barriers. He stated, “There weren't any lack of value of the content or anything like that. It really would have been time, would have been the only barrier that I encountered.” The theme of time was complex because it described a MOOC completion barrier, and time management was a theme that described a strategy for successful MOOC completion.

**Findings for Research Question 3.** What strategies do course completers report that enabled them to successfully complete the Coaching Digital Learning MOOC-Ed?

Research question three had a similar coding process the other research questions. The process included a priori coding, magnitude coding, and open coding. Seven codes were used to uncover findings for the third research question to describe strategies associated with successful course completion (Table 11).
A priori code markers were used when appropriate to describe or explain course completion strategies. The most common code markers for this research question were MOOC completion (ME1b) and MOOC-Ed completion (ME1c). Magnitude coding followed research question three. The most prevalent magnitude codes found in this question were “present” and “yes”. The open codes that corresponded with research question three included T=Time, ST=Strategies, and CON=Staying Connected. The coding process of research question three revealed one theme with the primary strategy associated with course completion. One theme was found for research question three. The theme of time management was revealed as a strategy to accomplish course completion.

**Time Management.** The theme of time was multifaceted and represented study participant responses to the research question about strategies used to encourage MOOC completion. All 16 study participants described time management as the critical strategy used to enable MOOC-Ed completion. Two participants mentioned time management verbatim as a completion strategy. Spring 2016 course completer, Doug, provided useful advice for potential MOOC participants:

It's as much time management of the participant to complete as it is anything else. Once you prioritize it and it's important to you then it's just figuring out when you're going to
do it, to ensure that you're able to complete it. It's as much time management of the participant to complete as it is anything else. Once you prioritize it and it's important to you then it's just figuring out when you're going to do it, to ensure that you're able to complete it.

Sasha, Spring 2017 course completer, also mentioned time management as a leading completion strategy: “I would just say time management and pacing yourself. And making lists are always good.” Several study participants suggested using technology to assist with time management. Abigail, Spring 2016 completer, used the process of logging into the course as a time management strategy. She explained “…logging in at a set time each day or knowing that every Monday I was going to go in and log in to see what was required for the week.” Barbara, Spring 2017 course completer, described, “One strategy that I thought helped me was participating in the Twitter chats because it was a specific scheduled time every week.”

Two participants suggested using a phone as a reminder for time management strategies. Nicole, Spring 2017 course completer, explained “…I could timeline into my phone as a calendar reminder. So, I knew everything Monday that a fresh week was starting and just to keep myself a little more organized that way.” Sasha, Spring 2017 completer, suggested, “Checklist, to make sure you’ve done, and you finish and completing things. Maybe you will set timers for yourself. On your phone.”

Creating a schedule was another time management strategy that was suggested by four course completers. Kanette, Spring 2016 course completer, believed “…you have to commit the time to A, look at everything and then prioritize the activities and make it fit where it fits in your current schedule. Casey, Spring 2017 course completer, also encouraged potential MOOC participants to “make a schedule. Try to stick with it. Try not to procrastinate or wait to the last
minute because technology.” Also, Paige, Spring 2016 course completer, described, “I did try to put some time into my weekly schedule planning wise to ensure that I had enough time to do the reading so that I didn't wanna get behind…” Finally, Carolyn, Spring 2016 course completer, also used scheduling as her time management strategy. She said, “I put it into my personal schedule, I block of time, because if it's not in my calendar, often I find it difficult to protect some time for myself to do that.” Utilizing technology and scheduling work time were used by successful MOOC course completers who also recommended these completion strategies for other MOOC learners.

**Findings for Research Question 4.** To what extent do course completers make changes in practice after the Coaching Digital Learning MOOC-Ed?

The last research question focused on the course completers’ changes they described after course completion. The fourth and last research question had nine codes used to understand the extent to which course completers changed their professional practice after MOOC-Ed (Table 12).

Table 12.

**Research Question 4 Code Descriptions and Codes**

<table>
<thead>
<tr>
<th>Research Question 4 Code Description</th>
<th>Research Question 4 Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online professional development completion</td>
<td>ME1a</td>
</tr>
<tr>
<td>MOOC completion</td>
<td>ME1b</td>
</tr>
<tr>
<td>MOOC-Ed completion</td>
<td>ME1c</td>
</tr>
<tr>
<td>Motivation was internal with no tangible incentives</td>
<td>IM1a</td>
</tr>
<tr>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td>Sign up for another MOOC</td>
<td>SM</td>
</tr>
<tr>
<td>Professional Practice</td>
<td>PRO P</td>
</tr>
<tr>
<td>Apply to work</td>
<td>APP</td>
</tr>
<tr>
<td>Staying Connected Strategies</td>
<td>CON ST</td>
</tr>
</tbody>
</table>
The a priori coding cycle was the first coding cycle for this research question. The most prevalent codes found were the online professional development completion (ME1a), MOOC completion (ME1b), and MOOC-Ed completion (ME1c) based on Bandura’s self-efficacy mastery principle. The self-determination code internal motivation (IM1a) was also found in this research question. In addition, magnitude coding was apparent for this research question. “Present” was the most common magnitude code in this research question. Research question four had the most open codes of all the research questions. Four open codes were found: SM=Sign up for another MOOC, PRO P=Professional Practice, APP=Apply to work, and CON ST=Staying Connected Strategies. Two themes were found from the research question and the codes: knowledge and the personal learning network.

**Knowledge.** During the data analysis phase, knowledge was another theme uncovered by the MOOC-Ed study participants. The theme of knowledge was found when asking MOOC completers about making changes to their professional practice. Kanette, Spring 2016 course completer, wanted “to gain some knowledge of expertise in the area of coaching.” Margaret-Leigh, Spring 2017 course completer, described her desire to learn “more in-depth knowledge. It was harder than I thought but it allowed me for some real good deep thinking of my practice.” Nicole, Spring 2017 completer, explained that gaining knowledge and sharing with colleagues were the changes in practice that occurred. She said, “I wanted something to learn about. I wanted to continue my learning, so it was – when I enrolled in I was intent on gaining some knowledge and having something to share with my colleagues.” Another study participant used a metaphor to describe the knowledge that he gained from the MOOC-Ed. John, Spring 2017 course completer, explained:
Just really enhance my knowledge base, because like I said before, we don't have anybody else. Anything technology-wise, they come to me for it, and they really don't like to contract out work either on things like that, so I had to be the one to do it. I'm a Swiss army knife now.

The swiss army knife metaphor explains the value he felt from gaining knowledge from the course. Other MOOC-Ed completers expressed the benefits of gaining knowledge and sharing resources with colleagues. Abigail, Spring 2016 course completer, explained, “I was able to share some of the resources that I learned of through the MOOC.” Sarah, Spring 2017 completer, described her desire to learn knowledge and the coaching format. She also described the other changes to her professional practice by saying, “I would definitely say it provided new insight for me and how I can complete my job and as well as resources that I could go back to if ever needed.” Grace, Spring 2016 completer, shared how the course changed her practice by broadening her knowledge and gaining resources: “So I think for me, it gave me a little bit more confidence in my position and definitely gave me some more resources to use with coworkers who were starting something brand new…” The knowledge theme from this study explained the relevance of gaining knowledge through MOOC-Ed resources.

**Personal Learning Network.** The personal learning network (PLN) such as social media networking, proved to be relevant to explain how the changes in professional practice after MOOC-Ed completion occurred. Barbara, Spring 2017 course completer, described, “I did not use Twitter professionally before and I didn’t really have much of a network. I wasn’t quite sure how to seek out that network, that professional learning network and I have that now.” Max, Spring 2017 completer, explained, “I have really worked to improve/expand my PLN! I’ve been working on my Twitter account -- even going so far as to change my provider so that I can
tweet from within the school!” Carolyn, Spring 2016 course completer, explained that the changes in her practice included “professional development, intellectual stimulation, communication with a community of educators that are interested in and doing the same kind of work that I do or want to do that work.” Carolyn’s coaching action plan also outlined how to improve her PLN. Her action plan stated, “All my social media accounts – review and update. Check the resources and twitter chats referenced in the course materials.” Many participants claimed that using social media improved their professional practice.

Doug, Spring 2016 course completer, also described his interactions with the PLN: “The interaction with other participants, many of the participants from that MOOC and I are still very active in one another's personal learning networks.” Kanette, Spring 2016 completer, described beneficial interactions with the PLN. She explained the professional change process “to connect with other people, other educators, other technology specialist, and those that were in that course to just gain that experience, and information, exchanging of ideas, and even the creativity that came out of it.” Spring 2016 completer Abigail, described a similar experience with connecting to other educators through her PLN. Abigail also explained the MOOC “did increase my PLN and it will give me more coaches that I could reach out to after MOOC was over at Twitter to ask questions if I needed help and to share resources.” The connected network of educators through social media such as Twitter, was a benefit of participating in MOOC-Ed as expressed by study participants.

Chapter Summary

The 16 interview participants shared common experiences which were highlighted in the Spring 2016 and Spring 2017 Coaching Digital Learning MOOC-Ed sections. Different responses were also emphasized in individual introductions of each study participant. The study
participants have various demographic backgrounds such as geographic location and years in education. Based on research questions, codes were used to generate seven themes from three types of coding structures (a priori, magnitude, and open coding). The themes were uncovered through over 100 sources such as interview transcripts and MOOC-Ed documents. Personal motivation, relevance, and online course completion were uncovered through research question one, MOOC-Ed drivers. Personal obligations and time were themes found in research question two, MOOC-Ed barriers. Time management was revealed through research questions three, strategies for successful MOOC-Ed completion. Knowledge and personal learning network were found through research question four, the impact on professional practice. The findings of the study provide a necessary foundation to generate conclusions and recommendations in Chapter 5.
CHAPTER 5: DISCUSSION

Introduction

The Spring 2016 Coaching Digital Learning (CDL) MOOC-Ed had 63 participants that completed the MOOC, and the Spring 2017 Coaching Digital Learning MOOC-Ed had 71 participants that completed. In Chapter 4 of this dissertation, 16 CDL MOOC-Ed course completers were introduced and described. This final chapter addresses study findings in the discussion, implications for research and practice, limitations, and recommendations for future research. The purpose of this study was to describe the barriers and catalysts, drivers and challenges, and strategies associated with Coaching Digital Learning MOOC-Ed course completion. In addition, understanding how MOOC-Ed completers’ professional practice changed after the course was a goal of the study. Four research questions guided the study with qualitative methods:

1. What drivers and catalysts do course completers report encountering in their journey to complete the Coaching Digital Learning MOOC-Ed?
2. What barriers and challenges do course completers report encountering in their journey to complete the Coaching Digital Learning MOOC-Ed?
3. What strategies do course completers report that enabled them to successfully complete the Coaching Digital Learning MOOC-Ed?
4. To what extent do course completers make changes in practice after the Coaching Digital Learning MOOC-Ed?

Massive open online courses (MOOCs) have proven to be a phenomenon used to provide knowledge to self-directed learners from around the world. In this MOOC-Ed study, seven themes were found to provide insight into MOOC completers. The thematic information
provided by the MOOC-Ed includes personal motivation, relevance, online course completion, personal obligations, knowledge, personal learning network and time.

**Summary of Findings**

This section provides a summary of the four findings relevant to this study based on the three forms of qualitative data collection methods used. These findings derived from the research questions, theoretical frameworks (self-efficacy and self-determination), and current MOOC literature. The four findings include 1) Intrinsic motivation is a primary MOOC driver; 2) Scheduling can assist with overcoming MOOC completion barriers; 3) Time management is a strategy used for successful course completion and 4) The personal learning network (PLN) has significant impact on professional practice.

Chapter 1 explained three hypotheses that I believed would be uncovered in the study findings: Hypothesis 1: When school level leadership encourages MOOC-Ed participation it leads to MOOC-Ed completion; Hypothesis 2: Time is the most common completion barrier; and Hypothesis 3: MOOC-Ed study participants described several different self-regulation strategies.

After data collection and analysis, only four study participants explicitly mentioned their direct supervisor or principal encouraging them to participate in MOOC-Ed. My initial hypothesis was not confirmed because most study participants were motivated personally through a sense of accomplishment and the desire to obtain valuable resources as their primary completion driver. The second hypothesis about time being a completion barrier was confirmed in the interviews. The majority of study participants explained the most prevalent completion barrier as lack of time. Busy educators have many demands on their schedules. The two participants that did not complete previous MOOC-Eds both explained that their barriers were
related to lack of time or timing/scheduling issues (due to maternity leave). The final hypothesis was partially confirmed. There was one common self-regulation strategy mentioned by study participants: time management/scheduling. For example, many of the study participants would block off time in their work or home schedules to complete MOOC-Ed tasks. After exploring the self-efficacy and self-regulation literature, I thought there would be more variation in the types of self-regulation strategies explained by the 16 study participants. Time management/scheduling was described as the most prevalent self-regulation strategy across interview participants.

Each hypothesis relates to the actual study findings. The first study finding acknowledges conclusions from the study uncovering overwhelming responses acknowledging participants’ internal or intrinsic motivation (self-determination theory). The intrinsic motivation to persevere in an optional online professional development offering was similar to Deci et al.’s findings. Deci et al., (1991) explained the three basic needs for individuals that are intrinsically motivated. Competence, relatedness, and autonomy are needed for learners with an internal desire to stay motivated and reach a goal (Deci et al., 1991). MOOC-Ed completers received the competence they needed to function and thrive in a digital learning environment through a process encouraged by the coaching digital learning action plan (completion artifact). The study participants also experienced relatedness through online social interaction with the MOOC-Ed discussion forums and Twitter chats. Finally, MOOC-Ed study participants experienced autonomy by initiating self-regulated activities such as creating weekly schedules to assist with time management throughout the six-week course.

Lack of time was as a significant theme that emerged from the study and was also a completion barrier. Consequently, successful MOOC learners used scheduling to assist with
course completion. Self-efficacy theory by Bandura (1995) explained the four principles/sources that positively or negatively influence an individual’s self-efficacy. One of the self-efficacy principles is mastery experiences. Mastery experiences, which are also known as enactive mastery experiences, “are the most influential sources of efficacy belief because they are predicated on the outcomes of personal experiences” (Zimmerman, 2000, p.86). Many of the study participants had experience with online professional development prior to the Coaching Digital Learning MOOC-Ed. These online experiences can be understood as mastery experiences. The online learning mastery experiences helped the MOOC-Ed completers with confidence and increased self-efficacy. In addition, the MOOC-Ed completers with previous online experience understood the commitment and self-regulation required to participate in an online course. These online mastery experiences also prepared the MOOC-Ed completers to have a self-regulation plan. Overwhelmingly, participants explained the importance of creating a schedule to overcome completion barriers (second study finding). In addition, developing time management strategies was reported as paramount to successful MOOC-Ed completion (third study finding). Online learners need to be proficient in time management to be successful. The study participants understood this nuance about online learning because of other successful online experiences where time management was critical.

The fourth study finding explains that the personal learning network had significant impact on the study participants’ professional practice after MOOC-Ed completion. Durksen et al. (2016) explained the belief that MOOC learners need a sense of belongingness. In recent MOOC research, Durksen et al. (2016) explained MOOC motivation from the Deci et al. (1991) viewpoint of competence, autonomy, and relatedness. It is believed that motivated learners need competence, autonomy, and relatedness. In addition, Durksen et al. (2016) believe MOOC
learners also need belongingness due to the online nature of the course. Consequently, in this study, the personal learning network was found to significantly impact professional practice. The sense of belongingness is achieved through the online community explained by Durksen et al. (2016). The personal learning network in the MOOC-Ed study fulfilled a social belongingness need and the need to obtain and share knowledge with discussion forums and Twitter interaction.

**Discussion**

**Research Question 1**

The first finding of this study addresses the first research question which explains that intrinsic motivation was the primary MOOC completion driver throughout the Coaching Digital Learning study. Ryan and Deci (2000a) explained the importance of intrinsic motivation to learners: “From birth onward, humans, in their healthiest states, are active, inquisitive, curious, and playful creatures, displaying a ubiquitous readiness to learn and explore, and they do not require extraneous incentives to do so” (p.56). Knowles (1980) also explained “readiness to learn” for adult learners. One of Malcolm Knowles’s andragogy (adult learning) assumptions explained the adult learner’s desire or “readiness to learn.” Adult learners will exhibit their “readiness to learn” when they need to know certain information to benefit their knowledge. For example, the MOOC-Ed completers (all adult learners) were “ready to learn” about Coaching Digital Learning because it would be beneficial to them professionally as educators. Therefore, the MOOC-Ed completers had an intrinsic motivation to learn by gaining knowledge and resources that would be beneficial for them and their colleagues.

Merriam, Caffarella, and Baumgartner (2007) and Forrest and Peterson (2006) explained the six assumptions of andragogy by Knowles (adult learning). One of the six assumptions (in
Intrinsic motivation is contrasted by extrinsic motivation such as a completion certificate or digital badge. Weimer (2013) explained differences between intrinsic and extrinsic learners by stating “the more extrinsic their motivation, the less intrinsic their commitment to learning” (p. 146). Many of the MOOC-Ed completers described the completion certificate (extrinsic motivation) as a useful addition to knowledge gaining and relevant resources (intrinsic motivation). Pike (2011) described ways to motivate learning such as relevant assignments, course connections (between students), and feedback in a timely manner. Each of those descriptions was mentioned in the study interviews as completion drivers.

Ryan and Deci (2000a) explained the importance of understanding “…that intrinsic motivation will occur only for activities that hold intrinsic interest for an individual—those that have the appeal of novelty, challenge, or aesthetic value for that individual” (p. 59). Many online learners find course completion a challenge due to the self-directed and self-regulation demands on the learner. The MOOC-Ed completers in this study explained their interest and relevance in the Coaching Digital Learning course content, which provided an additional intrinsic motivation.

The intrinsic motivation with online learners has a foundation in competence, relatedness, and autonomy. The self-determination theory has been used in many studies to explain motivation in online settings. Chen and Jang (2010) believed self-determination theory was
appropriate when understanding motivation in an online environment and the relationships between autonomy, competence, and relatedness. Durksen et al. (2016) explained, “MOOCs offer students a platform to work independently, this does not ensure that students feel autonomous” (p. 4). MOOC learners need to feel autonomous to increase their intrinsic motivation for learning. In the MOOC-Ed study, many of the MOOC completers felt autonomous because they made the decision to continuously participate in the optional professional development MOOC. The online environment can actually be conducive to autonomy. Consequently, Yang (2014) explained that the online format of course delivery can promote student autonomy. The course completers found the online format flexible and useful for busy schedules as educators.

Competence is critical when understanding intrinsic motivation of online learners. The competency skills such as the digital learning content and technology skills is foundational for learners to feel value and relevance. The competencies learned during the MOOC-Ed increased the study participant’s desire to continue learning useful content. Durksen et al. (2016) described the importance of teachers/facilitators creating a suitable learning environment to influence student autonomy and competence. The instructional design of a course, especially an online course, can directly impact autonomy and competence. The need for feedback from course instructors/facilitators and peers is also critical to support autonomy and competence, which will inherently influence intrinsic motivation.

Relatedness is also a necessary component to “drive” intrinsic motivation. Online courses such as MOOCs need to have social interactions with facilitators and students to increase the learner’s aspirations to continue course participation. Durksen et al. (2016) stated that “there is evidence showing how online learning can meet students’ needs of autonomy and competence,
the challenge often remains with satisfying the need for relatedness through computer-mediated interactions” (p. 5). MOOC learners need to feel connected to colleagues to understand content and exchange knowledge. Consequently, the personal learning network satisfied this “connection” need with the study participants through the discussion forums and Twitter. Virtual communities allow online learners such as MOOC participants to feel a sense of belonging and membership in the community which provides motivation for the learners (Ainley & Armatas, 2006). The intrinsic motivation was the primary “driver” of course completion by MOOC study participants because their needs of autonomy, completeness, and relatedness were satisfied throughout the course.

**Research Question 2**

The second finding is connected to research question two. This finding describes completion barriers. Scheduling was found to help overcome MOOC completion barriers. Study participants explained lack of time as a primary barrier when participating in a MOOC. Thirteen of the 16 participants had previous online professional development experiences. Consequently, these participants had mastery experiences (Bandura, 1995) to influence their understanding of the time needed to successfully complete an online course such as a MOOC. Creating and following a schedule helped MOOC completers stay on task throughout the six-week course. For example, MOOC completers described outlining their work and home responsibilities then scheduling time to complete MOOC assignments.

One study participant who started Coaching Digital Learning MOOC-Ed previously and dropped out explained lack of time as a barrier to completion. This participant was able to complete the course the second time by scheduling a set time every week to work on the course
This self-regulation strategy allowed this MOOC learner to move from a MOOC-Ed “drop out” to course completer.

Kizilcec, Perez-Sanagustin, and Maldonado (2016) cited previous research that explained that “the main obstacle, according to recent surveys, is that learners do not have enough time to spend on the course” (p. 1). Identical findings were uncovered in the MOOC-Ed study through surveys and interviews. Kizilcec et al. (2016) did not find significant benefits by explaining to MOOC learners self-regulated strategies (such as scheduling) as methods to be successful and persist in the course during enrollment. Consequently, Kizilcec et al. (2016) expressed the belief that recommending self-regulated strategies such as scheduling to MOOC participants does not increase completion or improve course performance. Conversely, the MOOC-Ed study participants in this study recommended that potential MOOC learners use time management strategies to assist with course completion. These time management strategies can be shared by updating the instructional design of the Coaching Digital Learning MOOC-Ed. The MOOC-Ed learners can view weekly prompts in modules to remind learners of ways to achieve course goals, create a schedule, and persist in the course.

Research Question 3

The third finding in this study is based on research question three which determined that time management strategies are important for successful course completion. Several of the study participants reported that self-regulation strategies helped with managing time, which led to course completion. According to Sun and Rueda (2012), “Research has suggested that self-regulated learning incorporates cognitive, motivational and metacognitive dimensions and suggests the importance of self-regulatory skills in academic achievement (Zimmerman & Schunk, 2001)” (p. 193). This research aligns with the findings of this study. The participants in
the MOOC-Ed study used self-regulation strategies such as scheduling as a time management strategy to help with task management, which led to course completion/achievement.

Kizilcec, et al. (2017) explained, “Studies of attrition in MOOCs suggest that metacognitive strategies and resource and task management strategies are critical for success” (p.20). The MOOC-Ed study also produced similar findings that focus on task management strategies as a method to avoid attrition and reach learning goals. There were six findings based on previous research that Kizilcec et al., (2017) believed were important metacognitive and resource and task management strategies: 1) goal setting; 2) strategic planning; 3) self-evaluation; 4) task strategy; 5) elaboration; and 6) help seeking.

In this study, strategic planning and task strategy were found to be the most prevalent strategies associated with course completion. Strategic planning in courses, according to Zimmerman and Pons (1986), consists of “planning the sequence, timing, and completion of activities directed at learning goals” (as cited in Kizilcec et al., 2017, p. 21). Several study participants explained how they used the coaching action plan during the course to complete task related activities that were directly related to the learning goals in the Coaching Digital Learning MOOC-Ed. In addition, MOOC-Ed completers also used task strategy to persist through the six-week course. Effeney, Caroll, and Bahr (2013) and Zimmerman and Pons (1986) described task strategy as “organizing, planning, and transforming one’s own study time (time management) and tasks (i.e., timing, sequencing, pacing, rearrangement of instructional materials” (as cited in Kizilcec et al., 2017, p. 21). The MOOC-Ed study participants explained many task strategies such as planning when to read, watching the digital learning instructional materials, and scheduling time to work on content, which is similar to the second MOOC-Ed study finding.
Three study participants explicitly stated they used *time management* strategies to help them complete the course.

A small number of study participants said they used goal setting similar to the Kizilcec et al. (2017) findings; however, most MOOC-Ed study participants needed a definition of goal setting. Therefore, goal setting was not as predominant in this study. Additionally, the other three findings (self-evaluation, elaboration, and help seeking) from the Kizilcec et al. (2017) study were not prevalent in this MOOC-Ed study. Kizilcec et al. (2016) had previous work that explained resource management strategies such as time management as the highest self-regulation strategy reported by 17 successful MOOC learners (course completers). This finding supports the MOOC-Ed study participants’ descriptions of time management strategies as the most useful self-regulation strategy to complete an online course such as a MOOC.

**Research Question 4**

The fourth research question is explained by the last finding. The final study finding explains the significance of the personal learning network (PLN) on professional practice. A professional learning network (PLN) serves as “…online communities that allow the sharing of lesson plans, teaching strategies, and student work, as well as collaboration across grade levels and departments” (Flanigan, 2011, p. 42). In this definition of professional learning networks, the term *community* is used as a central component of understanding PLNs. In this MOOC-Ed study, the PLN was found to impact study participants’ professional practice. Many participants wanted to connect via the PLN and sustain those professional connections. Consequently, participants described the knowledge gained from completing the Coaching Digital Learning MOOC-Ed and the positive ramifications due to learning content. The MOOC-Ed content proved to be beneficial for the study participants; therefore, they shared the knowledge with
Participants wanted to continue learning about technology and digital content through the professional learning network.

Kellogg et al., (2014) found that “…even with technology as basic as a discussion forum, MOOCs can be leveraged to foster these networks and facilitate peer-supported learning that results in the process of knowledge construction” (p. 278). The findings from the Kellogg et al. (2014) study support this MOOC-Ed study. The study participants were able to connect with the personal learning network and construct knowledge to contribute to their professional practice. However, Kellogg et al. (2014) acknowledged that declining rates of participation and MOOC completion also impacted the personal learning network connections. The MOOC-Ed study participants were interested in staying connected to other MOOC-Ed participants through the personal learning network regardless of low completion rates.

Durksen et al. (2016) explained that creating belongingness in a social network such as a PLN also increases motivation in MOOCs. They explain, “Well-designed learning communities, off- and online, have the potential for encouraging relatedness and a sense of belonging through the development and maintenance of genuine and caring relationships” (Durksen et al., 2016, p. 5). The learning communities created through social media outlets such as Twitter promote continuous knowledge sharing, which has a direct impact on professional practice. Furthermore, Trust (2012) explained a PLN as a system that supports learning in an informal environment through social connections and resources. The connections and collaboration are significant in a PLN because communities/networks should strive to meet the needs of learners, including their social need for communication explained by Hodes, Pritz, Kelley and Foster (2011). Through communicating with digital coaches from around the world, the PLN can continue to grow and
promote technology integration strategies that can be shared and ultimately improve the practice of the network members.

Web 2.0 tools (such as course artifacts Powtoon) and social networking serve as a basis in a personal learning network and a need to stay current on innovative technology tools and ideas. Lewis, Koston, Quartley, and Adsit (2010) explained, “Web 2.0 tools allow for broad-based participation and information exchange. They facilitate the social construction and dissemination of knowledge by enabling all participants to share content” (p. 157). In an online environment, Web 2.0 tools help with knowledge sharing and best practices. In this MOOC-Ed study, participants shared knowledge through Web 2.0 tools such as Lino and Powtoon. In addition, Twitter was helped with resource and knowledge sharing to impact professional practice in the study.

Ennis and West (2010) explained four key features or components to social networks, which are similar to personal learning networks and the ability to impact practice for MOOC completers. The four features of social networks were drawn from research from Hill (2002), Mitchell (1969), and Wellman (1998). The first feature Ennis and West (2010) explained related to network size. Social network characteristics include “…network size, the connectedness of the actors, the concentration or dispersion of the actors, the accessibility of the network, the degree of clustering in the network, and the heterogeneity or homogeneity of the actors” (Ennis & West, 2010, p. 408). The size of a network and how connected the network participants are can have a positive or negative impact on the knowledge generation and sharing of resources. Study participants were satisfied connecting with a small number of Coaching Digital Learning participants and facilitators. The second social network feature is the networking process, which encompasses what content is being exchanged within the network (Ennis & West, 2010).
MOOC-Ed completers used the social network or personal learning network to exchange resources and knowledge to share with fellow educators.

The third feature of social networks incorporates members serving the purpose/goals of the network and broader social functions. Social networking tools such as Twitter have a purpose designed by members and their posts. The MOOC-Ed Coaching Digital Learning course allowed the MOOC learners to participate in synchronous Twitter chats. The Twitter chats provided MOOC participants with an additional opportunity to interact with fellow educators in real time, gain expertise, and construct new digital learning knowledge.

The last feature identified by Ennis and West (2010) was the composition of the network. The arrangement of the individuals within the network could produce a wealth of knowledge, educational experiences, and professional opportunities. Regardless of the size of the group, social network participants should connect with each other to assist with professional goals. The MOOC-Ed completers had a variety of professional job responsibilities and goals. Sharing knowledge and opportunities allowed some MOOC-Ed completers to connect at professional conferences. These MOOC-Ed completers organized conference presentations and dispensed digital learning content, which is the ultimate benefit of a personal learning network…knowledge creation and knowledge sharing to directly impact practice.

**Discussion Summary**

The themes in the study are related to each other by the self-determination theory. The self-determination theory (Deci & Ryan, 1985) has a continuum that focuses on amotivation (lack of motivation), extrinsic motivation, and intrinsic motivation. Figure 4 is a visual representation of the themes of the study.
Autonomy is the common thread that relates all seven study themes. As a MOOC participant moves along the self-determination continuum, there is a need for robust autonomy. For MOOC participants to gain knowledge and understand the relevance of course content, they need autonomy to successfully navigate through the online course. The autonomous actions of MOOC completers required self-regulation to encourage personal motivation, personal learning network participation, and online course completion. Self-regulation strategies such as creating a schedule are necessary to manage personal obligations and time.

Five themes are related by intrinsic motivation that describe the internal “drive” to complete a MOOC. Personal motivation, relevance, online course completion, knowledge and personal learning network themes are intrinsic drivers or motivation to complete the six-week online course. Each of these internal motivation themes have a commonality of developing an inherent interest, enjoyment, and/or satisfaction (Ryan & Deci, 2000). Two of these themes
exhibit a lack of motivation or amotivation. *Personal obligations* and *time* (lack of time) are barriers described by MOOC completers. These barriers also cause MOOC participants to lose motivation and encouragement. When motivation is not present, completion becomes difficult to achieve. Persistence and determination are necessities when attempting to overcome barriers such as lack of motivation.

**Limitations**

There were several limitations and delimitations in the Coaching Digital Learning MOOC-Ed study. A lack of variation between study participants in terms of country of origin and gender was a study limitation. This study would have benefited from more study participants from different countries and more male study participants. There was only one international study participant and two males. Additional variation in the MOOC-Ed study could strengthen findings since MOOCs are offered globally. The second study limitation was the Coaching Digital Learning MOOC-Ed population. This study examined Spring 2016 and Spring 2017 course completers. The interviews were conducted in November and December 2017. To strengthen the study, study participants from Spring 2017 and Fall 2017 would have been more relevant due to study participants completing the MOOC-Ed closer to the interview date. In at least two of the interviews, Spring 2016 study participants described not being able to recall certain aspects of the MOOC-Ed or they would open the Coaching Digital Learning course outline to refresh their memory before answering interview questions. At the time of the study, the researcher was not aware of a Coaching Digital Learning MOOC-Ed being offered in Fall 2017. Therefore, the Fall 2017 course completers were not included in the study for more current data collection.
I considered my participants’ time restraints during interviews and questionnaires because of their demanding work schedules as educators as a limitation. Resources were an issue because the Coaching Digital Learning MOOC-Ed participants were from several different states nationally and various countries internationally. Consequently, observations were difficult to conduct due to limited resources. However, the study bias/subjectivity was minimized through triangulation methods.

**Study Delimitations**

Several delimitations were determined by the researcher to be present in this study. The number of study participants who were interviewed were delimited. I added to Creswell’s (2013) case study recommendation of approximately five participants by having 16 study participants. I also decided not to study MOOC-Ed participants in different courses (except for in the pilot study). The study focused only on the Coaching Digital Learning course. Also, only MOOC-Ed participants who completed the course were selected to participate in the research study. Selecting educators who completed the course was a delimitation. In addition to the study limitations, this study was delimitated to only Coaching Digital Learning MOOC-Ed course completers due to accessibility. The researcher did not attempt to interview MOOC-Ed drop outs due to lack of time and resources. However, two MOOC-Ed completers and study participants admitted being MOOC dropouts, which provided distinctive viewpoints.

**MOOC-Ed Study Findings and Current Literature**

Several studies from the current literature support and refute the findings of this MOOC-Ed study. Current MOOC research explains how the free or low cost MOOCs impact students and MOOC providers. Yuan and Powell (2013) explained, “The disruptive innovation of MOOCs is in shifting costs from students to institutions and future employers, by offering
services such as matching students to jobs using the evidence of their performance in MOOC courses” (p. 2). Findings from the MOOC-Ed study described that many employers encouraged their educators to enroll in the course because it was a free professional development opportunity and many districts had limited budgets. Due to MOOCs providing free professional development, the question arises: Why wouldn’t you finish a free online course? As found in the MOOC-Ed study, barriers such as lack of time and personal obligations make course completion difficult. Another research study within the current literature that supports the findings from the MOOC-Ed study was conducted by Davis, et al (2017). Davis et al. (2017) described MOOC learners reporting “…that they could not find the time to keep up with the course, a challenge that is related to insufficient self-regulatory abilities” (p. 1). These findings are similar to this MOOC-Ed study findings. One of the challenges or barriers acknowledged by the study participants was lack of time to participate in the MOOC.

This study also supports some of the findings of Hew and Cheung (2014) who uncovered six primary challenges to learning within a MOOC. One of the challenges was lack of time to participate and/or complete the MOOC (Belanger & Thornton, 2013; Rice, 2013). The lack of time factor was prevalent because MOOC participants had other commitments and obligations that prohibited MOOC participation and learning. Lack of time was also a significant barrier in the MOOC-Ed study. MOOC-Ed study participants had to overcome family obligations and lack of time to participate in the MOOC during work hours (job commitments). Consequently, many MOOC-Ed completers used time after work to complete MOOC assignments.

Lack of time was the most common barrier described by MOOC-Ed study participants. However, the completers were able to overcome MOOC challenges or barriers because they were motivated and persistent throughout the six-week course. Milligan et al. (2013) explained
that successful MOOC learners were active participants during the course and highly motivated. This finding is similar to the commonly reported MOOC-Ed completion driver, personal motivation. The MOOC-Ed study participants were intrinsically motivated to complete the course despite lack of time.

MOOC-Ed completers exhibited the desire and motivation to finish the course. Espinosa et al. (2015) described the connection between self-determination and motivation that is directly related to self-regulated learning. MOOC learners who have autonomous behaviors and display regulation skills are likely to have high academic performance (Espinosa et al., 2015). MOOC-Ed completers used self-regulation skills such as time management strategies and scheduling to successfully navigate the course.

In contrast, the Kizilcec et al. (2016) study found different significant findings from the MOOC-Ed study. Kizilcec et al. (2016) stated, “We found that goal setting and strategic planning predicted attainment of personal course goals” (p. 18). The MOOC-Ed study revealed time management strategies, not goal setting, was the most significant factor for completion.

The significance of the personal learning network and knowledge finding was echoed within the MOOC literature. Durksen et al. (2016) explained that “…the need for belonging may be satisfied when a MOOC is organized into smaller communities that are driven by social engagement and knowledge sharing” (p. 16). Within a personal learning network, social engagement occurred on Twitter (social media) with MOOC-Ed completers. Also, the exchange of information on Twitter and online promoted knowledge exchange and sharing. Knowledge and relevance were important information in MOOC research found by Littlejohn, Hood, Milligan and Mustain (2016) who described that “high self-regulators were less concerned about outward measures of performance than developing knowledge and expertise that was relevant to
their professional needs” (p.44). MOOC-Ed study participants were interested in knowledge generation and sharing and using the knowledge at work due to the relevance of their occupations. The goal of learning knowledge was also the personal motivation catalyst for many MOOC completers to finish the course.

Littlejohn et al. (2016) had a conflicting finding from the MOOC-Ed study. They found learners with low self-regulated learning scores were more likely to follow the MOOC in a structured manner using scheduling to follow and complete the course (Littlejohn et al., 2016). The MOOC-Ed study found MOOC completers used time management to successfully navigate the course, which was viewed as a high self-regulated strategy.

**Theoretical Implications**

This study used two theories to generate a theoretical framework understand how MOOC learners persist through a six-week course to understand the drivers, barriers, and strategies associated with course completion. Two major theoretical implications were found to impact the self-determination theory and self-efficacy theory. The two theoretical implications included (1) Focusing on including social networking elements such as the personal learning network to the self-determination continuum for online learners and (2) Altering Bandura’s self-efficacy theory principles by adding locus of control.

The two theories, self-efficacy theory and self-determination theory, were supported by MOOC-Ed study findings. Both theories paralleled responses from study participants. However, two theoretical considerations were determined based on study findings. One of the theoretical considerations was altering the self-determination theory to include motivation for online learners based on the self-directed behaviors (internal motivation) required for successful online learners. Additionally, based on MOOC-Ed study findings the self-efficacy theory should
have an additional principle of locus of control added to the framework. Study participants had an internal locus of control that worked as a catalyst for course completion.

**Self-Determination Theory**

The self-determination continuum by Ryan and Deci (2000b) has three primary areas to address motivation, including amotivation, extrinsic motivation, and intrinsic motivation. The three areas of motivation were supported in the MOOC-Ed study. Ryan and Deci (2000b) also have several behaviors on their continuum such as relevant regulatory processes that correspond to motivation levels. After uncovering the findings of the MOOC-Ed study, it has been determined that regulatory processes for online adult learners should be added to the self-determination continuum based on the study findings.

Autonomy, social networking, connectedness, and belongingness should be added to the continuum to address regulatory processes of online learners. The regulatory process should be social and engaging to keep learners motivated. Online learners such as MOOC participants have additional motivational needs to traditional learners that should be addressed on the self-determination continuum. Figure 5 is a visual of the proposed addition to the continuum. The triangle has the online learner addition under the self-determined and intrinsic motivation column. This continuum was created in the year 2000 when online learning was a relatively novice learning avenue. Therefore, eighteen years later with substantial online learning research and literature, there should be a consideration to revise the continuum to address motivation in an online environment.
Self-Efficacy Theory

The second theoretical implication addresses self-efficacy theory by Bandura (1997) and the principles associated with self-efficacy. Currently, there are four self-efficacy principles, including (1) mastery experience, (2) vicarious experience, (3) verbal persuasion, and (4) physiological states. Each of these principles contributes to the belief that an individual can accomplish a specific goal, and each principle was found in this MOOC-Ed study. After conducting the MOOC-Ed study, it is the opinion of the researcher that another principle should be added to Bandura’s self-efficacy principles.
Locus of control should be added to Bandura’s principles to describe online learners’ self-efficacy. Joo et al. (2013) explained that “according to Martinez (2003), persistence tended to be predicted by learners’ background characteristics, goal-orientation, and locus of control. Among these, locus of control was the most influential factor for determining whether to persist to learn or not” (p. 150). Locus of control should be added to the self-efficacy principles for online learners because of an individual’s internal or external locus of control belief. Individuals with internal locus of control, such as the majority of the MOOC-Ed study participants, understand that their actions and efforts directly influence the course completion outcomes.

**Practice Implications**

Four main practice implications can be drawn from the MOOC-Ed study. The four implications from this study focus on (1) Including peer evaluation to assist with MOOC-Ed participant feedback, (2) Updating the instructional design of MOOC-Ed by implementing a feedback system interface, (3) Designing and offering a Coaching Digital Learning MOOC-Ed (2.0) for completers interested in enrolling and participating in an advanced course, and (4) Understanding espoused theory and theory-in-use as it relates to the MOOC-Ed completers.
Peer Evaluation Implication

The first practice implication addresses an evaluation concern mentioned by some MOOC-Ed completers. These MOOC-Ed completers wanted more feedback or grades to correspond with weekly units in addition to discussion forums. Consequently, peer evaluation would be beneficial to offer additional feedback to MOOC participants in the Coaching Digital Learning course. Also, many of the MOOC completers wanted additional feedback on the coaching action plan from peers.

Instructional Design Implication

The second practice implication is based on instructional design. Study participants were impressed with the overall instructional design of the course. However, an additional feature could be added to the course to assist with motivation and persistence. Davis et al. (2017) designed a feedback system for social comparison that uses a learning tracker embedded into the course. This feedback system interface provides MOOC learners with a progress summary (framing), feedback metrics, interactive discussion board forum data, and planning ahead information. Davis et al. (2017) explained that when implementing the feedback system within MOOCs, the system significantly increased the completion rates within the massive open online courses.

Coaching Digital Learning MOOC-Ed (2.0) Implication

The final practice implication also addresses instructional design. During the interviews, numerous study participants described their enthusiasm about the Coaching Digital Learning MOOC-Ed. Participants were interested in participating in another Coaching Digital Learning MOOC-Ed for “alumni” or completers of the course. Several of the study participants were interested in another course because of relevant content and resources. Therefore, a considerable
practice implication is to design and offer an advanced Coaching Digital Learning MOOC-Ed (2.0) for completers of the course. Some participants that suggested an advanced course had completed other technology related MOOC-Ed courses but wanted to participate in additional courses related to their field.

**Espoused Theory and Theory-in-Use Implication**

Argyris and Schön (1974) introduced espoused theory and theory-in-use, which is relevant to how MOOC-Ed completers viewed their professional practice changing after the Coaching Digital Learning course. Polly and Hannafin (2011) explained, “previous researchers have suggested that the alignment between teachers’ espoused and enacted practices was greater for teachers that expressed interest in trying new pedagogies” (p. 121). The MOOC-Ed study participants had a higher potential for carrying out the “theory-in-use” due to interest in the digital learning content and the personal learning network support. The majority of the MOOC-Ed study participants revealed through interviews “what they wanted to do” (espoused theory) with technology integration after MOOC-Ed was being carried out effectively (theory-in-use). Therefore, there was alignment between espoused theory, theory-in-use, and the actions/changes in professional practice after MOOC-Ed completion. Many of the MOOC-Ed study participants did not express a disconnect between what they learned and their actions after the course. However, the personal learning network (Twitter) can be used to help provide continuous support to educators for assistance with the theory-in-use actions.

**Policy Recommendations**

Several policy recommendations should be considered when delivering and participating in a MOOC. First, accessibility considerations are important to all online content open to a global community. MOOC providers and designers devise policies for courses to ensure all
content is accessible to diverse learners with disabilities. For example, all videos within a MOOC should be captioned. Universal Design for Learning offers guidelines that should be followed when creating any open educational resources (OER) such as MOOCs. One of the study participants explained how he used several of the high quality videos from MOOC-Ed in courses he designed. The study participant specifically mentioned one MOOC-Ed video that he reused for training and his courses. Doug, Spring 2016 MOOC-Ed completer, described “…several of the videos have showed up in courses that I've designed, because they were perfect.” Specifically, Doug mentioned the “SAMR Swimming Pool” video he has reused numerous times. This video is on YouTube and is closed captioned with a transcript. When designing courses, instructors should always use the best practice of captioning videos and/or providing a transcript. Providing the captioning or transcript allows all learners to have access to the video content, which is critical, especially with open educational resources. Carolyn, Spring 2016 MOOC-Ed completer, explained, “…I have to say I don't always watch all the videos. Sometimes I'll look at the transcripts instead because it's faster. I know that's just a preference”. Carolyn was the international study participant who preferred reading video transcripts; however, many learners need transcripts or closed caption to meet certain learning accommodations.

Additionally, some European countries have created a MOOC commission to provide oversight to MOOCs. For example, an appointed MOOC commission was established: “The Norwegian Government initiated a process aimed at establishing a knowledge base for policy decisions relating to MOOCs and similar technological developments within higher education” (Tømte, Arne & Aanstad, 2017, p. 221). Similar commissions can be created in developing countries to help support infrastructures needs. Once technology infrastructure is properly established, MOOCs can be more readily available for learners around the world. Fortunately,
the international MOOC-Ed study participant explained she did not have any technical issues. She believed participating in a MOOC helped her not feel “isolated” in her small Middle Eastern country. She explained that if she did not have access to MOOCs and the Internet, her professional development would be limited to only local conferences. Consequently, due to proper technology infrastructure, this study participant was able to participate and complete several MOOCs and increase her digital learning knowledge.

Another policy recommendation includes MOOC providers charging participants for the online course. Yuan and Powell (2013) stated “the most common revenue stream for the major new MOOC providers is to charge fees for certificates” (p. 3). Many MOOC providers are interested in business models to insure financial benefit for offering learning opportunities or offering a rebate after MOOC completion. However, the origin of MOOCs is rooted in open free access to courses. Several MOOC providers in higher education are using the traditional model of not charging “many institutions participating in MOOCs consider the courses they offer to be a branding and marketing activity at present” (Yuan & Powell, 2013, p. 3).

**Recommendations for Future Research**

The study findings provided detailed descriptions of MOOC learners’ drivers, barriers, and strategies related to course completion. Consequently, the study also left many questions that could be useful future research to continue learning about MOOC participants and online learners. After this MOOC-Ed research study, several areas were revealed for recommendations for future research. First, many of the MOOC-Ed participants were interested in sustaining connections with colleagues via the personal learning network. More research should be conducted on how MOOC connections can be sustained after course completion through the personal learning network such as Twitter.
Another area of future research that would contribute to the MOOC literature is understanding lack of time barriers and how to overcome those barriers with time management strategies. This research would address MOOC instructional design factors and interface by providing a detailed prompt and description every week (each unit or module) to MOOC participants about specific strategies they can use if the participant is facing lack of time challenges. These recommended strategies would include scheduling and planning ahead to complete individual weekly tasks in the MOOC. These descriptive prompts within the instructional design interface of the course presents a crosswalk between MOOC policy and a practical implication.

Next, research should be conducted to examine course participation motivations between MOOC completers and drop-outs. Researchers can explore the similarities and differences between motivations of the completers and drop-outs based on the self-determination continuum. These motivations will vary from amotivation, extrinsic motivation, and intrinsic motivation.

Also, more qualitative research needs to focus on MOOC completion, motivation, and persistence. There are countless quantitative studies about MOOCs and “low completion rates”. However, many of these studies have failed to use qualitative methods to provide a “voice” and “descriptions” coupled with the completion rates. MOOC completion is more than just a number or percentage of individuals that finish the course from beginning to end. Low completion numbers within MOOCs should not be viewed as a problem or reason to not offer MOOCs to global learners. Instead, MOOC providers should be proactive about promoting their courses as learning opportunities with testimonials from MOOC participants. These testimonials should explain the ripple effects of participating in a MOOC such as reaching personal/professional learning goals regardless of “official” MOOC completion.
Additionally, it would be useful to add school observations to a MOOC study if time and resources were not factors. Observations would be beneficial to understand the changes in professional practice that occurred based on Coaching Digital Learning MOOC-Ed completion. The MOOC literature has a gap of qualitative studies that address the interplay between achieving learning goals, understanding motivation through self-determination, and examining time management strategies for MOOC learners. For example, future studies can examine if learning goals were met through extrinsic and/or intrinsic motivation by MOOC drop outs and MOOC completers. In the MOOC-Ed study, there were two previous MOOC participant drop outs that found the Coaching Digital Learning relevant to their professional practice and their personal learning goals. Consequently, they decided to re-enroll and finally completed MOOC-Ed. These two drop outs used their intrinsic motivation with scheduling to complete the course on the second attempt. Also, future research can investigate how time management strategies such as scheduling and strategic planning directly or indirectly impact course goal attainment.

Finally, a recommendation for additional research includes understanding the differences in MOOC completion between genders. In the MOOC-Ed study, there were fourteen female MOOC-Ed completers and two male completers. This ratio is similar to K-12 teacher gender demographics. According to the National Center for Education Statistics (2016), 76 percent of public school teachers were female and 24 percent were male in the 2011-12 school year. The MOOC-Ed study had a high number of female participants which is similar to national demographics. The gender demographics hold consistent in K-12 education and the study which was influenced by the available participant group and data results. The gender differences in the study were not discussed primarily because the field of education historically has a high number of female educators. However, future research should focus on MOOC completion by
investigating by gender to determine if there are differences between male and female course completers.

**Conclusion**

In this chapter, the four study findings were explained as they relate to the research questions and the theoretical framework within the discussion. Additionally, several study limitations were explained such as limited time and resources. Theoretical and practice implications were highlighted as a result of the findings from the MOOC-Ed study participants. Due to the global initiative of MOOCs, policy recommendations were addressed to assist with accessibility or geographic location.

The three areas of future research were explained to prompt more researchers to conduct qualitative MOOC studies focusing on MOOC completers’ motivation and learning goals. Recommendations included research on how to sustain personal learning networks through social media. The second recommendation described conducting research on the similarities/differences between participation motivations in MOOCs with completers and drop-outs. The last recommendation was the need for more qualitative MOOC research on motivation and online course completion.

The Coaching Digital Learning MOOC-Ed provided numerous educators a free opportunity to engage in professional development with colleagues from around the world. These educators provided detailed descriptions about the MOOC drivers, barriers, and strategies associated with course completion and explained how their professional practice was altered as a direct result of the MOOC. These descriptions provided a complex perspective of MOOC learners that are often viewed in a monolithic data set (completion rates), which does not accurately reflect a comprehensive understanding of how the course addressed the MOOC
participant’s learning goals. The MOOC learners that were able to self-regulate and harness their intrinsic motivation were able to persist and remain tenacious through lack-of-time barriers. These MOOC participants successfully completed the course through personal intrinsic motivation to obtain certification and continuing education units as their extrinsic reward.
REFERENCES


APPENDICES
Appendix A

North Carolina State University

Informed Consent Form For Research

A Descriptive Case Study of Adult Learners’ Completion in the Coaching Digital Learning Massive Open Online Course

Charlotte Russell Cox (Investigator)       Dr. Diane Chapman (Committee Chair)

What should you know about research studies?

You are being asked to take part in a research study. Your participation in this study is optional. You have the right to be part of this study, to choose not to participate or to stop participating at any time without penalty. The purpose of research studies is to gain a better understanding of a certain topic or issue. Research studies also may pose risks to those that participate. In this consent form you will find specific details about the research in which you are being asked to participate. If you do not understand something in this form it is your right to ask the researcher for clarification or more information. A copy of this consent form will be provided to you. If at any time you have questions about your participation, do not hesitate to contact the researcher(s) named above.

Confidentiality

The information in the study records will be kept confidential to the full extent allowed by law. Data will be stored securely on a password protected computer. No reference will be made in oral or written reports which could link you to the study.

What is the purpose of this study?

The purpose of this study is to provide descriptions about the drivers (catalysts), barriers (challenges), and strategies used to complete a MOOC. MOOC providers and MOOC participants will understand ways to successfully matriculate and complete a MOOC.
What will happen if you take part in this section of the study?

If you agree to participate in this study, you will be asked to participate in an interview. The interview will be via telephone or online and will take approximately 45-60 minutes. Interviews will be audio recorded and transcribed. Participants will be emailed the transcription of their interview and given the opportunity to review it and make any corrections. If you agree to participate in this study, I will be accessing various documents from your MOOC-Ed course. Those documents will support your interview and questionnaire responses.

Benefits

Participation in this study will contribute to the massive open online courses (MOOC) current body of literature. Your participation in this study will also be useful information for the NCSU Friday Institute’s MOOC-Ed Coaching Digital Learning course.

Compensation

For completing the study (demographic questionnaire and interview) you will receive a $25.00 Amazon eGift Card. If you withdraw from the study prior to its completion (during the interview portion), you will not receive compensation. If you only participate in the demographic questionnaire, you will not receive compensation.

What if you are a teacher/educator?

Participation in this study is not a requirement of your employment. Your participation or lack thereof, will not affect your job.

What if you have questions about this study?

If you have questions at any time about the study or the procedures, you may contact the researcher/investigator, Charlotte Russell Cox, at 4140 Strendal Drive, Cary, NC 27519, or (336) 558-7248.
**What if you have questions about your rights as a research participant?**

If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Deb Paxton, Regulatory Compliance Administrator at dapaxton@ncsu.edu or by phone at 1-919-515-4514.

**Consent to Participate**

“I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled.”

Subject's Signature____________________________________   Date ____________

Investigator's Signature ________________________________   Date_____________
Appendix B

Coaching Digital Learning MOOC-Ed Questionnaire

Online questionnaire link is:  http://tinyurl.com/n2znw6n

**Employment/Educational Status (choose more than one option if applicable):**

Full Time Student

Part Time Student

Employed Full Time

Employed Part Time

Self-Employed

Unemployed

Retired

Other:

Where do you live (World region:  Country, state, and city)?

________________________________

What is your highest level of education (Such as: High school diploma, undergraduate college degree, graduate degree, or professional degree)?

________________________________

Do you have a flexible daily schedule that allows you to work on a MOOC at work?

Yes

No

Other:

Do you have a flexible daily schedule that allows you to work on a MOOC at home?

Yes
No

Other:

How much time (in minutes or hours) in a normal week did you use to work on professional development opportunities such as MOOC-Ed?
_____________________________

What is the number of MOOCs (online classes/professional development) you have participated in (including the Coaching Digital Learning MOOC-Ed) in the past five years:
1  2  3  4  5
  6+

What types of incentives from your employer did you receive for completing the course?
_____________________________

Age:
Less than 26  26-35  36-45  46-55  Older than 55

Gender:
Female
Male
Decline to respond

Would you be willing to spend 45 minutes to one hour in an online or telephone interview to discuss the barriers, drivers, and strategies to complete a MOOC ($25 eGift card will be provided as compensation)?

Yes
No
What is your communication contact preference (telephone or Web Ex web-conference) for the study follow up interview?

Telephone

Web Ex Web-conference

What is your preferred email address?

____________________________

What is your preferred name? (Please answer only if you agree to participate in the study)

____________________________
Appendix C

Interview Protocol-MOOC-Ed Coaching Digital Learning Qualitative Study

Hello, my name is Charlotte Russell Cox and I am a doctoral student in the Adult and Community College Education program at North Carolina State University. I am trying to learn about your drivers (catalyst) and barriers (challenges) for completing the Coaching Digital Learning course. I am also interested in learning about strategies you used during and after the Coaching Digital Learning MOOC-Ed.

Please give me a pseudonym/false name “nickname” that I will use to protect your identity in the questionnaire and interview. You have recently been enrolled and participated in the Coaching Digital Learning MOOC-Ed. You can contribute to the research through an interview. I am going to ask you various questions. The questions are divided into three sections. The sections are Coaching Digital Learning MOOC-Ed completion drivers, Coaching Digital Learning MOOC-Ed completion barriers, and strategies used during and after the Coaching Digital Learning MOOC-Ed.

Additional information about the interview and study includes:

- Your participation in this interview and study is voluntary with the option to stop participating at any time.
- The interview will be recorded to ensure accuracy. The recording will be confidential and your real name will not be associated with the study findings and results.
- This interview will last approximately 60 minutes.
- You can request for me to repeat questions.

1. What is your background in the field of education?
• What are your years of experience in the Education field-teaching and/or working in a school district, charter school, private school, or higher education (probing question)?

• How flexible is your work schedule?

2. What types (if any) of online professional development have you participated in prior to the Coaching Digital Learning MOOC-Ed?

• If yes, please describe what your experience was like in the course (probing question).

• Have you successfully completed a MOOC or MOOC-Ed prior to the Coaching Digital Learning course (probing question)?

• If no, what has prevented you from taking an online course (probing question)?

Coaching Digital Learning MOOC-Ed Completion Drivers

3. What drove you to participate/enroll in the Coaching Digital Learning MOOC-Ed?

• Why did you enroll in the Coaching Digital Learning MOOC-Ed (probing question)?

• Do you know anyone who has taken or completed a MOOC or MOOC-Ed (probing question)?

• What motivated you to participate in the course (probing question)?

• Was a course completion certificate a factor in deciding to enroll the course (probing question)?

• What were your intentions for enrolling the Coaching Digital Learning course (probing question)?
4. What did you hope to achieve by taking this course?
   • How well were your expectations met upon completing the course (probing question)?

5. What drove you to complete the course through the end of the Coaching Digital Learning MOOC-Ed?
   • Why did you complete the Coaching Digital Learning MOOC-Ed (probing question)?
   • Did anyone such as family, friends, co-workers, or MOOC-Ed facilitators encourage you to continue participation and finish/complete the Coaching Digital Learning MOOC-Ed (probing question)?
   • What motivated you to complete in the course (probing question)?
   • Was a certificate a factor in deciding to complete the course (probing question)?
   • What were the benefits of completing the Coaching Digital Learning course (probing question)?

Coaching Digital Learning MOOC-Ed Completion Barriers and Challenges

6. What were the barriers that you encountered in completing the course?
   • Were weekly unit readings and videos challenge (probing question)?
   • Was completing an assignment a challenge (probing question)?
   • Was completing the Coaching Action Plan a challenge (probing question)?
   • Was accessing the Internet a challenge (probing question)?
   • Was lack of time to work in MOOC-Ed due to other priorities and commitments a challenge (probing question)?
• Were the discussion forums a challenge (probing question)?
• Were your professional obligations a barrier (probing question)?
• Were your personal obligations a barrier (probing question)?
• Were there any strategies that you used to minimize your stress level or increase your mood when facing barriers or challenges during the six week Coaching Digital Learning MOOC-Ed?

Strategies During and After the Coaching Digital Learning MOOC-Ed

7. What strategies did you use to help you complete the Coaching Digital Learning course?
   • What specific strategies did you use to complete the course (probing question)?
   • Did you use goal-setting as a strategy to complete the course (probing question)?
   • What strategies have you heard of that other MOOC participants use (probing question)?
   • What completion strategies do you think could encourage MOOC-Ed completion (probing question)?
   • Do you have suggestions for potential MOOC participants to help them complete the course (probing question)?

8. How has participating in the MOOC-Ed changed your professional practice?
   • Did you apply coaching strategies from the Coaching Action Plan you learned in the MOOC-Ed at work (probing question)?
   • Did you apply action steps from the Coaching Action Plan you learned in the MOOC-Ed at work (probing question)?
• Did you apply any resources from the Coaching Action Plan you learned in the MOOC-Ed at work (probing question)?

• Did you apply any information from the CDL MOOC-Ed units you learned in the MOOC-Ed at work (probing question)?

• If not, what information from the Coaching Digital Learning would you like to apply in the future (probing question)?

9. What do you think the value is in staying connected to participants from the Coaching Digital Learning MOOC-Ed?

• What strategies would you use to stay connected to the MOOC-Ed participants (probing question)?

• If you do not see value in staying connected to MOOC-Ed participants, explain why (probing question)?

• What are some challenges to staying connected to participants in the Coaching Digital Learning MOOC-Ed (probing question)?

10. Is there any other information about completing the Coaching Digital Learning MOOC-Ed course that you would like for me to know?

Thank you for your time and participation. Your responses will be a helpful addition to the MOOC-Ed (Coaching Digital Learning) study. In the next few days, you will receive an email from me with the transcript of this interview and compensation for participating in this study. You will have the opportunity to review the transcript and send me any corrections.
Appendix D
Questionnaire Participation Email

Subject: Gift card incentive! MOOC-Ed research questionnaire

Hello Fellow Educators,

My name is Charlotte Russell Cox and I am fellow educator. I am also a doctoral student at North Carolina State University (NCSU) in the College of Education and currently completing my dissertation about the NCSU Friday Institute’s Coaching Digital Learning MOOC-Ed. You recently completed a MOOC-Ed and you have been selected to participate in this online questionnaire about MOOC completion. The purpose of this study is to provide descriptions about the drivers (catalysts), barriers (challenges), and strategies used to complete a MOOC. MOOC providers and MOOC participants will understand ways to successfully matriculate and complete a MOOC.

This online questionnaire is voluntary and your participation will greatly benefit the research study. This online questionnaire is brief and will take approximately 10-15 minutes to complete. The online questionnaire link is: http://tinyurl.com/n2znw6n

The last questions will ask about your willingness to participate in a follow up interview. After you complete the questionnaire, you have the opportunity to participate in a follow up interview about MOOC completion. If you decide to participate in the interview and complete the phone or web conference interview, you will receive a $25.00 Amazon eGift card as a gesture of my appreciation for your participation in this study. Your questionnaire responses will be confidential.

If you have questions about this study or the online questionnaire, please contact me at erleerus@ncsu.edu or (336) 558-7248.

Thank you in advance,

Charlotte Russell Cox
Appendix E

Interview Participation Email

Subject: Gift Card Incentive! -Coaching Digital Learning MOOC-Ed Research Interview

Hello Educator,

My name is Charlotte Russell Cox and I am a fellow educator. I am also a doctoral student at North Carolina State University (NCSU) in the College of Education and currently completing my dissertation about the NCSU Friday Institute’s Coaching Digital Learning MOOC-Ed.

You recently completed a MOOC-Ed and online questionnaire where you shared your interest in participating in an interview. You have been selected to participate in a phone or web conference interview about MOOC completion. The purpose of this study is to provide descriptions about the drivers (catalysts), barriers (challenges), and strategies used to complete a MOOC. MOOC providers and MOOC participants will understand ways to successfully matriculate and complete a MOOC.

Your participation in the interview is voluntary and will greatly benefit the research study. The interview will take approximately 45-60 minutes to complete. You indicated on the online questionnaire that you would like to be interviewed over the phone or web conference. You will receive a $25.00 Amazon eGift card as a gesture of my appreciation for your participation in this study. Your questionnaire and interview responses remain confidential.

Before I conduct your interview, I will need your consent. Attached within this email you will find an informed consent for research that will need to be signed electronically or printed/scanned and returned to me at this email address.

To schedule the interview, please email me with the best day and time to interview you Monday-Friday after 5:00PM (Eastern Standard Time) or Saturday-Sunday anytime. If you have
questions about this study, the interview process, or need to schedule a different interview time other than the times listed above please contact me at crleerus@ncsu.edu or (336) 558-7248.

Thank you for your participation,

Charlotte Russell Cox
Appendix F

Twitter Study Recruitment Tweet

Interested in a $25 eGift card? If you completed CDL in Spring 2016 or Spring 2017 go to

http://tinyurl.com/n2znw6n and participate #CDL_MOOCEd
Appendix G

Participant Not Selected for Study Email

Email Subject: Thank you for your interest in the MOOC-Ed study

Hello,

I appreciate your willingness to participate in the MOOC-Ed study. Currently, I have reached the number of study participants required for my study. Therefore, you have not been selected for an interview.

Thank you for your interest in the research study,

Charlotte Russell Cox
Appendix H

Informed Consent Form For Pilot Test Research

A Descriptive Case Study of Adult Learners’ Completion in the Coaching Digital Learning Massive Open Online Course

Charlotte Russell Cox (Investigator)  Dr. Diane Chapman (Committee Chair)

What is the purpose of this pilot test?

The purpose of this pilot test is to guide and “test” interview questions for my research study.

What will happen if you take part in this section of the pilot study?

If you agree to participate in this pilot study, you will be asked to participate in an interview.

The interview will be via telephone or online and will take approximately 45-60 minutes.

Interviews will be audio recorded. After the interview, I will email you and confirm the interview transcript. I will also ask for feedback on the questionnaire and interview questions. The review of the interview transcript and potentially providing feedback will take approximately 15-20 minutes.

Confidentiality

The information in the study records will be kept confidential to the full extent allowed by law. Data will be stored securely on a password protected computer. No reference will be made in oral or written reports which could link you to the pilot study.

Compensation

For completing the pilot study (demographic questionnaire and interview) you will receive a $25.00 Amazon eGift Card. If you withdraw from the pilot study prior to its completion (during the interview portion), you will not receive compensation. If you only participate in the demographic questionnaire, you will not receive compensation.
What if you have questions about this study?

If you have questions at any time about the pilot study or the procedures, you may contact the researcher/investigator, Charlotte Russell Cox, at 4140 Strendal Drive, Cary, NC 27519, or (336) 558-7248.

What if you have questions about your rights as a research participant?

If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Deb Paxton, Regulatory Compliance Administrator at dapaxton@ncsu.edu or by phone at 1-919-515-4514.

Consent to Participate

“I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled.”

Subject's Signature____________________________________   Date ____________

Investigator's Signature________________________________   Date_____________
Appendix I

Member Checking Email

Email Subject: Transcript and Research Study Incentive Compensation

Hello,

Thank you for meeting with me recently. Attached is the transcript we discussed during the interview. Please review and let me know if you would like to change any of your responses to the interview questions. Finally, you will also be receiving the Amazon $25 eGift card compensation to this email address.

Thank you for participating in the research study,

Charlotte Russell Cox
Appendix J
Questionnaire Consent Form

What should you know about research studies?
You are being asked to take part in a research study. Your participation in this study is optional. You have the right to be part of this study, to choose not to participate or to stop participating at any time without penalty. The purpose of research studies is to gain a better understanding of a certain topic or issue. You are not guaranteed any personal benefits from being in a study. Research studies also may pose risks to those that participate. In this consent form, you will find specific details about the research in which you are being asked to participate. If you do not understand something in this form it is your right to ask the researcher for clarification or more information. A copy of this consent form will be provided to you. If at any time you have questions about your participation, do not hesitate to contact the researcher named below.

What is the purpose of this study?
The purpose of this study is to provide descriptions about the drivers (catalysts), barriers (challenges), and strategies used to complete a MOOC. MOOC providers and MOOC participants will understand ways to successfully matriculate and complete a MOOC.

What will happen if you take part in this section of the study?
If you agree to participate in this section of the study, you will be asked to participate in an online questionnaire which should take approximately 10-15 minutes to complete.

Benefits
Participation in this study will contribute to the massive open online courses (MOOC) current body of literature. Your participation in this study will also be useful information for the NCSU Friday Institute’s MOOC-Ed Coaching Digital Learning course.
Confidentiality

The information in the study records will be kept confidential to the full extent allowed by law. Data will be stored securely on a password protected computer. No reference will be made in oral or written reports which could link you to the study. If you are interested in participating in a follow-up interview about your MOOC experience, you will be asked to provide you name and email address so you can be contacted to schedule an interview. No one other than the Project Investigator will be able to link you to the record of your responses in the survey.

Compensation

If you only participate in the demographic questionnaire, you will not receive compensation.

What if you are a teacher/educator?

Participation in this study is not a requirement of your employment. Your participation or lack thereof, will not affect your job.

What if you have questions about this study?

If you have questions at any time about the study or the procedures, you may contact the researcher, Charlotte Russell Cox, at 4140 Strendal Drive, Cary, NC 27519, or (336) 558-7248.

What if you have questions about your rights as a research participant?

If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Deb Paxton, Regulatory Compliance Administrator at dapaxton@ncsu.edu or by phone at 1-919-515-4514.

Consent to Participate

“I have read and understand the above information. I have received a copy of this form. I agree
to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled.”

ELECTRONIC CONSENT: Select “agree” if you consent to participation in this online. Select “disagree” if you do not consent to participation in this online survey.

☐ Agree

☐ Disagree