Graduate students' intrinsic motivation in fully online courses

Ahmed Alahmari

*University at Albany, State University of New York*, ahmedmusa@hotmail.com

The University at Albany community has made this article openly available. Please share how this access benefits you.

Follow this and additional works at: [https://scholarsarchive.library.albany.edu/legacy-etd](https://scholarsarchive.library.albany.edu/legacy-etd)

Part of the Educational Technology Commons

**Recommended Citation**


[https://scholarsarchive.library.albany.edu/legacy-etd/2627](https://scholarsarchive.library.albany.edu/legacy-etd/2627)

This Dissertation is brought to you for free and open access by the The Graduate School at Scholars Archive. It has been accepted for inclusion in Legacy Theses & Dissertations (2009 - 2024) by an authorized administrator of Scholars Archive.

Please see Terms of Use. For more information, please contact scholarsarchive@albany.edu.
Graduate Students’ Intrinsic Motivation in Fully Online Courses

by

Ahmed Alahmari

A Dissertation

Submitted to the University at Albany, State University of New York

in Partial Fulfillment of

the Requirements for the Degree of

Doctor of Philosophy

School of Education

Department of Educational Theory and Practice

2021
Abstract

Motivation in general is one of the most important components of the process of learning and teaching in any educational environment, and it can explain the success or failure of student. In online learning, learners tend to study on their own and intrinsic motivation is particularly the main source that triggers and sustains learning process (Hartnett, 2016; Johnson et al., 2015; Shroff et al., 2007). Therefore, learners need high levels of intrinsic motivation to ensure success in their studies. Despite the emerging research regarding online learning, little attention has been given to graduate students’ intrinsic motivation in online courses. Therefore, using a mixed methodology approach, this study aimed to gain a deeper understanding of the nature of intrinsic motivation in fully online courses environment. A sample of 127 graduate students first responded to Intrinsic Motivation in e-Learning IMeL questionnaire in order to answer the first two research questions which are (1) What is the level of graduate students’ intrinsic motivation in fully online courses? (2) Is there a significant difference in the level of graduate students’ intrinsic motivation in fully online courses in terms of: (gender, registration status, employment status, and experience with fully online courses)? Afterwards, 10 participants who completed the questionnaire participated in follow-up interviews about their intrinsic motivation in in fully online courses.

Findings revealed that graduate students had high level of intrinsic of motivation in online courses environment. In addition, the study found that there is a statistically significant difference in the level of graduate students’ intrinsic motivation in fully online courses in terms of gender. It was also found that there are no statistically significant differences in the level of graduate students’ intrinsic motivation in fully online courses in terms of registration status, employment status, and experience with fully online courses). Furthermore, in-depth interviews uncovered a
number of factors that are highly related to graduate students’ intrinsic motivation in fully online courses. Findings, implications, limitations and future directions are discussed.
Acknowledgments

I would like to express my deep gratitude and appreciation to my committee chair, Dr. Reza Feyzi Behnagh, who provided exceptional guidance, endless encouragement, understanding and patience. His help was invaluable for making my work more coherent, comprehensible and readable. I also owe a tremendous debt of gratitude to Dr. Jason Vickers and Dr. Alex Kumi-Yeboah for their careful reading and insightful comments on my dissertation.

I would also like to thank my brothers, sisters and friends who opened up their hearts and their homes for me when I most needed it. Their support is the greatest motive for me to pursue my doctoral degree in the U.S. Without their support, I could not have enough motivation to finish the whole process.

To my Mom, thank you for the continuous support you have given me throughout my time in the U.S. Thank you from the bottom of my heart for your tremendous love, understanding, support and prayers while completing my degree. I know this process was not easy on you but because you cared so much and wanted me to succeed in completing my degree, you provided me with the strength that I needed to keep going.

To my little daughter Lara, I am so blessed to have an amazing kid who would do anything for her Dad. Your love, support and understanding through all of this and for always means the world to me.

Most of all, it is my wife Reem has sacrificed a lot to accompany me since I came here. Thank you for your unwavering love, support and encouragement throughout this entire process. Thank you for the way you took care of all that needed to be done at home. Without you and your love, support and encouragement none of this would have been possible.
# TABLE OF CONTENTS

Abstract ................................................................................................................................. ii

Acknowledgments................................................................................................................ iv

LIST OF TABLES ....................................................................................................................... viii

LIST OF FIGURES .................................................................................................................... ix

Chapter 1: Introduction ........................................................................................................... 1

  Statement of the Problem ...................................................................................................... 3

  Purpose of the Research ....................................................................................................... 4

  Significance of the Study ..................................................................................................... 5

  Research Questions .............................................................................................................. 6

  Organization of the Study ................................................................................................... 10

Chapter 2: Preliminary Literature Review ............................................................................. 11

  Classical Motivation Theories ............................................................................................. 11

  Theoretical Framework ...................................................................................................... 15

  Online Learning .................................................................................................................. 22

  Students’ Performance in Online Courses ......................................................................... 23

  Students’ Intrinsic Motivation in Fully Online Courses .................................................... 26

  Common approaches for measuring intrinsic motivation in education ............................... 35

  The Need for Additional Research .................................................................................... 39

Chapter 3: Methodology .......................................................................................................... 41
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Design</td>
<td>41</td>
</tr>
<tr>
<td>Quantitative Phase</td>
<td>45</td>
</tr>
<tr>
<td>Participants</td>
<td>45</td>
</tr>
<tr>
<td>Measurement</td>
<td>46</td>
</tr>
<tr>
<td>Study Procedure</td>
<td>51</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>53</td>
</tr>
<tr>
<td>Assumptions</td>
<td>54</td>
</tr>
<tr>
<td>Qualitative Phase</td>
<td>55</td>
</tr>
<tr>
<td>Method</td>
<td>55</td>
</tr>
<tr>
<td>Data Collection</td>
<td>58</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>64</td>
</tr>
<tr>
<td>Researcher Background</td>
<td>64</td>
</tr>
<tr>
<td>Role of the Researcher</td>
<td>65</td>
</tr>
<tr>
<td>Reduction and Horizontalization</td>
<td>67</td>
</tr>
<tr>
<td>Imaginative Variation</td>
<td>69</td>
</tr>
<tr>
<td>Trustworthiness</td>
<td>70</td>
</tr>
<tr>
<td>Credibility</td>
<td>70</td>
</tr>
<tr>
<td>Confirmability</td>
<td>72</td>
</tr>
<tr>
<td>Transferability</td>
<td>73</td>
</tr>
<tr>
<td>Dependability</td>
<td>73</td>
</tr>
</tbody>
</table>
Chapter 4: Results ........................................................................................................................................... 75

Quantitative phase ........................................................................................................................................... 75

Validity and Reliability of IMeL ...................................................................................................................... 77

Qualitative phase ............................................................................................................................................ 87

Themes and textual description ....................................................................................................................... 88

Combining Quantitative and Qualitative Results ............................................................................................ 111

Chapter 5: Discussion ..................................................................................................................................... 113

Factors related to intrinsic motivation in fully online courses ........................................................................ 116

Implications .................................................................................................................................................... 120

Contributions of This Study .......................................................................................................................... 122

Limitations and Future Research ................................................................................................................... 123

References ....................................................................................................................................................... 125

Appendix A: Participant Recruitment Email .................................................................................................. 161

Appendix B: .................................................................................................................................................... 162

Graduate Students’ Intrinsic Motivation in Fully Online Courses Survey ....................................................... 162

Appendix C: Permission to Use (IMeL) .......................................................................................................... 165

Appendix D: Informed Consent ...................................................................................................................... 165

Appendix E: Interview Protocol .................................................................................................................... 170
LIST OF TABLES

Table 1. Summary of Research Questions, Instruments, Analyses and Products..................9

Table 2. IMeL Questionnaire Items Factor Loadings (Fırat et al., 2018) .......................49

Table 3. The Mean for Each Item in The IMel Questionnaire........................................79

Table 4. Independent Paired Samples T-Test Results.....................................................81

Table 5. Descriptive Statistics and One-Way ANOVA..................................................83

Table 6. Participants Demographic.................................................................................87

Table 7. Themes and Central Statements.......................................................................88
LIST OF FIGURES

Figure 1. The Self-Determination Continuum (adopted from Ryan & Deci, 2000) ............17

Figure 2. Research Design .........................................................................................44

Figure 3. Boxplots for Level of Students’ Intrinsic ......................................................76

Figure 4. Q-Q Plots of Level of Students’ Intrinsic Motivation Male and Female ..........80

Figure 5. Q-Q Plots of Level of Students’ Intrinsic Motivation and Registration Status ....82

Figure 6. Q-Q Plots of Level of Students’ Intrinsic Motivation and Employment Status ....84

Figure 7. Q-Q Plots of Level of Students’ Intrinsic Motivation and Experience Online ....86
Chapter 1: Introduction

Nowadays, technological developments are increasingly allowing much of the work currently performed by humans to be computerized in different fields in our lives. While the digital technologies are affecting the way we communicate with each other and the world around us, education is no less impacted by this rapid growth of technologies (Hartnett, 2016). The development of the internet and related technologies has resulted in the merging of online teaching and learning into the routine practices of higher education institutions (Haythornthwaite & Andrews, 2011).

Furthermore, the rapid growth of technology has caused an explosion in online education and the number of students enrolling in online programs (Hartnett, et al., 2014; Haythornthwaite & Andrews, 2011). Online education emerged in the 1990s with the Internet (Deming, et al., 2015), and in higher education, online courses are becoming ever more common (Bart, 2012; Johnson, 2008; Liaw, 2008). In some institutions and programs, online courses have completely replaced the traditional teaching methods, while in others they supplement traditional courses (Hartnett, 2016; Hoskins & Van Hooff, 2005; Herron & Wright, 2006; Simonson et al., 2019). Many American universities are trying to compete for student enrollment and have increased the numbers of online courses and online degree programs. The annual growth rate of online enrollment between 2012 and 2016 has increased at a rate of over 17.2 % every year (NCES, 2014; NCES, 2018; Seaman et al., 2018). According to various surveys, online courses remain to play an increasing role in higher education. One of these surveys was conducted by Allen and Seaman (2017), with a sample of 2,800 universities and colleges. They found that 32% of students over 6.7 million are taking at least one online course. Of the six million students
currently enrolled in at least one online course, close to half are enrolled in programs that are offered exclusively online (Seaman et al., 2018).

Moreover, several advantages are behind the vast increase of online courses and their popularity among learners. Online courses provide flexibility and accessibility for students whose schedule or location makes it difficult to attend a physical class (Bouhnik & Marcus, 2006). In online courses, students are free to access the course’s materials at any time that is convenient. Moreover, students who study online, compared to those in traditional classrooms, have more opportunities to express their thoughts, and ask questions, without limitations such as time and number of students (Bouhnik & Marcus, 2006). Accordingly, the development of exchange of information and experiences amongst the students in online learning is more active and efficient compared to traditional classrooms (Richardson et al., 2017).

In regards to teaching methods, online learning environment provides teachers a range of active learning techniques to maintain the quality of teaching and the communication of expectations between the instructor and the learner (Peterson et al., 2016; Pedaste et al., 2015). In this regard, Oyarzun et al. (2017) argue that in online learning setting, the presence of contact between the instructors and the learners is more encouraged through various means. Instructors become more capable of providing prompt feedback to learners and personalizing lessons to cater to student strengths and grow more efficient in delivering high-quality teaching (Johnson & Mejia 2014; Jaggars & Xu 2016; O'Flaherty & Phillips, 2015). In addition, in order to identify factors that affect overall student retention, momentum, and success, online learning provides opportunities for instructors and administrators to collect rich data that can be used to assess student behavior such as preparedness, performance, and preferences that are far more difficult to get in traditional courses (Jaggars & Xu, 2016; Johnson & Mejia, 2014).
Despite the increased popularity and advantages of online courses, they present an entirely new learning environment for students where success in this environment heavily relies on a students’ ability to actively engage in the learning process (Wang et al., 2013). In online courses, students are required to be more independent and motivated as the very nature of online settings promotes self-regulated learning strategies such as time management, critical thinking and effort regulation (Serdyukov & Hill, 2013; Zimmerman, 2008). In addition, several studies have revealed that online courses continue to experience high dropout rates that are typically 10-20% higher than face-to-face classrooms (Ali & Leeds, 2009; Angelino et al., 2007; Aragon & Johnson, 2008; Bart, 2012; Carr, 2000; Tyler-Smith, 2006). In this regard, research has highlighted that a lack of motivation can be one of the fundamental causes of student dropout and low academic performance in online learning environments (Aragon & Johnson, 2008; Boton & Gregory, 2015; Durron et al., 2002; Glore, 2011; Johnson, 2012; Kim & Frick, 2011; McGivney, 2009; Shih & Camon, 2001; Wang et al., 2003).

Statement of the Problem

Given this body of research supporting the importance of motivation regarding to students’ academic performance in online learning environments, considerable research has revealed intrinsic motivation to be significantly related to students’ ability to achieve academically. In the traditional classroom environment, it has been shown that students who report possessing higher levels of intrinsic motivation have lower levels of anxiety, more favorable perceptions of their competence and, significantly higher academic achievement (Bachman & Stewart, 2011; Deci et al., 1991; Pintrich & DeGroot, 1990; Stewart et al., 2010a; Vansteenkiste et al., 2004). Furthermore, although decades of research in the traditional classroom environment have revealed that student academic performance is significantly
influenced by and related to motivation (Clark et al., 2014; Schunk et al., 2014; Schunk & Zimmerman, 2008), little research exists on the role of intrinsic motivation in the online learning environment.

Previous studies emphasized that it has become critical to develop a better understanding of the role of graduate students’ intrinsic motivation in the context of online learning (Chyung et al., 2010; Fırat et al., 2018; Hartnett et al., 2014; Hoskins & Van Hooff, 2005; Martens et al., 2004; Rienties et al., 2009; Rovai et al., 2007; Shroff et al., 2007). In general, much is unknown about the role of intrinsic motivation in online courses and its relation to students’ performance (Hartnett et al., 2005; Johnson et al., 2015; Shroff et al., 2007). Therefore, there is a need to conduct more mixed methods studies in order to gain a profound understanding of graduate students’ intrinsic motivation in online courses by listening to graduate students’ perspectives. It has become critical to have graduate students’ voices heard and their experiences documented in order to capture and understand the phenomenon of online courses more deeply and completely. Consequently, practical recommendations and implications should be addressed to enhance the level of student’ intrinsic motivations and the learning process’s outcomes through rich online learning means, interaction tools, activities and environments.

**Purpose of the Research**

Despite a body of research that has linked intrinsic motivation to graduate students’ academic performance (Bachman & Stewart, 2011; Hartnett, 2016; Hoskins & Van Hooff, 2005; Johnson et al., 2013; Johnson et al., 2015; Martens et al., 2004; Miltiadou & Savenye, 2003; Ntoumanis, 2001; Rienties et al., 2009; Shroff et al., 2007), the previous studies were mostly quantitative methods that do not provide a complete picture of the context and variables influential in students’ intrinsic motivation in online learning. Continuously overlooking
graduate students’ perceptions and understanding of the phenomenon will not contribute to improving our graduate students’ performance in online learning environment. It is necessary to begin to look at the phenomenon from all angles and perspectives. Therefore, this mixed methods study aims to gain a deeper understanding of the nature of intrinsic motivation in online learning environment which may lead us to uncover vital information and techniques that have been absent from the literature. By investigating this problem quantitatively and qualitatively, this study aims to discover what activities and interaction tools and means that may potentially contribute to increase in graduate students’ intrinsic motivation in online learning environment in order to have a higher level of academic performance. In addition, this study attempts to provide implications for various stakeholders invested in graduate online learning including faculty, instructional designers, and administrators of online programs.

**Significance of the Study**

By investigating intrinsic motivation in online course environments, this study made important contributions to the field of online research. The limited research that exists in the field of online education may benefit from this study through discovering valuable information about the role of intrinsic motivation on student performance in online courses. Initially, this study contributed to filling the gap that exists in the literature between the importance and role of intrinsic motivation in face-to-face courses and the limited knowledge and information of the role of intrinsic motivation in students’ meaningful learning and high achievement in online courses. In addition, the annual growth of online courses in higher education is increasing, and a higher number of students’ enrollment in online courses is expected (Seaman, et al., 2018). Therefore, the knowledge gained from this study will benefit faculty and instructional designers in adjusting courses content and improving conditions that may affect its graduate students’
intrinsic motivation in online courses by considering the major findings of this study in their online courses.

Furthermore, as several research has illustrated that self-determination theory delivers a useful analytic tool for discovering the complexity of motivation in online contexts (Chen & Jang, 2010; Giesbers et al., 2013; Hartnett, 2010; Xie et al., 2006), this study by adopting self-determination theory as a framework to study graduate students’ intrinsic motivation, supported the validity and applicability of the theory in online learning environments using different population and research setting. In addition, the supportive data for self-determination theory in online learning and the new knowledge of this study and will help future researchers who are interested in applying this theory in practice to expand the understanding of graduate students’ intrinsic motivation in online learning.

Research Questions

Prior to this study, the researcher conducted a quantitative pilot study to determine the level of graduate students’ intrinsic motivation in fully online courses environment. The level of graduate students’ intrinsic motivation was compared by certain demographic features of the graduate students. Participants in the pilot study consisted of 24 volunteer Educational Theory & Practice graduate students at University at Albany. Participants were enrolled and studying a fully online graduate level class or who have recently taken at least a fully online class. In this pilot study, the Intrinsic Motivation in e-Learning IMeL questionnaire was used to answer the research questions which are (1) What is the level of graduate students’ intrinsic motivation in fully online courses? (2) Is there a significant difference in the level of graduate students’ intrinsic motivation in fully online courses in terms of: gender, registration status, employment status, and experience with fully online courses?
For the research question one, points obtained in the IMeL questionnaire by fully online courses graduate students participating in the research are above the average of intrinsic motivation. Accordingly, the findings revealed that graduate students had high levels of intrinsic motivation in online courses environment. Furthermore, after analysis of the IMeL scores based on the five determinants of the level of intrinsic motivation, the current study found that the determinant of intrinsic motivation with the highest average for the fully online courses students is autonomy. In research question two, it was found that there is no difference between graduate students’ level of intrinsic motivation based on gender, registration status, employment status, and their experiences with online courses.

Consequently, based on the pilot study and past research, more thorough investigation of intrinsic motivation in online learning from a mixed methods angle is needed (Chyung et al., 2010; Fırat et al., 2018; Hartnett et al., 2014; Hoskins & Van Hooff, 2005; Martens et al., 2004; Rienties et al., 2009; Rovai et al., 2007; Shroff et al., 2007). More mixed methods research is needed in order to understand the nature of intrinsic motivation in online learning environment profoundly. This type of research could provide a better understanding of which intrinsic motivational constructs are most important. In addition, a deeper understanding of the factors cited by graduate students as contributing to their intrinsic motivation will support faculty and instructional designers in identifying and incorporating these elements into their online courses. Therefore, this mixed methods study seeks to contribute to creating an understanding of graduate students’ intrinsic motivation in fully online courses in order to enhance the online learning environment and the quality of the outcomes of those courses by exploring the following questions:

1. What is the level of graduate students’ intrinsic motivation in fully online courses?
Hypothesis to RQ1: as past studies indicated that in online learning environment, students tend to be more intrinsically motivated (Chyung et al., 2010; Fırat et al., 2018; Hartnett et al., 2014; Hoskins & Van Hooff, 2005; Johnson et al., 2015), in this study, it is hypothesized that the level of graduate students’ intrinsic motivation is high in fully online course environments.

2. Is there a significant difference in the level of graduate students’ intrinsic motivation in fully online courses in terms of: a. gender, b. registration status, c. employment status, and d. experience with fully online courses?

Hypothesis to RQ2: There is no significant difference in the level of graduate students’ intrinsic motivation in fully online courses in terms of gender, employment status, registration status, and experience with fully online courses.

3- How do graduate students describe their intrinsic motivation in fully online courses?
### Definition of Terms

For this study, the following terms were used operationally as follows:

**Intrinsic Motivation.** Where an individual does something because it is enjoyable, optimally challenging, or aesthetically pleasing (Deci & Ryan, 1985, 2002).

### Table 1

*Summary of Research Questions, Instruments, Analyses and Products*

<table>
<thead>
<tr>
<th>Phase</th>
<th>Research Questions</th>
<th>Instruments</th>
<th>Analysis</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative</td>
<td>1. What is the level of graduate students’ intrinsic motivation in fully online courses?</td>
<td>Online Intrinsic Motivation in e-Learning IMeL Questionnaire</td>
<td>- Standard Deviation Statistic</td>
<td>- Level of intrinsic motivation</td>
</tr>
<tr>
<td></td>
<td>2. Is there a significant difference in the level of graduate students’ intrinsic motivation in fully online courses in terms of demographic features of the students?</td>
<td></td>
<td>- Independent Two Sample t-test</td>
<td>- Difference in the level of intrinsic motivation between students</td>
</tr>
<tr>
<td>Qualitative</td>
<td>3. How do graduate students describe their intrinsic motivation in fully online courses?</td>
<td>In-depth Interviews</td>
<td>- Epoche - Reduction - Horizontalization - Coding - Synthesis of Meanings</td>
<td>- Themes - Meanings and essences - Implications</td>
</tr>
</tbody>
</table>

9
**Fully Online Courses.** Online courses refer to those courses in which 80% of the course content is delivered online (Seaman, et al., 2018).

**Gender.** The variable of gender is defined as male and female.

**Online Courses Experience.** Students’ online course experience is defined as the number of online courses a student has taken including the current courses they are enrolled in.

**Registration Status.** The variable of registration status is defined as full time students or part time students. Graduate students in full-time study registered for nine or more credits each semester and part time students registered for less that nine credits each semester (University at Albany. 2021).

**Employment Status.** It is the status of a worker in a company or school or institution including higher education on the basis of the contract of work or duration of work done. A student may be a full-time employee, part-time employee, or a nonemployee.

**ETAP.** Department of Educational Theory & Practice at School of Education at University at Albany.

**Organization of the Study**

The remainder of this study is organized in the following way: Chapter 2 includes a critical review of related studies in literature and the theoretical framework of this study; Chapter 3 gives an overview of the quantitative and qualitative methods that are used to address the research questions of interest in this study; Chapter 4 presents the results for both quantitative phase and qualitative phase; Chapter 5 gives an in-depth discussion about the results. References and instruments used in this study are placed after the five main chapters.
Chapter 2: Preliminary Literature Review

Introduction

The purpose of this chapter is to provide an extensive overview of the current literature on classical motivation theories, self-determination theory as theoretical framework, students’ performance in online courses, students’ intrinsic motivation and common approaches for measuring intrinsic motivation in education. Given that research in the area of online learning is still developing, there is only a limited amount of research in each of these areas. Additionally, the gap in the research literature is discussed by the end of this chapter.

Classical Motivation Theories

Historically, all motivations have been addressed in the literature as varied and complex psychological construct including a large range of human cognition and emotions (Ahl, 2006; Barak et al., 2016; Chen & Jang, 2010; Hartnett et al., 2011; Jones et al., 2012; Kim, 2010; Muilenburg & Berge, 2005; Pintrich & Schunk, 2002). Many early studies on motivation have a disagreement regarding the precise nature of motivation (Jones et al., 2012; Pintrich & Schunk, 2002), factors affecting human motivation, the influence of motivation on learning (Barak et al., 2016; Chen & Jang, 2010), and enhancing motivation during learning process (Hartnett et al., 2011; Muilenburg & Berge, 2005). Accordingly, several studies focused on the nature of motivation within subjects engaged in authentic activities and environments (Jones et al., 2012). These studies have shown many challenges in studying motivation. For instance, individual variables such as age, gender, ethnicity, and life experiences play an important role in determining a person’s level of motivation (Ahl, 2006; Glore, 2011; Kim, 2010; Schartz, 2014). Another challenge of studying motivation is that since motivation is a psychological process, it is
complicated to be explicitly examined as it is derived from different behaviors such as persistence, choice, and effort which lack constancy and change as a result of time, external conditions, and other individual factors (Barak et al., 2016; Gabrielle, 2003; Huett, 2006; Hartnett et al., 2011; Jones et al., 2012; Pintrich & Schunk, 2002).

Consequently, this section provides a brief historical overview for the most essential motivational theories in order to obtain a deeper understanding of the complex nature of human motivation. Motivation in adult education is usually examined based on those theories (Ahl, 2006). According to a review of the literature on motivation theory by Ahl (2006), six main motivational theories were identified that have led to many of today’s theories evolving.

**Economic Human**

Motivation was a major consideration for “philosophers and economists” in the previous century (Ahl, 2006, p. 389). In the field of economy, humans act and take a decision based on certain rationales and their own self-interest. Therefore, they choose to go with the alternative that gives them the maximum economic returns (Ahl, 2006). In other words, humans are motivated by the way that guarantees the highest reward. The theory of the rational decision maker was used by several economists in order to establish theoretical economic models of human actions and to design motivation techniques for employees (Ahl, 2006).

**Social Human**

In order to increase the “productivity rates” of workers, many social research projects were conducted in the early 1920s (Ahl, 2006, p. 389). Those projects concluded that there are different factors that may affect the productivity rates of workers more than just money or physical working conditions. Researchers suggested that people are motivated by social and
emotional needs more than financial and material rewards. Such projects contributed to the endurance of the Human Relations School which indicates that humans were viewed as primarily social beings rather than rationally profit-maximizing ones (Ahl, 2006).

**Psycho-Biological Human**

In the early 1900s, theories of motivation that understand and explain human behavior from the perspective of instincts and drives were widely known. The term ‘instincts’ was introduced in order to differentiate between humans and animals when doing some actions such as such as drinking, eating and having sex (Ahl, 2006). Accordingly, any behavior not guided by the control of the conscious mind was perceived to be instinct-driven. These theories proposed that in order to motivate humans, it is crucial to consider which drives can trigger a specific behavior. Understanding drivers lead to motivate the desired behavior (Ahl, 2006).

**Learning Human**

In the middle of the 20th century, the behaviorists assumed that individual behavior can be acquired by learning, not only as result of innate instincts or drives (Ahl, 2006). In attempt to understand human behavior from this point of view, behaviorists proposed studying behavioral patterns in animals by applying a simple stimuli-response model. For example, giving a cat a fish as a reward when it finds its way out of a maze. They found that behavior can be learned and affected by external stimuli. Accordingly, theories of the learning human assumed that a desired behavior can be learned and developed when people have appropriate motivation and rewards (Ahl, 2006).

**Need-Driven Human**
Later in the 20th century, several behaviorists developed need-driven theories of motivation (Ahl, 2006). These theories agreed that behavior can be motivated by lowest needs and higher needs collectively. Lowest needs are physiological needs and higher needs are external factors such as the need for achievement, recognition, and personal growth. Need-driven theories of motivation stated that the higher level of needs cannot be activated until the lowest needs are approximately satisfied (Ahl, 2006). Therefore, “unmotivated employees or learners will not become more motivated by things that already satisfy their basic needs and requirements. Instead, it became important to reorganize work, or educational arrangements, in order to satisfy higher needs” (Maslow, 2000 as cited in Ahl, 2006 p. 10).

**Cognitive Human**

In the second half of the 20th century, cognitive scholars introduced human behavior as a result of people’s thoughts which is unobservable direction for understanding human motivation (Ahl, 2006). Cognitive theories assumed that people’s ideas and perception of the world affect and shape their behavior. Accordingly, cognitive motivation theories take into consideration individual differences in understanding human behavior. For instance, if a specific reward is a very valuable for one person it may not be for another based on his or her perception of the world. Ultimately, cognitive theories dominate motivation theory today (Ahl, 2006). Motivation theory is primarily driven by the perspective of cognitive theories such as self-efficacy theory, equity theory, goal theory and control theory in explaining human actions and motivation.

In summary, in the literature concerning motivation, there were six different viewpoints made different assumptions about the nature of human motivation. “Theories that specifically examine motivation in adult education are usually based on general motivation theories” (Ahl, 2006 p. 4). Early theories of economic human suggested that humans are rational decision
makers and motivated by the way that can provide the highest reward. Then, social human-based theories came to see people’s motivation as a result of social and emotional needs more than financial and material rewards. Next, the early 20th century human behavior was understood in psycho-biological based theories of motivation to be a consequence of people’s instincts and drives. In the middle of the 20th century, theories of the learning human supposed that individual motivation can be acquired by learning, not only as result of innate instincts or drives. Later in the 20th century, need-driven theories of motivation posited that human motivation can be developed based on lowest needs and higher needs collectively. Finally, in cognitive theories, human motivation is affected and shaped by people’s thoughts and perception of the world.

**Theoretical Framework**

**Self-Determination Theory**

Self-determination theory (Deci & Ryan, 1985, 2002) is a general theory of motivation that aims to explain the “dynamics of human needs, motivation, and well-being within the immediate social context” (Chen & Jang, 2010, p. 742). Self-determination theory is one of the most widely applied and empirically based psychological theories for understanding factors that promote human motivation (Hodge, 2017). Deci and Ryan (1985) defined the term self-determination as “a quality of human functioning that involves the experience of choice. It is the capacity to choose and have those choices . . . be the determinants of one’s actions” (p. 38). According to Self-determination theory, the three universal and basic human needs are: **autonomy**, which is a sense of control and agency, **competency**, where an individual can have a feeling of competence with tasks and activities, and **relatedness**, which is the feeling of being affiliated with others (Deci & Ryan, 2002). Moreover, Connell (1990) describes autonomy as “the experience of choice in the initiation, maintenance and regulation of activity and the
experience of connectedness between one’s actions and personal goals and values” (pp. 62–63). When autonomous, students credit their actions and participations to an internal locus of causality and having a sense of freedom and choice over their actions. Competence is defined as “the need to experience oneself as capable of producing desired outcomes and avoiding negative outcomes” (Connell & Wellborn, 1991, p. 51). In addition, relatedness “encompasses the need to feel securely connected to the social surround and the need to experience oneself as worthy and capable of … respect” (Connell & Wellborn 1991, pp. 51–52).

Self-determination theory is a well-known contemporary theory of situated motivation that is based on the essential premise of learner autonomy (Hartnett, 2016). In self-determination theory, motivation can be understood as having three main components as shown in Figure 1. First, intrinsic motivation is where an individual does something because it is enjoyable, optimally challenging, or aesthetically pleasing. Accordingly, self-determination theory assumes that students’ inherent intrinsic motivation will be promoted when the learning environment supports each learner’s autonomy, competence, and relatedness needs (Deci & Ryan, 1985, 2002). Second, extrinsic motivation, is where the reason behind doing something is that it leads to a particular outcome, and amotivation is where an individual is in the state of lacking intention to act (Deci & Ryan, 1985, 2002). Consequently, when students are more extrinsically motivated, they contribute to activities because of different reasons separated from the action itself (Deci & Ryan, 1985, 2002). For example, obtaining good grades, avoiding undesirable outcomes, or because the assignment has benefits such as completing a course in order to receive a degree. Finally, amotivation which is the state of lacking intention to act (Deci & Ryan, 1985, 2002). Amotivation results in non-self-determined behavior. Therefore, students who are amotivated may find no value in attending school (Deci & Ryan, 1985, 2002).
An unhealthy relationship between instructors and learners in terms of interaction during learning process leads to neglecting the role of autonomy and failure in fulfilling students’ needs (Martens & Kirschner, 2004). Learners feel more connected and trusting towards their teachers and learning environment when having a supportive relationship that fulfills learners’ autonomy and competence needs (Ryan et al., 2005). Therefore, the more teachers are involved in a supportive relationship with learners in regards to the amount of time devoted, care shown, and attention given, the more learners’ motivation be encouraged (Brophy, 2010). Additionally, encompassing respect and connectedness are one of the most essential requirements for encouraging and supporting motivation among different groups of students (Ginsberg & Wlodkowski, 2000). Similarly, educational settings that provide learners with opportunities to satisfy their needs for autonomy, competence, and relatedness improve students’ self-
determination and promote intrinsic motivation. Specifically, activities that are interesting, engaging, and support growth in knowledge increase intrinsic motivation (Bachman & Stewart, 2011; Tsai et al., 2008).

Self-determination theory has served as the framework for research in the domains of education, business, healthcare, psychology, and sports (Gagné et al., 2015; Keshtidar & Behzadnia, 2017; Li et al., 2016; Matosic et al., 2017; Nikou & Economides, 2017; Ryan & Deci, 2017; Reeve & Lee, 2014). For example, it has been applied in several studies to explore participants’ intentions to continue participating and engaging in sport (Keshtidar & Behzadnia, 2017). Similarly, Self-determination theory was utilized in studies to investigate the use of mobile technology (Nikou & Economides, 2017). Nikou and Economides (2017) found a positive environment positively predicted higher level of motivation. Additionally, they found motivation negatively related to intention to continue participating. In general, these studies found that motivation positively predicted intention.

Self-determination theory is considered an appropriate framework for addressing motivation in the online learning environment (Chen & Jang, 2010). Autonomy, relatedness, and competency are identified by self-determination theory as the components of motivation. These three determinants meet with major features of online learning such as flexible learning, computer-mediated communication, social interaction, and challenges for learning technical skills (Chen & Jang, 2010; Gunawardena, 1995; Howland & Moore, 2002). Self-determination theory anticipates a variety of learning outcomes such as students’ performance, persistence, and course satisfaction (Deci & Ryan, 1985). It also can possibly address learning difficulties, for example students’ attrition in the online learning environment (Chen & Jang, 2010). Moreover, self-determination theory can provide instructions for motivational improvement and a clear
description of individuals’ motivation process (Reeve & Jang, 2006). Self-determination theory-based studies have identified strategies that encourage individual self-determination and motivation (Reeve & Jang, 2006). The self-determination theory-based strategies may play a significant role in a variety of educational settings including the online learning environment. According to self-determination theory, choice contributes to greater degrees of intrinsic motivation; hence, autonomy, performance and engagement can be affected positively by offering informational feedback when individuals are given choices (Deci & Ryan, 1985, 2002). In this context, learners in online learning environment are more likely to continue to value the online activities when they are engaged because they chose to be involved.

Self-determination theory can be utilized as an effective framework to explain the “dynamics of human need, motivation, and well-being within the immediate social context” (Chen & Jang, 2010, p. 743). The Self-determination framework empowers researchers to study how different contextual factors, such as instructor behaviors or social interactions, improve or decrease motivation of online students (Chen & Jang, 2010; Hartnett, 2016). Furthermore, when it comes to identifying the best strategies of designing a supportive online learning environment, self-determination can be considered as a crucial framework for instructors and instructional designers to accomplish that successfully (Chen & Jang, 2010; Hartnett, 2016).

Educational settings that provide learners with opportunities to satisfy their needs for autonomy, competence, and relatedness improve students’ self-determination and promote intrinsic motivation. Specifically, activities that are interesting, engaging, and support growth in knowledge increase intrinsic motivation (Bachman & Stewart, 2011; Tsai et al., 2008).

Notable research has illustrated that self-determination theory delivers a useful analytic tool for discovering the complexity of motivation in online contexts (Chen & Jang, 2010;
Hartnett, 2010). Therefore, self-determination theory has been applied as a theoretical framework in several studies of online learning (Chen & Jang, 2010; Giesbers et al., 2013; Hsu et al., 2019; Hartnett et al., 2011; Hartnett, 2010; Martens et al., 2004; Rienties et al., 2012; Rovai et al., 2007; Shroff et al., 2007; Shroff et al., 2008; Xie et al., 2006). For instance, in Xie et al. (2006) the researchers investigated learners’ motivation and participation in an online discussion form in a traditional lecture-based course by applying self-determination theory as the theoretical framework. The main purpose of this study was to examine the relationship between learners’ intrinsic motivation and other crucial problems related to participating in online discussion. Therefore, the researchers used a mixed-methods design to explore students’ perceived interest (intrinsic motivation), value (extrinsic motivation), choice (perceived autonomy), course engagement (as measured by the numbers of login and discussion board postings), and attitudes toward the class. In this study, a sample of 123 undergraduate students participated in a normal online discussion as a part of their online course. Findings indicated that there is a positive correlation between the three self-determination theory-based indicators (perceived interest, value, and choice) and online students’ course attitude and engagement. In addition, the findings provided evidence that students’ participation in online discussion was related to their intrinsic motivation. Additionally, results showed that instructor participation, guidance, and feedback were important to online students’ motivation.

Similarly, due to the importance of investigating online learner motivation in order to explore the reasons behind the high attrition rates of online learning, Chen and Jang (2010), conducted a study with a sample of 262 students in in two online certificate programs to investigate online students’ motivation, including its antecedents and outcomes. By drawing on Deci and Ryan’s self-determination theory, the researchers proposed and tested a model for
students’ motivation in online learning. The findings revealed that there is a mediating impact of need satisfaction between “contextual support and motivation/self-determination” (p. 741). That implies the supports of autonomy and competency positively influenced online students’ perceived autonomy, relatedness, and competency, the satisfaction of the three basic needs. Additionally, findings showed that intrinsic motivation, external, introjected, and identified regulations, and amotivation were different components which is consistent with self-determination theory.

Recently, Giesbers et al. (2013) by utilizing self-determination theory as a framework, conducted a study to discover the relationship between available tools (like chat, audio, and webcam) used, “student motivation, participation, and performance on a final exam in the context of a facultative summer course in economics” with sample of 110 students (p. 3). The researchers assumed that the relationship between students’ academic motivation and participation and stated that higher levels of autonomous motivation are related to more participation in web-videoconferences and with the use of richer communication tools when taking part in a web-videoconference. The findings partially supported their assumptions where students’ tool use and participation were significantly correlated with each other and with exam scores, “but participation appeared to be a stronger predictor of the final exam score than tool use” (p. 2). In general, studies that have adopted self-determination theory as a framework to study students’ motivation in online learning environment are few but starting to appear (Chen & Jang, 2010; Giesbers et al., 2013; Hartnett et al., 2011; Hsu et al., 2019; Hartnett, 2010; Martens et al., 2004; Rienties et al., 2012; Xie et al., 2006).
Online Learning

There are many different terms are used to describe online courses, such as distance learning, e-learning, internet learning or online learning, where teaching and learning process occurs on computers connected to the internet (Umek et al., 2015). Accordingly, there are several definitions of online courses based on diverse perspectives related to the development of online courses. Katz (2000) defined online learning as the use of telecommunication technology to deliver information for education and training. In order to distinguish between online learning and e-learning, Bates (2005) indicates that e-learning can include any form of technology while online learning refers specifically to the use of the internet and the web. In addition, Bates (2005) used the term fully online to differentiate online courses where students must have access to an internet capable device to start a course.

Later in 2008 as a result of the enormous and rapid development of technologies, Ma et al. (2008) defined online learning as an optimal learning environment using new “means of information technology, through the effective integration of information technology and the curriculum to achieve a new learning style” (p. 54). This new method can fully reflect the main role of learners to thoroughly improve the traditional teaching style and the principle of education, to teach large numbers of high-quality personnel (Ma et al., 2008). Furthermore, Markus (2008) stated that online learning can be defined as a learning process achieved by interaction with digitally conveyed content. Online learning is any technologically facilitated learning by using computers from a distance setting (Markus, 2008). Lastly, Moore and Kearsley (2011) defined online learning as teaching and designed learning in which teaching normally takes place in a separate location from learning, including communication through technologies as well as specific institutional organizations.
Students’ Performance in Online Courses

In the literature, there is a considerable discussion about the effectiveness of online courses in comparison with face-to-face courses in terms of achieving learning outcomes and educational objectives. Some studies found that there is no significant difference based on students’ grades between modes of instruction whether it is online or face-to-face (Atchley et al., 2013; Ashby et al., 2011; Bernard & Tamim, 2014; Cavanaugh & Jacquemin, 2015). For instance, Cavanaugh and Jacquemin (2015) conducted a study to investigate the performance of students taking online courses compared to face-to-face courses over a four-year period of time in a large sample with demographic and academic controls in order to avoid selectivity bias. The researchers believe that all previous studies for measuring students’ performance in online courses and face-to-face courses used small samples. Cavanaugh and Jacquemin (2015) collected data from 140,444 students in 1,997 online courses and 4,015 face-to-face courses from a large Midwestern public university. The data used students’ academic information (course type – online or face-to-face, course GPA, student credit hours, student GPA, college) and demographic (gender, minority status, age) variables. As one of the strengths of this study, the data only included courses that were delivered in both formats by the same professor. Using quantitative methods, Cavanaugh and Jacquemin (2015) found that there is no significant difference in student performance between online and face-to-face courses. Similarly, due to the fast growth in community college enrollment especially in online courses, and the lack of research focusing on online students in community colleges, Ashby et al. (2011) performed a quantitative study with a sample of 167 participants to examine the difference in students’ grades in a developmental math course when taught face-to-face compared to online or blended modes. Their findings indicated that there is no statistical differences in success based on the mode of the learning
environment. More recently, using a quantitative research method, Atchley et al. (2013) used a sample of over 5,000 students from various disciplines at a small public university to examine students’ performance in fully online courses. Findings of the study showed that there are no substantial statistical differences between students’ grades in online compared to face-to-face courses. Recently, in a meta-analysis was conducted by Bernard et al. (2014) indicated that online learners and in-person learners succeed at equivalent rates on a wide variety of outcome measures.

On the other hand, some studies have found that online courses can have positive influences on students’ performance compared to face-to-face courses (Johnson & Mejia, 2014; Mothibi, 2015; Umek et al., 2015). For example, a study was conducted by Johnson & Mejia (2014) that concentrated on the cohort of learners who primarily enrolled in one of California’s community colleges during Fall 2006, and they were tracked throughout six years, through Fall term of 2012. The study showed that students who complete an online course have a tendency to have higher grades in comparison to classes they took face-to-face. However, the study only focused on the students who completed their online courses, and it overlooked investigating reasons behind students’ failure in completing their online courses. Similarly, in a quantitative method case study, Umek et al. (2015) examined data from 13 courses and 205 students from the 2012/13 academic year in a member institution of the University of Ljubljana to test the correlation between the proportion of the courses implemented in the online course platform and students’ grades. The findings revealed a positive correlation between online courses platform and students’ grades where students on average receive better grades when they took online courses. Recently, a meta-analysis was performed to estimate the relationship between online courses and students’ academic achievement in higher education (Mothibi, 2015). The meta-analysis focused
on combining the results of 15 research studies conducted between the years 2010-2013. These studies were selected using systematic sampling. The study found that online courses have a significant positive impact on students’ academic performance (Mothibi, 2015). It also found that online courses can enable students to show and practice their capabilities and skills faster due to the availability of several instructional tools such as discussion boards and virtual classrooms (Mothibi, 2015). More recently, Shea and Bidjerano (2016) conducted a study to investigate nationwide data (US Dept. of Ed. Beginning Postsecondary Student Survey, 2004-09) on three variables for community college students who had or did not have previous online learning experiences. The study used data from Beginning Postsecondary Students (BPS 04/09) study conducted by the National Center for Education Statistics which includes records of approximately 16,100 students representing about 4,000,000 individuals who have entered postsecondary institutions in the 2003/04 academic year. The study mainly focused on “time-to-degree, dropout rates, and transfer relative to the community college institution of first entry” (p. 3). The researchers applied competing risks survival analysis methodological approach in order to analyze the time patterns for the subpopulations of learners. The findings revealed that the time-to-degree procedure is faster for learners who participated in online education. In other words, students who had studied in online education platform had either achieved an associate degree at the end of the observation period or transferred to a different institution. In addition, the study indicated that participation in online courses does not lead significantly to more noticeable dropout trends as it is known in community college students. In general, previous studies employed quantitative methods focusing on numbers and students’ grade.
Motivation

Scholars from the cognitive perspective emphasize that goals play an important role in the human motivational processes (Cheng & Yeh, 2009; Keller, 1983; Pintrich & Schunk, 2002) where motivation can be connected to goals and goal-directed behavior (Kleinginna & Kleinginna, 1981; Pintrich & Schunk, 2002). Moreover, it is wildly acknowledged in the cognitive perspective that the motivational processes cannot be clearly measured, but rather can be determined through different behaviors such as choosing a task, effort, and persistence (Bures et al., 2000; Keller, 1983; Maslow, 1981; Pintrich & Schunk, 2002). It is also common in cognitive theories of motivation that motivational processes are essential in stimulating a certain activity and identifying how much effort one must make to complete a task or achieve a goal (Cheng & Yeh, 2009; Kleinginna & Kleinginna, 1981; Keller, 1983; Pintrich & Schunk, 2002; Scribner, 2007).

Accordingly, motivation is considered as a cause or a purpose a person has for behaving in a given manner in a given situation (Barak et al., 2016). It can be perceived as important objectives and beliefs a person has for doing a mission (Ames, 1992). Bandura (2006) stated that motivation can be understood as an internal state that stimulates, guides, and sustains goal-oriented behavior. Motivation is defined as “the process whereby goal-directed activity is instigated and sustained” (Schunk et al., 2008, p. 4). It tells if a person is interested or engaged in a certain activity.

When it comes to learning, motivation is perceived as an internal reason which improves, sustains, or mediates cognitive development (Brophy, 2004; Slavin, 1987). Motivation is
conceptualized as a combination of cognitive and affective elements which result in a planned behavior (Slavin, 1987). Moreover, motivation to learn is defined as the tendency to discover appropriate academic activities and gain the intentional benefits from them (Brophy, 2004). In addition, it is one of the most important components of the process of learning and teaching in any educational environment (Miltiadou & Savenye, 2003). It can explain the success or failure of student (Fryer & Bovee, 2016; Giesbers et al., 2014). Therefore, understanding the complexity of motivation is fundamental as it has practical implications for teachers and instructional designers and students. For instance, in learning, motivation is important in determining student’s engagement, persistence, quality of work produced and achievement (Schunk et al., 2014).

Additionally, many research have stressed that there is an important relation between motivation and learning processes (Johnson, 2012; Jones, 2009; Jonassen & Dwyer, 1997; Keller, 1983; Kim, 2005; Means et al., 2001; Pintrich & Schunk, 2002; Sperry, 2009). In higher education, motivation is one factor that has been found to have the strongest effect on college grade point average (Robbins et al., 2004). Generally, motivated students are more willing to participate in activities they believe will help them learn, such as taking notes to facilitate remembering different topics and asking for help when they do not understand material (Pintrich & Schrauben, 1992; Rovai et al., 2007; Schunk & Pajares, 2009; Sankaran & Bui, 2001; Zimmerman, 2000).

Furthermore, studies shows that students who possess high levels of motivation are more likely to overcome challenging activities, be actively engaged, enjoy and adopt a deep approach to learning and show higher performance, persistence and creativity (ChanLin, 2009; Deci & Ryan, 2002; Fyans & Maehr, 1987; Gabrielle, 2003; Huett, 2006; Song & Keller, 2001).
instance, considering the need of determining factors affecting educational productivity and school effectiveness, Fyans and Maehr (1987) investigated the unique contribution of individual student motivation on academic outcomes. In their study, data were collected from 9,693 students who were juniors in high schools in Illinois in 1981. The researchers used a comprehensive set of variables often considered to be antecedent to school achievement (family background school characteristics, and student motivation) in order to explain their effect on academic outcomes. Findings revealed that variables composing the school context measure were least predictive of achievement variance and student motivation was the most predictive. They found that motivation is an essential factor in determining school achievement.

**Types of Motivation**

According to Self-determination theory, the three universal and basic humans’ needs are: *autonomy* which is a sense of control and agency, *competency* where an individual can have a feeling of competence with tasks and activities, and *relatedness* which is the feeling of being affiliated with others (Deci & Ryan, 2002). In self-determination theory, motivation can be understood as having three main components: intrinsic motivation where an individual does something because it is enjoyable, optimally challenging, or aesthetically pleasing; and extrinsic motivation, where the reason behind doing something is that it leads to a particular outcome, and amotivation where an individual is in the state of lacking intention to act (Deci & Ryan, 1985, 2002). With regards to academic performance, intrinsic motivation is known to have a higher influence on student achievement (Cheng & Yeh, 2009; Duchastel, 1997; Nicholls et al., 1986; Pintrich & Schunk, 2002). Intrinsic motivation researchers have found that intrinsic motivation is maintained only when individuals feel competent and self-determined and discovered that
intrinsic motivation can be reduced by exerting external control and by giving negative competence feedback (Deci & Ryan, 1985, 1991; Eccles & Wigfield, 2002; Lepper & Greene, 1978; Pintrich & Schunk, 2002). This reduction occurs when an individual receives less control which leads to low level of autonomy and self-determination both of which are essential to have high level of intrinsic motivation (Deci & Ryan, 1985, 1991; Eccles & Wigfield, 2002; Lepper & Greene, 1978; Pintrich & Schunk, 2002; Ryan & Deci, 2000;

Motivation in Online Learning

Although limited research exists on the role of motivation in the online environment, motivation has been revealed to play an important role in different aspects such as determining the state of a learner’s persistence in an online course, the level of engagement, the quality of productivity, and the level of accomplishment achieved (Boton, & Gregory, 2015; Durron et al., 2002; Johnson, 2012; Kim & Frick, 2011; Morrow & Ackermann, 2012; Ojokheta, 2010; Sankaran & Bui, 2001; Shih & Camon, 2001). Motivation has been found to be higher among students in online courses than among students in traditional courses (Huett et al., 2008; Kang & Tan, 2008; Rovai et al., 2007; Sankaran & Bui, 2001). On the other hand, many studies have shown that low motivation may influence the learning processes in online learning environments negatively (Aragon, & Johnson, 2008; Chen & Jang, 2010; Hartnett et al., 2011; Kim & Frick, 2011; Muilenburg & Berge, 2005; Packham et al., 2004; Park, 2007; Tyler-Smith, 2006; Wang et al., 2003). Generally, providing freedom to engage in a task increases learners’ levels of motivation which is an important feature of online learning (Schunk & Pajares, 2009).
Furthermore, understanding the nature of motivation and the ways in which experiences and conditions may impact students’ motivation, therefore, has important practical implications for
those involved in online teaching and learning (Hartnett, 2016). Thus, student motivation is an essential factor for success in online learning environments, and it should be carefully considered (Artino, 2008; Chen & Jang, 2010; Keller, 2008).

Given the importance of motivation in relation to students’ performance, several scholars have argued that developing and sustaining motivation can be a difficult task for both instructors and instructional designers in online learning environments (George, & Dron, 2011; Huett et al., 2008; Kim & Frick, 2011). Kim and Frick (2011) noted that one of these challenges is the lack of interaction whether it is the type of interaction that occurs between learners and instructors or between learners with each other. In addition, Komarraju and Karau (2008) have discovered that motivating students in online learning can differ between students as a result of individual preferences and previous experiences. Accordingly, instructional strategies and techniques that work with students in the traditional classroom may not be appropriate for motivating students in online learning environments (Glore, 2011; Johnson, 2012; Komarraju & Karau, 2008).

Intrinsic Motivation

The construct of intrinsic motivation describes this natural inclination towards assimilation, mastery, spontaneous interest, and exploration that is so critical to cognitive and social change and that represents a major source of enjoyment and vitality throughout life (Csikszentmihalyi & Rathunde, 1993; Ryan, 1995). In learning, researchers have identified the importance of intrinsic motivation as a predictor of academic success in traditional classrooms (Miltiadou & Savenye, 2003). Substantial evidence has shown that self-determined students are more likely to be intrinsically motivated, persist more, and accomplish goals more than students who are less self-determined (Bachman & Stewart, 2011; Deci et al., 1991; Pintrich & DeGroot,
1990; Stewart et al., 2010a; Vansteenkiste et al., 2004). Additionally, studies demonstrate that intrinsically motivated students have improved performance, persistence, and creativity (Deci & Ryan, 1991; Reeve et al., 2004; Sheldon et al., 1997). Other research indicates that intrinsically motivated students are more engaged (Connell & Wellborn, 1991; Vansteenkiste et al., 2006), and have higher accomplishment (Miserandino, 1996; Reeve et al., 2004), more desire to participate in learning process (Grolnick & Ryan, 1987), less attrition (Johnson et al., 2013; Vallerand & Bissonnette, 1992; Vansteenkiste et al., 2004), enhanced concentration (Standage et al., 2005), more devoting effort (Johnson et al., 2013; Ntoumanis, 2001), and greater course satisfaction (Babb et al., 2010).

In contrast, research predicted that intrinsic motivation would differ for online and face-to-face education (Johnson et al., 2015). Knowing the features and the nature of online learning environment and how learning processes go, intrinsic motivation is the main source that triggers and sustains learning process. Intrinsic motivation has been identified as an important characteristic of online learners (Shroff et al., 2007). In online learning environment, research has shown that intrinsic motivation is associated with intent to participate and persistence (Hartnett, 2016; Johnson et al., 2015). Intrinsically motivated online students demonstrate a deeper understanding of the course material (Hoskins & Van Hooff, 2005). In addition, students with high intrinsic motivation are more likely to perform better than students with low intrinsic motivation and engage in more task-related discourse (Rienties et al., 2009). Since online learning environment typically depends on intrinsic motivation and the associated characteristics of curiosity to engage students, online students are often required to have a high level of intrinsic motivation (Martens et al., 2004). Most of features and factors of face to face environment such as having a teacher or counsellor to direct and encourage students in the learning process are not
available in online learning environment. In addition, in online learning environments, learners have a tendency to study on their own; therefore, they need to be more intrinsically motivated to ensure sustainability in their studies (Hartnett, 2016; Johnson et al., 2015).

Martens et al. (2004) argue that learners who have higher intrinsic motivation tend to perform better than learners with lower intrinsic motivation. Therefore, the researchers conducted a study with 33 higher education students to investigate how learners truly acted in an electronic learning environment. It was developed as a game-like realistic simulation where learners had to take on the role of a junior consultant. An authentic Learning program (ALP) was applied in an electronic learning environment with variety of multimedia. It is called Buiten Dienst (Out of Service). The ALP “simulates a consultancy firm that is given the assignment to write a report about why there is so much absence through illness in a bus company” (p. 371). The study revealed that high levels of intrinsic motivation were not necessarily indicative of higher levels of achievement. Instead, the increased curiosity that students with high intrinsic motivation was significantly associated with greater exploration of the learning environment.

Similarly, in a quantitative method study, Rovai et al., (2007) examined student motivation in traditional classroom and e-learning courses. Participants in the study included of 353 volunteer learners from three universities. The students were enrolled in either 12 face-to-face courses, 172 (48.7 %), or 12 online courses, 181 (51.3 %). The investigators utilized the 28 item Academic Motivation Scale – College (AMS-C 28) to measure intrinsic, extrinsic, and amotivation in higher education learners (Vallerand et al., 1992). A causal-comparative design was employed to answer to the research question which is are the population means for higher education student scores on motivation the same or different based on type course (e-learning, traditional), student status (undergraduate, graduate), and ethnicity (African American,
Caucasian, other). The findings showed that there is no difference between students in terms of extrinsic motivation measures or amotivation. Moreover, graduate learners had higher intrinsic motivation than undergraduate learners in both online courses and face-to-face courses. However, the study revealed that there is no indication of motivational differences based on ethnicity.

Due to the students’ need to be “more intrinsically motivated in the absence” of more formal especially in online learning environments where direct instructor influence is mitigated structure, Shroff et al. (2007, p. 241) explored students’ intrinsic motivation in online learning setting. The researchers employed a qualitative interview-based approach this research to answer how learners’ intrinsic motivation is impacted by the aspects of challenge, control, curiosity, and engagement in the context of learning activities in an online MBA program. The study demonstrated that the implementation of several learning activities and related technologies influence students’ intrinsic motivation in online learning environment. Consequently, “pedagogically driven portfolio of learning activities supported by well-selected and integrated audio, video, and data technologies” is essential in developing an environment encouraging to intrinsic motivation (Shroff et al., 2007, p. 256).

When it comes to learning on their own in online learning environments, level of intrinsic motivation sustains the interest of the online students (Chyung et al., 2010; Fırat et al., 2018; Hartnett et al., 2014). For instance, Chyung et al. (2010) argue that there is a chance that students’ learning is affected by “the interaction between their intrinsic motivation and self-efficacy levels and their performance in a self-paced e-learning environment” (p. 22). Consequently, they conducted a study to discover the impact of learners’ intrinsic goal orientation, self-efficacy and e-learning practice on learners’ learning. Thereby, sixty-seven
students enrolled the Introduction to Materials Science and Engineering class were surveyed by using the Motivational Strategies for Learning Questionnaire (MSLQ) to answer two questions: 1) What levels of intrinsic motivation and self-efficacy do students have in an introductory engineering class? and 2) What role do students’ intrinsic goal orientation, self-efficacy and e-learning practice play in their learning? The study revealed that students’ intrinsic goal orientation and e-learning practice were substantial components to predict students’ learning.

Recently, Hartnett et al. (2014) believed that because of the fast-developing “nature of digital information and communications technology” in education, motivation is a crucial factor that contribute to learning success in digitally mediated or online learning environments (p. 31). Therefore, applying the fundamental concepts of self-determination theory, researchers conducted a qualitative case study to investigate the nature of motivation to learn of preservice learners in an online environment and discussing deeply the complex interplay of elements supporting motivation to learn. The researchers utilized mixed methods included online questionnaires and in-depth semi structured interviews with learners from a preservice teacher education program within a New Zealand tertiary institution. The study found a range of social and contextual elements affecting autonomy, competence, and relatedness in an online learning such as task relevance and meaning, clear guidelines and expectations and relationship with lecturer.

More recently, Fırat et al. (2018) argue that the level of intrinsic motivation “triggers and sustains the interest of the open and distance education students when it comes to learning on their own in e-learning environments” (p. 63). Therefore, they conducted a quantitative study to examine the level of students’ intrinsic motivation in online environments and to analyze these data based on the gender of the students, program structure, instruction types of programs, and
academic discipline of program. The study took place at Anadolu University, Turkey with a sample of 1,639 students. The researchers adopted Intrinsic Motivation in e-Learning IMeL Questionnaire which is designed to measure college students’ level of intrinsic motivation in online courses through the five elements of intrinsic motivation in self-determination theory (inherent, interest, enjoyment, satisfaction, and autonomy). The study revealed that the level of intrinsic motivation of open and distance education students is significantly high in online courses environments. In addition, the study indicated that there is no a statistically significant difference of intrinsic motivation in terms of gender, program structure (graduate/undergraduate), instruction type (distance–blended), and academic disciplines.

**Common Approaches for Measuring Intrinsic Motivation in Education**

As a result of the complexity of the nature of motivation in general, intrinsic motivation is still considered a matter of disagreement in terms measurement (Bachman & Stewart, 2011; Chang, 2005; Chyung et al., 2010; Conroy, 2001; Smith et al., 2002; Grant, & Dweck, 2003; Jones & Skaggs, 2016; Pintrich & DeGroot, 1990; Shia, 1998). Historically, researchers have developed several approaches of measuring academic intrinsic motivation. However, considering the complexity of motivation, all those approaches of measuring academic intrinsic motivation are varied based on the diversity of researchers’ perspectives towards motivation (Elliot & Church, 1997; Grant, & Dweck, 2003; Jang et al., 2016; Miltiadou & Savenye, 2003; Pintrich & DeGroot, 1990; Ryan et al., 1990; Reeve & Sickenius, 1994; Shia, 1998). Therefore, this section provides a brief historical overview for the most common academic intrinsic motivation measures in the literature.

One the most well-known and widely-adopted measure for academic intrinsic motivation is the Intrinsic Motivation Inventory (IMI; Ryan, 1982). It is a multi-dimensional measurement
to assess participants’ intrinsic motivation and self-regulation in different fields. Overall, this instrument consists of 45 items divided unequally to the seven subscales. Even though the overall questionnaire is called the Intrinsic Motivation Inventory, there is only one subscale that measures intrinsic motivation. The IMI items have been improved slightly to be suitable for specific fields. In addition, many studies have been conducted to confirm its validity. For example, McAuley et al. (1989) performed a study to examine the validity of the IMI and found a strong support for its validity. Also, Tsigilis and Theodosiou (2003) found a Greek version of the scale to be reliable. This questionnaire has been used in many research related to assess participants’ intrinsic motivation and self-regulation (e.g., Deci et al., 1994; Plant & Ryan, 1985; Ryan, 1982; Ryan et al., 1983; Ryan et al., 1990; Ryan et al., 1991).

Archer (1994) proposed a scale to measure higher education learners’ mastery goals, performance goals (the concern to demonstrate ability to others), and goal alienation (the lack of academic goals). The inventory consists of eight scales and all items are rated on a 5-point Likert-type scale with “five” representing the most positive response. Archer (1994) reported that coefficients of the goal orientation scales are $\alpha = 0.84$ for the mastery scale, $\alpha = 0.80$ for the performance scale, and $\alpha = 0.70$ for the alienation scale. One example use of this survey is the study conducted by (Perrot et al., 2001) to measure goal orientation preferences of students in health professions programs. According to their study, the scale proved to be a valid measure.

Considering the need of instruments measure the three psychological needs identified in the Self-Determination Theory (autonomy, competence, and relatedness), (Reeve & Sickenius, 1994) developed their Activity-Feeling States (AFS) scales to measure students' intrinsic motivation. The AFS is designed to assess the three psychological needs in the sense of particular activities in order to identify the degree to which environmental factors influence these
needs (Reeve & Sickenius, 1994). The researchers developed the scale to be applied in many activities flexibly and efficiently. The AFS consists of 13-items distributed to four subscales (self-determination, competence, relatedness, and learning tension). Each of these subscales has three or four items related to it and has a 1-7 response scale that ranged from strongly disagree to strongly agree. In terms of reliability and validity, the scale has been shown to be reliable and valid in several studies and it became a useful instrument to measure students' intrinsic motivation based on their three psychological needs of autonomy, competence, and relatedness (Jang et al., 2016; Jang et al., 2009; Reeve & Lee, 2014; Reeve & Tseng, 2011; Reeve et al., 2003).

After recognizing several issues in their 2001 version of goal orientation survey, Elliot and Murayama (2008) revised the items in their old survey to produce the new survey with more reliability and validity. The achievement goal questionnaire-revised (AGQ-R) consists of 12 items in total with each goal orientation measure containing of 3 items. AGQ-R used a consistent questioning pattern to make items easier to read and understand. With each goal orientation still containing equal numbers of items, they all start with the same pattern as "My aim is to …; I am striving to …; My goal is to …". In order to test the psychometric properties of the revised survey, Elliot and Murayama (2008), used a sample of over 200 undergraduates, and they reported quite satisfactory internal consistency for each goal orientation (Cronbach's α = .84, .88, .92, and .94 respectively). This survey has become a valuable tool to measure subjects’ intrinsic motivation and utilized in several studies (e.g., Conroy, 2001; Grant, & Dweck, 2003; Smith et al., 2002).

Shia, (1998) argues that success in higher education is positively impacted by learners’ academic intrinsic motivation. Therefore, the researcher developed an Academic Intrinsic
Motivation inventory (AIM: Shia, 1998). The AIM scale includes a total of 59 items divided to two factors to assess intrinsic motivations and four factors to measure extrinsic motivations. All items are rated on a 7-point Likert-type format scale ranging from “does not describe me” to “strongly describes me”. Uyulgan, and Akkuzu (2014) provided a validation evidence for the AIM scale with Cronbach's alpha .86. The inventory can provide many opportunities for researchers in the fields of both educational psychology and social psychology. For example, Kerr et al. (2006) utilized the AIM scale as one of their measurements in order to investigate student characteristics for online learning success.

One of the most common intrinsic motivation measures is MUSIC model of academic motivation inventory (MUSIC Inventory; Jones, 2012). The MUSIC acronym stands for eMpowerment, Usefulness, Success, Interest, and Caring. Initially, Jones (2009) proposed a MUSIC model that can be utilized as a design instruction in any educational setting in order to motivate learners, “diagnose motivational strengths and weakness of instruction, and to research relationships among factors critical to student motivation” (Jones, 2009). The MUSIC model is a conceptual model based on many different theories and focuses on how social contexts affect students’ perceptions of key motivational beliefs (Jones, 2009). The five key principles of the model are eMpowerment, Usefulness, Success, Interest, and Caring which considered are as broad instructions for teachers to give students control, confidence and interests during the learning process (Jones, 2009). Considering the five key principles of MUSIC model, Jones (2012) created and validated MUSIC Inventory which consists of 26 items that are rated on a 6-point Likert-type format scale and structured into five scales including five empowerment items, five usefulness items, four success items, six interest items, and six caring items. Jones and Skaggs (2016) provided a validation evidence for the MUSIC Inventory by using 221 different
courses at a large public U.S. university. Their results indicated that the scores produced by the MUSIC Inventory are valid for use with college students. MUSIC Inventory is an effective tool for instructors and researchers to measure students’ motivational beliefs in any field of learning (Jones & Skaggs, 2016).

This review offered an adequate knowledge on the role of these areas in the online learning environment, which in turn will support in establishing a foundation of knowledge that can be built upon with this research and with future research. In addition, the literature review provided insights from previous studies in order to shape the considerations into the design of this study as well as the background to further interpret the findings within this study.

**The Need for Additional Research**

Despite the emerging research regarding online learning, little attention has been given to students’ intrinsic motivation in online courses (Bekele, 2010; Hartnett, 2016; Hoskins & Van Hooff, 2005; Jones & Issroff, 2005; Miltiadou & Savenye, 2003; Martens et al., 2004). Moreover, since online research is in its early stages, especially when exploring the role of intrinsic motivation, there is a lack of depth in the research compared to the traditional classroom environment (Chyung et al., 2010; Firat et al., 2018; Hoskins & Van Hooff, 2005; Hartnett et al., 2014; Johnson et al., 2015; Martens et al., 2004; Rienties et al., 2009; Rovai et al., 2007; Shroff et al., 2007). Although some of these studies demonstrate consistency and strength in their findings, much of the research has been found to be inconsistent, and the majority of them explored students’ motivation in general. Consequently, research is still needed to fully understand particularly the important role and contributions of intrinsic motivation on graduate students’ academic performance in the college online courses.
A review of the literature has demonstrated the need for a deeper understanding of graduate students’ intrinsic motivation in online courses environment. Even though a number of studies have investigated this topic, our understanding of how fully online courses environment affect graduate students’ intrinsic motivation remains inadequate. Specifically, graduate students’ intrinsic motivation has not received adequate attention from a mixed methods angle. Thus, considering the five main components of intrinsic motivation according to self-determination theory (inherent, interest, enjoyment, satisfaction, and autonomy) that determine the level of learner’s intrinsic motivation (Deci & Ryan, 2012), there is a need to perform more mixed methods studies under the umbrella of self-determination theory in order to understand the nature of intrinsic motivation in online learning environment and determine motives of it’s the constructs during the learning proses in fully online courses. In addition, researchers need to gain an understanding of the graduate students’ intrinsic motivation in online learning by listening to graduate students’ perspectives. Therefore, the voices of graduate students must be heard and their experiences documented in order to capture and understand the phenomenon of graduate students’ intrinsic motivation in online learning more deeply and completely, and then provide practical recommendations to enhance the level of student’ intrinsic motivations and the learning process’s outcomes through rich online learning means, interaction tools, activities, and environments.
Chapter 3: Methodology

Introduction

This chapter describes the research methodologies and design utilized to conduct this study. The following sections present a discussion of the research design, followed by a detailed description of the necessary materials and instrumentation used in both the quantitative phase and the qualitative phase. In addition, this chapter explains the study’s procedures, data collection and analysis, and ethical assurances in each phase of the study.

Research Design

In this study the explanatory sequential mixed methods research design was employed (QUANTITATIVE → QUALITATIVE = EXPLANATION) (Creswell & Plano Clark, 2012). This research design started with an initial quantitative survey and then the follow-up qualitative interview. The priority in this research design was on the qualitative phase. The qualitative results helped explain the initial survey results in order to grasp a deeper understanding of graduate students’ intrinsic motivation in fully online courses.

Mixed methods approach is a procedure for collecting, analyzing, and “mixing” or integrating both quantitative and qualitative data at some stage of the research process within a single study for the purpose of gaining a better understanding of the research problem (Creswell, 2005; Tashakkori & Teddlie, 2003). In addition, the mixed methods approach can be defined as “a third methodological movement” following quantitative and qualitative methods (Teddlie & Tashakkori, 2009, p. 5). Mixed methods design can be known as both a method and methodology. As a method, it can serve as an approach and procedures to collect, analyze, and mix qualitative and quantitative data. As a methodology, it includes the mixing of qualitative and
quantitative methods in several stages in the research process: from philosophical assumptions to data collection and analysis (Creswell, 2005; Tashakkori & Teddlie, 2003). The essential rationale for mixing both kinds of data within one study is grounded in the fact that neither quantitative nor qualitative methods are adequate, by themselves, to grasp a profound understanding of research phenomena (Green et al., 1989; Tashakkori & Teddlie, 1998). Using a combination of quantitative and qualitative methods to complement each other, which produces a more robust analysis, exploits the advantages of each with the purpose of providing a better understanding of research issues than a single method (Creswell & Plano Clark, 2012; Tashakkori & Teddlie, 1998).

The explanatory sequential design considers as one of the most common structures in mixed methods research and highly popular among researchers (Creswell & Plano Clark, 2012). It contains of two consecutive interactive phases within one study. First, the initial quantitative phase. Second, the follow-up qualitative phase. In this design, initially, a researcher collects and analyzes the quantitative (numeric) data. Then, the qualitative (text) data are collected and analyzed sequentially in order to help explain and elaborate the quantitative results gained in the first phase (Creswell & Plano Clark, 2012). The explanatory sequential design has found application in both social and behavioral sciences research (Ceci, 1991; Janz et al., 1996; Kinnick & Kempner, 1988; Klassen & Burnaby, 1993). The rationale for this approach is that the quantitative data and their subsequent analysis provide a general understanding of the research problem. The qualitative data and their analysis refine and explain those statistical results by exploring participants’ views in more depth (Creswell & Plano Clark, 2012; Morgan, 1998; Tashakkori & Teddlie, 1998). This design can be particularly valuable when unforeseen results emerge from the quantitative data (Creswell & Plano Clark, 2012; Morse 1991). Accordingly,
the explanatory sequential design was the best suitable for this study because I wanted to gain in breadth and depth understanding of the survey results through a follow-up interviews for the sake of capturing a profounder understanding of graduate students’ intrinsic motivation in fully online courses by listening to graduate students’ voice. The procedures of this study are demonstrated in Figure 2.
Figure 2

Research Design

**Procedures**

- Online Questionnaire
- Recruiting participants
- Developing the protocol

Quan Questionnaire Data Collection

- Standard deviation Statistic
- Mean Statistic
- Independent two sample t-test
- ANOVA test

Quan Data Analysis

- Significant or insignificant effects

Connect To

- Recruiting participants

Numbers of participants
- The interview guide

**Products**

- Numbers
- Scales scores

**Quan Data Analysis**

- **Individual interviews**

Qual Interview Data Collection

- Text
- Transcripts

**Qual Interview Data Analysis**

- **Coding**
- **Theming**

- Codes
- Themes

**Discussion and Interpretation**

- How qualitative results explained quantitative findings

- Explaining the Quan findings
- Providing details
- Deepening understanding
Quantitative Phase

Participants

The study was conducted during the Fall semester of 2020-2021 academic year. The target population of this research is Educational Theory & Practice graduate students at a public research university in upstate New York. This research location provides a wide selection of certificate and degree completion programs including face to face course, blended courses, and fully online courses. In particular, the population that were used in this study included 270 master’s students taking one or more of the total of 32 master’s level courses during the fall of 2020. Thirty courses of them were offered as fully online courses and two as blended courses. The participants in this study were volunteer and currently enrolled in a fully online master’s level courses or who had recently taken at least one fully online class at the School of Education at University at Albany. No exclusion criteria was set for participants other than being a master’s student over the age of 18. In addition, all Educational Theory & Practice master’s students, regardless of their gender, race, academic standing, ethnicity, or other demographic characteristics were eligible to participate in this study.

In regard to courses delivery, Blackboard Learn was used as the school’s Learning Management System (LMS). Blackboard Learn is a virtual learning environment and learning management system developed by Blackboard Inc. It is a Web-based server software which features course management, customizable open architecture, and scalable design that allows integration with student information systems. Its main purposes are to add online elements to courses traditionally delivered face-to-face and to develop completely online courses with few or no face-to-face meetings. This provides instructors the freedom to design their courses to satisfy
their style of teaching and their students' needs. In addition, the university provides faculty with several resources, training, and support options to develop their courses.

**Power Analysis**

Sample size was determined using Cohen’s power analysis (Cohen, 1992). According to Cohen (1992), “for research planning, it is most useful to determine the $N$ necessary to have a specified power for a given $\alpha$, and ES” (p. 156). Cohen (1992) recommended that, when research is planned that will use one-way ANOVA for three groups with significance of $\alpha = .05$, a medium effect size, $f = .25$, and a statistical power of .80, a sample size of 75 is needed. In addition, according to Cohen (1992), with a medium effect size of $d = .50$, a significant alpha = .05 and a statistical power of .80, the desired sample size to use an independent samples $t$-test analysis is 64. This indicates that the sampling size can range from a minimum of 64 for performing one-way ANOVA and an independent samples $t$-test analysis to a maximum of 75 as recommended by Cohen (1992). Being that 127 graduate students participated in this study; the desired sample size was obtained to achieve the desired power.

**Measurement**

**Web-Based Questionnaire**

In this research a web-based questionnaire was utilized. The current developments in the use of web-based questionnaires as a mode of data collection in research are adequate and effective. Studies show that web-based questionnaires, when carefully built and designed, could sufficiently be used in certain populations in developed countries, such as university students (Morrel-Samuels 2003; Saewyc et al., 2004). Using web-based questionnaires as a data collection tool leads to improving the quality of data since validation checks can be incorporated
with reminders that alert participants when they input implausible or incomplete responses (Bech & Kristensen, 2009). Therefore, the item nonresponse and ‘‘don’t know’’ answers are reported to be less prevalent in web-based questionnaires compared with hard copy questionnaires (Bech & Kristensen, 2009).

Recent research has reported that response to web-based questionnaires increase rapidly where the majority of participants and investigators favored the web-based version more than hard copy questionnaires (Akl et al., 2005; Rankin et al., 2008; Touvier et al., 2010). Utilizing web-based questionnaires gives researchers the opportunity to guarantee that quality of data and avoid errors in the process of data entry, transforming and coding since these processes are accomplished electronically and automatically (Rankin et al., 2008; Touvier et al., 2010). Studies indicate that web-based questionnaires can be done by participants more rapidly than paper questionnaires version with more completing the questionnaire within a few days (Akl et al., 2005; Kroth et al., 2009). Completing all questions in a web-based questionnaire was estimated to take about half the time needed to answer the same number of questions in a paper questionnaire version (Coyne et al., 2009). Moreover, in web-based questionnaires, researchers have the capability to adjust and accomplish some tasks immediately such as resolving unexpected problems or incorporating preliminary results or new developments or using a data management system to automatically email reminders and requests for follow-up questionnaires to the participants (Bech & Kristensen, 2009).

Studies have revealed that data can be collected with equal or even better reliability in web-based questionnaires compared with traditional approaches (Brigham et al., 2009; Graham et al., 2006; Miller et al., 2009; Rankin et al., 2008; Touvier et al., 2010). The validity of web-based questionnaires appears to be similar to those of hard copy versions (Beasley et al., 2009).
There are strong inferences that web-based questionnaires are less disposed to social desirability bias than other methods of data collection (Booth-Kewley et al., 2007; Pealer et al., 2001), which makes them very appropriate for research on complex and sensitive topics. Computers may produce a situation in which participants feel more anonymous and private and less concerned about how they appear to others (Brigham et al., 2009; Miller et al., 2009).

**Intrinsic Motivation in E-Learning IMeL Questionnaire**

Graduate students’ level of intrinsic motivation in fully online courses was measured using Intrinsic Motivation in e-Learning IMeL Questionnaire (Appendix B) developed by a group of researchers in Anadolu University, Turkey to improve online learning environment (Fırat et al., 2018). This survey was designed to measure college students’ level of intrinsic motivation in online courses. IMeL questionnaire operationalizes elements of intrinsic motivation in self-determination theory described earlier. IMeL includes five questions with 5-point Likert scales that can be used to assess college students’ level of intrinsic motivation in online courses. According to Fırat et al. (2018), in their developing IMeL, they referred to experts and many studies in the related literature including self-determination theory and ARCS Model Keller (1984) that define four major conditions (Attention, Relevance, Confidence, and Satisfaction) that have to be met for people to become and remain motivated (Cerasoli et al., 2014; Chen & Jang, 2010; Deci, 1975; Deci & Ryan, 2012; Hartnett et al., 2011; Miltiadou & Savenye, 2003; Moore, 1993; Ryan & Deci, 2000a). In the first stage of developing the questionnaire, researchers established an item pool consisting of 15 items by relating to literature. Considering the five main components of intrinsic motivation (inherent, interest, enjoyment, satisfaction, and autonomy) in Self-determination Theory Deci and Ryan (2012), three items for each of the five main components were included in the questionnaire. Later,
researchers excluded and revised some items based on experts’ opinions which resulted five items. In order to establish the construct validity of the questionnaire, researchers utilized principal component analysis (PCA). Consequently, PCA revealed one component with total 3.791 eigenvalue, which explained 75.817% of the total variance (see Table 2). According to Tabachnick and Fidell (2001), factor loadings of the items collected under one factor can be considered excellent when they varied between minimum .753 and maximum .922 and loadings in excess of .7. Therefore, it can be said that IMeL questionnaire has a strong single-factor structure. Written permission from Fırat et al. (2018) to use the IMeL and the exact questions is displayed in (Appendix C).

**Table 2**

*IMeL Questionnaire Items Factor Loadings (Fırat et al., 2018)*

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>I enjoy studying in fully online courses environment (enjoyment)</td>
<td>.92</td>
</tr>
<tr>
<td>I prefer to study in fully online courses environment even if I have</td>
<td>.92</td>
</tr>
<tr>
<td>printed materials (inherent)</td>
<td></td>
</tr>
<tr>
<td>I look forward to studying in fully online courses environment (interest)</td>
<td>.91</td>
</tr>
<tr>
<td>I'm satisfied with my studies in fully online courses (satisfaction)</td>
<td>.82</td>
</tr>
<tr>
<td>I set my own learning needs (autonomy)</td>
<td>.75</td>
</tr>
</tbody>
</table>

**Measuring Intrinsic Motivation**

Many studies in the literature have provided a number of well-established surveys that measure students’ motivation as some of them were discussed earlier in the literature review.
section, however, none of them could be utilized directly to accommodate the research purpose of this study. For instance, The Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich et al., 1993) is a comprehensive survey. It is a reliable measure of student motivation and has been widely used in research investigating the role of motivational constructs in both the traditional Pintrich and De Groot (1990) and online classroom environments (Chang, 2005; Chyung et al., 2010). Even though (MSLQ; Pintrich et al., 1993) it contains 81 items in total and also covers the section of intrinsic and extrinsic motivation, its main focus is on the nature of motivation in general. In addition, the number of items was too large to be part of the instrument in this study. Another example is the Academic Motivation Scale (AMS; Vallerand et al., 1992). It contains the measures for three types of motivation: intrinsic motivation, extrinsic motivation, and amotivation. Regardless of its popularity and wide use of (AMS; Vallerand et al., 1992), all the 28 items focus on why individuals attend university to receive higher education in general which was not appropriate for the purpose of this study. Lastly, The Intrinsic Motivation Inventory (IMI) is claimed to be a straight measurement of intrinsic motivation itself (Plant & Ryan, 1985). The survey is a multi-dimensional measurement that contains seven subscales to intrinsic motivation and self-regulation. The 45 items have been distributed unequally to the seven subscales in order to measure individuals’ motivation in traditional learning environment. Accordingly, The Intrinsic Motivation Inventory (IMI) could not be utilized in this study as well as it was designed for measuring all types of motivation in face-to-face learning environments.

Rationale for Using the IMeL to Measure the Level of Students’ Intrinsic Motivation

The IMeL has proven to be a valid, reliable measure of students’ level of intrinsic motivation in online learning environment (Fırat et al., 2018). The existing instrument from literature was used in this study was sufficient for the constructs it measured and that it was
sufficiently valid instruments based on the literature available for this instrument. Therefore, considering the match of research purpose, I adapted IMeL questionnaire for this study. It was appropriate to use for this study because (1) the previous questionnaires used in literature were designed to evaluate and measure individuals’ motivation in general including all types of motivation; (2) the main purpose of all previous questionnaires were to measure learners’ motivation in face to face learning environment which was not the research setting in this study; (3) the only questionnaire that was designed to measure the level of intrinsic motivation of college students in online learning environment particularly is IMeL questionnaire which fitted the main purpose of this study; (4) IMeL questionnaire was designed under the umbrella of self-determination theory and utilizes the five main components of intrinsic motivation in STD (inherent, interest, enjoyment, satisfaction, and autonomy) which aligned with the framework of this study.

**Study Procedure**

In order to collect data from participant to answer the research questions, IMeL questionnaire was administered. Questionnaires are common and useful tools for collecting data from participants. Conducting the study online allowed for execution of the questionnaire at multiple locations while minimizing impact to the participants. For this study, the questionnaire was created in Qualtrics platform.

The Institutional Review Board approval for this study was received prior to any contact with participants. The coordinator of Educational Theory & Practice at School of Education at University at Albany shared the link to the electronic survey and the consent form via email with all the ETAP master’s students at School of Education at University at Albany (Appendix A). If
students did not respond to an item, they would be notified and had to respond to submit the survey, resulting in no missing data.

Potential participants from all the ETAP master’s students were asked to participate in this study and were informed in both a recruitment e-mail and the informed consent that there were no risks involved in participating in the study, and they were informed that by the end of the questionnaire they had an option to participate in follow-up interviews (Appendix D). Both of these documents included an overview of the research study, what it entailed and reassurance of confidentiality and anonymity. Both documents encouraged students to take their time to think about whether they would accept or decline to participate in the study. In addition, they were reassured that there would not be any negative consequences if they did not participate. The students also were informed that the information collected through the questionnaire would be anonymous to ensure their privacy and confidentiality and that they could withdraw from the study at any time if they chose to without penalty. Moreover, students were informed the importance of the study to the higher education system in order to generate maximum participation.

Prospective participants received a recruitment e-mail during Fall 2020 semester. The e-mail informed them that if they decided to participate in the research study, they had to read the informed consent, which they were instructed to access via the link at the bottom of that page. If they did not desire to participate, they were thanked for their time. Those students who intended to participate were further instructed to (1) read the informed consent, (2) complete the questionnaire that they were directed to access via a link at the bottom of the informed consent, and (3) provided their emails if they agreed to participate in follow-up interviews.
Data Analysis

The collected survey data from Qualtrics was transferred to SPSS for analysis. Next, the data was screened to remove any incomplete submissions or significant outliers. Any part of the questionnaire found to have missing data was eliminated from the analysis process (Mertler & Vannatta, 2005). In order to evaluate the demographics of the sample, a descriptive analysis was performed.

For the first research question, standard deviation and mean statistics was utilized. The comparison of means procedure is useful when summarizing and comparing differences in descriptive statistics across one or more factors, or categorical variables (Mertler & Vannatta, 2005). The second research question was examined by using independent two-sample t-test and one-way ANOVA (analysis of variance). Two-sample t test is an appropriate analysis that measures group differences, which analyzes significant differences between two group means (Mertler & Vannatta, 2005). Consequently, in order to compare the level of intrinsic motivation scores of the graduate students in online course environments by their genders and registration status, an independent two-sample t-test was conducted. In addition, One-way analysis of variance (ANOVA) is an appropriate analysis that tests the significance of group differences between two or more means as it analyzes variation between and within each group (Mertler & Vannatta, 2005). Therefore, One-way ANOVA test was utilized to compare the level of intrinsic motivation scores of the graduate students in online course environments by their employment status and their experience with fully online courses.
Assumptions

Since the main criterion for participating in this study was that the participant was currently studying or had recently taken a fully online class at the School of Education at University at Albany, a reasonable assumption of the present study was that the participants possess basic internet and computer competency. With the sampling method performed to select participants, it was also reasonable to assume that selection would not create a significantly unrepresentative sample of the intended sample. Based on the identified sampling method for this study, sufficient participation was predictable. Another assumption was that the existing instrument from literature was used in this study was sufficient for the constructs it measured and that it was sufficiently valid instrument based on the literature available for this instrument. Additionally, it was expected that all participants would be able to answer the survey honestly and have adequate cognitive abilities to complete the survey.

Ethical Considerations

Ethics must be part of the framework of any study and to mitigate both the ethical concerns and harm to individuals, the following guidelines were followed. No data were collected for this study until receiving appropriate Institutional Review Board (IRB) from the University at Albany Research and Compliance Office. Students, specifically, needed to understand that their rights were being taken into consideration. Therefore, all participants received a consent form included overview of the research study, what it entailed and reassurance of privacy and anonymity. No participants under the age of 18 years received an invitation to participate in this study. Participants completed the survey anonymously, and the survey did not collect any personally identifiable information or present any risk of participant identity exposure. Students were assured that taking the survey was voluntary and they could
withdraw from participation at any time. The participants were told that data would be kept in a secure environment and all data collected was stored on the researcher’s password protected computer. The survey would be deleted from Qualtrics database upon securing the data in an exportable format for future analysis, external from the survey system. All data would be deleted after the completion date of the study.

**Qualitative Phase**

**Method**

In the qualitative phase of this study, a phenomenological approach to inquiry were applied as an extended stage of understanding the results of the quantitative phase. The qualitative results helped explain the initial survey results in order to grasp a deeper understanding of graduate students’ intrinsic motivation in fully online courses and to build a better understanding of the significant and nonsignificant quantitative findings (Creswell & Plano Clark, 2012). Conducting a phenomenological approach to inquiry allowed me to explore what it was that participants have in common with each other as they had all lived the experience of the phenomenon (Creswell, 2013; Moustakas, 1994). A phenomenological approach to inquiry assists researchers to discover a mutual meaning of what it is like for people who experience a particular phenomenon (Creswell, 2013). The fundamental purpose of phenomenology approach is to obtain the underlying essence of the experience (Creswell, 2013; Moustakas, 1994).

After identifying the need for further research in graduate students’ intrinsic motivation in fully online learning environments, several scholars have recommended that in order to understand how graduate online learners experience motivation, a qualitative approach should be utilized to gain a more in-depth understanding of this phenomenon (Bannier, 2010; Johnson,
2012; Kim, 2005; Schartz, 2014). For example, Bannier (2010) asserts that since quantitative research method is not an adequate approach to completely describe complex constructs such as motivation, a qualitative approach is more effective. In this context, Kim (2005) also notes that a qualitative approach enables researchers to deeply examine the complexity of motivation and offer a rich explanation of this phenomenon. Particularly, in terms of intrinsic motivation, Fırat et al. (2018) state that in order to examine the level of intrinsic motivations of the open and distance education students more thoroughly, interviews may be conducted by benefiting from qualitative research. Therefore, applying a phenomenological approach in this study resulted in obtaining a rich explanation of how intrinsic motivation is experienced by graduate students in fully online learning environments and through comprehensive analysis, grasped the essences of this phenomenon.

Phenomenology has strong philosophical underpinnings (Creswell, 2013). Inherent in this approach to inquiry is the search for wisdom and knowledge (Creswell, 2013). It requires that one refrains from judging what constitutes reality and recognize that reality is how one perceives it and how it appears in someone’s consciousness (Creswell, 2013; Moustakas, 1994). Van Manen (1990) argues that phenomenology searches for obtaining a deeper understanding of the nature or sense of our everyday experiences, and it asks, “What is this or that kind of experience like?” Phenomenology is different than other approaches because it aims to obtain meaningful descriptions of the way we experience the world (Merleau-Ponty, 1962; Moustakas, 1994; Richards & Morse, 2012; Van Manen, 1990). Thus, there is no absolute truth and each one of us see the world and reality from his or her angle and ways. In phenomenology, it is essential to gather multiple perspectives in order to study a phenomenon (Creswell, 2013; Moustakas, 1994). Using multiple perspectives for understanding the phenomenon of intrinsic motivation in online
courses would lead to illuminate different aspects of the experience and allowed me to grasp the commonalities and universality across individual experiences. Hearing from multiple learners and instructors was significant to describe and explain the essence of graduate students’ intrinsic motivation in online course by listening to each person and summarize their individual perspectives to common experiences (Creswell, 2013; Moustakas, 1994).

In phenomenological inquiry, it is necessary to collect data from various perspectives to arrive at the essence of a shared experience or phenomenon (Moustakas, 1994; Patton, 2014). In this study, there was a need to focus on understanding how graduate students experience intrinsic motivation in online courses environment and how graduate students learn in online courses effectively and successfully. In this context, the optimal method to obtain these information and data was interviews (Patton, 2014). Since the main purpose of phenomenology is gaining a deeper understanding of the phenomenon, interviews were used (Creswell, 2013; Moustakas, 1994). Interviews help researchers to grasp the essence of what the phenomenon is and how participants experience it (Creswell, 2013; Moustakas, 1994). Van Manen (1990) states that the phenomenological interview performs as a medium to discover and collect experiential narrative content that can function as a resource for producing a richer and deeper understanding of a human phenomenon. By conducting interviews, I was able to seek the perceptions, attitudes, beliefs and thoughts of participants who had experienced the phenomenon of intrinsic motivation in online courses. I made sure that I would interview adequate number of graduate students in order to have a range of perspectives that allowed me to capture the essence of the phenomenon.
Data Collection

Participant Selection and Recruitment

Participant Selection. It is essential in phenomenological inquiry that all participants must have experienced the phenomenon under study (Creswell, 2013). Therefore, this phase of the study involved a group of graduate students who were volunteer and currently enrolled in fully online master’s level course in the Fall of 2020 or who had recently taken at least one fully online graduate level courses offered by the School of Education at a public research university in upstate New York. In terms of selecting participants, Van Manen (1990) suggests that generalization in phenomenological research may prevent us from producing understandings that maintain focused on the distinctiveness of human experience. Instead, the purposeful sampling strategy yields insights and a profound understanding rather than empirical generalizations (Patton, 2014). Therefore, since it was not the purpose of a phenomenological approach to develop generalizable findings (Van Manen, 1990), a purposeful sampling strategy was utilized in this phase of the study for the sake of developing a deeper understanding and obtaining new knowledge of the phenomenon of intrinsic motivation in online courses environment (Patton, 2014). Each participant was selected based on certain criteria in order to ensure that each participant has experienced the same phenomenon (Maxwell, 2013). The criteria for selecting students are that they must be master’s students who volunteer and were currently enrolled in fully online master’s level courses in the Fall of 2020 or who have recently taken at least one fully online graduate level courses as well as they have completed IMel questionnaire explained above in the quantitative of this study and agreed to be interviewed. Participants also had to be over the age of 18. In addition to the purposeful sampling strategy, a convenience sampling
strategy was also utilized where I selected the participants because they were willing and available to be interviewed (Creswell, 2013).

In terms of sample size for interviews, in the literature, there is a general agreement that a sample size in phenomenological approach usually ranges in size from 1 to 10 participants (Groenewald, 2004; Marshall et al., 2013; Sandelowski, 1995; Starks & Trinidad, 2007). Creswell (2013) suggests that researcher should avoid collecting a too large sample in qualitative research since large samples and gathering extensive amount of detailed information may cause a difficulty in providing a deep understanding of the phenomenon under study. In addition, it is recommended that researcher in phenomenological approach to be flexible with number of participants in advance of the study (Patton, 2014). Therefore, it was with these guidelines in mind that I attempted to interview a minimum of 5 and a maximum of 10 students. After reading the transcript and analyzing data, I determined if I needed to interview more participants to help in understanding the phenomenon more fully and to ensure the collection of rich, descriptive data. Working on gathering more information from each participant was essential in understanding every aspect of intrinsic motivation in online courses so I could add new and valuable contribution to the literature.

**Participant Recruitment.** After applying all steps of soliciting participants described earlier in the quantitative phase and following the sampling strategy described above, I contacted each of the participants in order to inform them that they had been chosen for this study. Initially, I discussed with each of the participants their options for scheduling an interview. Every attempt was made to conduct the interviews in person, however due to COVID-19 outbreak, I took advantage of alternative options to conduct the interviews. Therefore, all interview sessions were conducted via video conferencing application such as Skype and Zoom. All online interviews
were recorded using one of the video conferencing applications as the primary recording device and a digital audio recorder as the backup recording device. Each interview lasted for approximately 45-60 minutes. In addition, I conducted a pilot interview with a volunteer who matched up with the criteria for the sample in order to evaluate whether the material and interview questions need to be changed as well as to set a timeline for participant interviews.

**Interview Procedure**

Collecting data from multiple perspectives is essential in phenomenological inquiry. I wanted to investigate graduate students’ intrinsic motivation in fully online courses. Interviews were the best method to obtain this information. Interviews are often used in phenomenology because the aim is to gain a deeper understanding of the phenomenon in order to grasp the essence of what the phenomenon is and how participants experience it (Creswell, 2013; Moustakas, 1994; Patton, 2014;). Interviews allowed me to seek the perceptions, attitudes, beliefs and thoughts of participants who had experienced the phenomenon of online learning. Van Manen (1990) mentioned that interviews should be utilized with a particular approach and technique to generate a conversational relation with the participants to explore and gather experiential narrative material that may serve as a resource for developing a richer and deeper understanding of a human phenomenon.

In this study, I adopted the semi-structured method of conducting interviews (Glesne, 2016; Groenewald, 2004; Kvale & Brinkmann, 2009; Patton, 2014). This type of interview allowed for questions to be written in advance but also allows for flexibility in being able to prompt for deeper information during the interview (Glesne, 2016). Using a semi-structured interview, I could change the questions or added new questions throughout the data collection and analyses (Glesne, 2016). In addition, I should have been cautious about providing too much
structuring as this may limit the data I collected and set a boundary on the breadth of the study (Maxwell, 2013). Gathering as much information from each participant as possible was crucial in my understanding of the phenomenon of intrinsic motivation (Glesne, 2016; Maxwell, 2013;). This also helped me to be thorough in uncovering aspects of the intrinsic motivation in online courses that had yet to be discovered in order to contribute to the empirical literature in the field.

Given the importance of conducting interviews as an essential data collection in phenomenological approach, I developed an interview guide (Appendix E) according to the recommendations of Creswell (2005). The interview guide consists of three main sections as follows:

1- **Introduction:** The first part of this section was used to report general information regarding the interview such as time, date, location, and a participant identifier. In addition, in this section of the interview guide, I provided some information to be reviewed with the participants prior to the start of the interview such as the purpose of the study, overview of the interview process, and description of how the data would be managed to protect the confidentiality of the interviewee.

2- **List of Guiding Questions:** In this section, there were numbers of open-ended questions (Appendix E) used to obtain in-depth descriptions from participants of their lived experience with the phenomenon under study (Moustakas, 1994; Patton, 2014). The open-ended questions were designed by me based on Intrinsic Motivation in e-Learning IMeL Questionnaire Fırat et al. 2018) which was developed based on self-determination theory five components of intrinsic motivation (inherent, interest, enjoyment, satisfaction, and autonomy) as described earlier to answer the qualitative research question “How do graduate students describe their
intrinsic motivation in fully online courses”. Importantly, all interview questions were developed under the supervision of three of qualitative research experts. In addition, in order to examine the validity of the interview questions, I submitted the entire interview guide to two online learning experts to receive their recommendations which resulted in excluding and revising some items. In this section also there was a freedom for me to add some follow up questions in order to gain clarification on answers or ideas of the participants (Creswell, 2005). For instance, in order to assess a participant’s enjoyment in online courses, I could ask some questions such as “can you give me an example or describe a situation where you enjoyed your experience in the online course environment”, and “what did you enjoy most about your experience in the online course environment and why?” Furthermore, for the attempt of understanding how online courses fulfill graduate students’ autonomy, participants were asked for instance, “how are you preparing yourself to be a successful learner in an online course environment”, and, as a student, “what could you do to improve the quality of your online courses?” This full set of questions allowed participants to provide a detailed description of their lived experience as fully online courses learners. This in turn allowed me to develop an in-depth understanding of graduate students’ intrinsic motivation in fully online courses.

3- Concluding Remarks: This section of the interview guide contained final steps for me to be taken such as thanking the interviewee for their cooperation and participation, asking the interviewee if they had any questions and then let them know how they could contact me if a question came up at a later date, and reviewing the procedures for reviewing the transcript of their interview.

According to Patton (2014), the time after an interview is a significant time of reflection and explanation that should be taken by the researchers to guarantee that the data obtained is
beneficial, reliable, and accurate. In this regard, I reviewed the recording and any notes that were taking during the interview to check for uncertainty and then contacted the participant in order to ask for explanations of these issues (Patton, 2014). Furthermore, in order to ensure a high level of quality, all transcripts were sent out to each of the participants so that they could review for accuracy and clarity (Creswell, 2005). Any notes or changes made to the transcript by participants were incorporated into the final document of the study.

**Organization and Storage**

All interviews’ recordings were transcribed and typed up, and were saved on my computer (Glesne, 2016). The files saved on the computer were organized in one folder; subfolders were used to keep the data as organized and easy to find as possible. In order to ensure the confidentiality of all participants, I deleted all identifying information from the transcripts and recordings as Seidman (2013) recommended that in qualitative research approach it is fundamental to maintain the confidentiality of the names of the participants. Additionally, as soon as all audio files were backed up and securely stored, the original data were removed from the digital audio recording device. All other digital copy materials related to this study such as emails between students and me, interview guides, informed consent agreements, and process notes were stored by using the same storage protocol. The computer used for these purposes was password protected at all times and only I had access to the transcriptions and data. Similarly, all written notes and files were organized into folders and filed and kept in a locked cabinet. Because of the nature of qualitative studies, some aspects of the study may need to change throughout the research process. All data were stored securely until this dissertation had been successfully defended, whereupon it would be destroyed or returned to participants upon their request.
Data Analysis

In a phenomenological approach, data analysis is considered as one of the most central stages (Creswell, 2013; Moustakas, 1994; Patton, 2014). Data analysis contains of preparing and organizing the data for analysis, then reducing the data into themes through a process of coding and condensing the codes, and finally representing the data in figures, tables, or a discussion (Creswell, 2013; Moustakas, 1994; Patton, 2014). It is significant that determining the data analysis strategies should be based on data collection and the choice of methodology. Since the researcher has chosen to conduct a phenomenological approach to inquiry in the qualitative phase of this study in order to understand the phenomenon of graduate students’ intrinsic motivation in fully online courses, data analysis was considered through the lens of this approach (Creswell, 2013; Moustakas, 1994; Patton, 2014). However, in order to create a unified approach between data collection, analysis, interpretation and representation, I attempted to exploit the several strategies of data analysis that are similar across the different types of qualitative inquiry as much as possible (Creswell, 2013).

Researcher Background

Eisner (1991) drew attention that the researcher’s background influences the interpretation of the data. In addition, Creswell (2013) noted that an investigator must have a firm grasp of the study’s issues, and the researcher is the primary instrument for data collection and analysis. For this reason, in order to approach the phenomenon under study, it is necessary for the phenomenological researcher to set aside any previously held knowledge and state any biases toward the topic (Creswell, Moustakas, 1994; 2013; Patton, 2014).
The researcher in this study spent all of his professional life in the field of Educational Technology at the King Khalid University and at the Umm Al-Qura University as an online course developer and as a lecturer in Educational Technology. During those years, I faced many difficulties and issues that I spontaneously solved, which in turn benefitted me by providing plenty of practical work experience. Attending conferences (e.g., International Conference on E-Learning & Distance Learning, 2011; E-Learn World Conference, 2016; American Educational Research Association (Annual Meeting, 2018) expanded my expertise in the field of education, contributed to improving and evaluating my work. In addition, my personal understanding of this phenomenon has been shaped by what I have learned and what I continue to learn about this topic on a near-daily basis. I continuously read and learn more about different aspects of online learning in higher education. As a result of these experiences, I have gained a deeper understanding of online higher education and what motivates graduate students in this environment. It is in my belief that individual sense of choice, volition, and commitment, which is defined as autonomy is an essential element in online learning process. Concerning intrinsic motivation, I believe that social and environmental circumstances that support autonomy, competence, and relatedness will increase intrinsic motivation, whereas conditions that undermine these basic psychological needs will result in low levels of intrinsic motivation. Lastly, I believe that online course instructors will have more effective learning when they use a range of motivational instructional strategies to meet learners’ needs.

**Role of the Researcher**

In a phenomenological approach to inquiry, a researcher needs to bracket his/her own personal experiences and beliefs in order to avoid judgments about the phenomenon under investigation (Moustakas, 1994). The phenomenon should speak for itself and is not
contextualized in prior knowledge by the researcher (Moustakas, 1994). In addition, engaging in bracketing is essential process to give the researcher the opportunity to discuss any personal experiences he/she had that may influence the interpretation or analysis of the phenomenon (Creswell, 2013; Moustakas, 1994; Patton, 2014). Understanding the phenomenon as the participants understand and experience it is the optimal goal (Moustakas, 1994). Therefore, the researcher is required to be aware of his/her own beliefs, biases and experiences by controlling them for the sake of viewing and understanding the phenomenon through the lens of the people experiencing and living it. In order to achieve this, Patton (2014), Lincoln and Guba (1985), and Van Mannen (1990) all pointed out the need for a qualitative researcher to explicitly state their biases at the outset of a research project. As labeled above, I have experience as an online courses’ student and as online learning specialist and lecture. However, I was aware of my assumptions and must suspend personal bias, preconceptions and preexisting meanings of the motivating in online learning and work to keep this awareness active. I put the focus of the research in brackets and put all else outside of the bracket to ensure that the entire research process was centered on the essence of the experience as it appeared in the consciousness of the participants (Creswell, 2013; Moustakas, 1994; Patton, 2014).

In addition, in seeking to obtain graduate students’ perspective adequately, the participants were free to discuss their experience without undue adherence to the interview guide (Creswell, 2013). However, an interview guide was important to be developed prior to meeting with participants in that it helped structure my thoughts, plan possible probing questions to go deeper into an issue, and ensured that the questions I asks focus on answering the research question. Yet, completely removing the researcher from the picture was unrealistic. The key was awareness of my own assumptions and views so that I could still hear the message and
understand it through the participant’s perspective even if it was vastly different or in conflict with my own (Creswell, 2013; Moustakas, 1994; Patton, 2014).

**Reduction and Horizontalization**

In the stage of analysis in phenomenological approach, the main goal is to understand and explain the meaning, structure, and essence of the lived experience of a phenomenon for a person or group of people (Patton, 2014). Therefore, I read and re-read each transcript multiple times to be familiar with the data (Creswell, 2013; Glesne, 2016). In addition, I took advantage of using memoing to make short notes to about ideas, thoughts, connections and concepts that may occur reading the transcripts (Creswell, 2013; Glesne, 2016). By conducting that, I was to remember thoughts that he had along the way and to create preliminary horizons and see themes and patterns (Creswell, 2013; Glesne, 2016). Memoing gave me the opportunity to reflect on the research question, goals, methods, theory and my position in the research. Memoing also inspired insights and helped me to keep my mind open to new ways of organizing and looking at the data (Glesne, 2016; Maxwell, 2013).

The following step after reading the transcripts and going back over my memos was engaging in the process of reduction to clean the data and remove repetitive or extraneous information in order to catch the core of the experience (Moustakas, 1994). During this stage, I attempted to draw a textural description of the meanings and essences of the phenomenon (Moustakas, 1994, p. 34). I was focusing on finding the individual elements of an experience in order to describe them texturally and then produce a set of meaningful themes (Creswell, 2013; Moustakas, 1994; Patton, 2014). The process of reduction allowed me to get to the core of the phenomenon (Moustakas, 1994). Moreover, it involved ridding the phenomenon of conventional patterns of thought and going deeper to expose the underlying meaning of the structure.
(Moustakas, 1994). Only then can I continue to delve further to reveal the essence of the experience (Moustakas, 1994). To achieve this step, I engaged in the process of horizontalizing. Here, I identified and labeled all statements from the data set that were relevant to the research topic and question (Moustakas, 1994). I coded and placed equal value on each statement and piece of data as I collected and organized the data (Moustakas, 1994). Consequently, I was able to eliminate repetitive, irrelevant and overlapping statements which left with horizons (Moustakas, 1994). These horizons were the fundamental parts of the phenomenon that contain the textural meaning of the experience (Moustakas, 1994).

The next step was clustering the horizons into themes. Van Manen (1990) mentioned that themes are the stars that make up the universes of meaning we live through. By the light of these themes, I can navigate and explore such universes. From here, I grouped the horizons together into themes with a clear definition unifying each theme (Moustakas, 1994). To achieve that, I read through the data that was coded during the horizontalization process and began to combine related statements into main themes (Braun & Clarke, 2006). At this point, Miles and Huberman (1994) noted that the researcher should remain open-minded and flexible during this process in order to determine if themes are essential to the phenomenon under study. Therefore, I looked at the core themes across the multiple data sources to see if there is consistency and representation of themes throughout the interviews’ documents (Moustakas, 1994; Van Manen, 1990). During this process, I was asking questions such as, is this phenomenon still the same if we imaginatively change or delete this theme from the phenomenon? or, does the phenomenon without this theme lose its fundamental meaning? (Van Manen, 1990).

Creating textural descriptions of all horizons and themes was the next step in the phenomenological reduction phase (Moustakas, 1994). Textural descriptions enabled me to make
a clear identity and encouraged the looking again and again that led to hidden meanings (Moustakas, 1994). I also used direct quotes from the participants to best capture the phenomenon in their own words when possible.

**Imaginative Variation**

Imaginative variation is another key concept in phenomenological inquiry. This is a process whereby the researcher utilizes his own imagination and creativity to gather and identify various frames of reference about the phenomenon (Moustakas, 1994). It was essential to look at opposing, polarizing views and to search for divergent perspectives that would aid in understanding of all factors that account for the experience as the participants described and lived it. This allowed me to uncover hidden perspectives and aspects of phenomenon for a more integral and complete representation (Moustakas, 1994). Imaginative variation helped me get to the “how” and the “what” of the experience to find shared meaning of the phenomenon (Moustakas, 1994).

In this step, I tried to generate a deeper meaning of the phenomenon under study by developing a structural description of the lived experience (Moustakas, 1994; Patton, 2014). Moustakas (1994) advises that structural and composite descriptions of each participant’s experience must be constructed. Here, I developed structural descriptions of “what” participants experienced and “how” they experienced it using their horizons and themes to get at the underlying essence of the experience (Moustakas, 1994). Consequently, I constructed a composite description of the overall meaning and shared experiences of all participants for a universal description of the phenomenon (Moustakas, 1994).
Trustworthiness

Trustworthiness of the analysis and interpretations of data is one of the most significant aspects of qualitative research. Therefore, in this phase of the study, I offered four strategies in order to establish and enhance the trustworthiness: credibility, confirmability, transferability, and dependability (Creswell & Miller, 2000; Glesne, 2006; Lincoln & Guba, 1985; Shenton, 2004).

Credibility

In order to enhance the credibility of this research, I implemented several strategies such as clarification of researcher bias, member checking, peer review and debriefing, well recognized research methods and building trusting relationships (Creswell & Miller, 2000; Glesne, 2006; Lincoln & Guba, 1985; Shenton, 2004).

Researcher bias is one threat to validity that could undermine the trustworthiness of the research (Lincoln & Guba, 1985). Researcher bias can occur due to the researcher personal assumptions, perceptions, values and beliefs (Glesne, 2006; Shenton, 2004). Glesne (2006) recommends that the qualitative researcher needs to continually alert himself to his own biases and theoretical predispositions in order to produce high level of trustworthy interpretations. To accomplish that, I kept my assumptions in the forefront of my thinking to preclude myself from seeing only what I believe was happening according to my values and worldview. While it was impossible to completely eliminate all biases, I engaged in bracketing where I discussed my assumptions, experiences and preconceptions and how that may influence the data collection, analysis and interpretation (Creswell, 2013; Maxwell, 2013). Furthermore, I accomplished this by answering all of the questions in the interview guide and then, identified my biases, and recorded them to set them aside during data collection and analysis.
The second strategy of enhancing the trustworthiness of the research was engaging in member checking (Lincoln & Guba, 1985). Lincoln and Guba (1985) assert that the most crucial technique for establishing credibility in a study and ensuring presenting an accurate representation of the participants beliefs is member checking. Therefore, the participants were given the opportunity to review and influence the interpretations and findings from this study (Creswell & Miller, 2000; Glesne, 2006; Lincoln & Guba, 1985; Shenton, 2004). To achieve this, I took overall themes, conclusions and interpretations back to the participants in the study to be sure that I captured the essence of the phenomenon correctly (Creswell, 2013; Glesne, 2016; Maxwell, 2013). Participants were able to compare specific statements they made with my interpretations of their statements as well as the interpretations of interconnections between themes. In addition, participants were asked to make corrections as needed. The goal here was to have the participants confirm that I understood them correctly and to help me modify interpretations and understand them more accurately.

As suggested by Glesne (2006) and Lincoln and Guba (1985) peer review and debriefing are going to be the third strategies of enhancing the trustworthiness of this research. The goal of this strategy was to seek an external viewpoint from a peer who was knowledgeable of the phenomenon and could challenge assumptions and beliefs of me (Shenton, 2004). Here, I engaged in peer reviews in order to check the interpretations and analysis with external people to see the data with a fresh set of unbiased eyes (Creswell, 2013; Glesne, 2006; Lincoln & Guba, 1985; Shenton, 2004). I gave a copy of the research questions and interview questions to my peers prior to interviewing participants to elicit feedback that may help me reduce any bias in my wording that had gone unchecked. Similarly, members of my committee reviewed my work to approve data collection and interpretation and also offered insight into my findings. An
important benefit of this close collaboration helped ensure my assumptions did not overly influence the interpretation of the interview data.

The fourth strategy of enhancing the trustworthiness of the research was the adoption of well-established research methods. To successfully accomplish this strategy, I followed qualitative data collection and analysis methodology that was well supported in the literature (Braun & Clarke, 2006; Creswell, 2013; Creswell & Miller, 2000; Moustakas, 1994; Patton, 2014; Van Manen, 1990).

A final strategy of enhancing the trustworthiness of the research was through building trusting relationships with the participants (Shenton, 2004). In this regard, Shenton (2004) recommends qualitative researcher to apply some strategies during the interview process in order to ensure honesty of the participants. Therefore, I attempted to build a trusting relationship with the participants by assuring them that there are no right or wrong answers, carefully reviewing the consent form, and making sure to go over participant confidentiality and their right to withdraw from the study (Lincoln & Guba, 1985; Shenton, 2004).

Confirmability

The second strategy of establishing the trustworthiness of research findings was confirmability (Lincoln & Guba, 1985). In the phonological approach, a study can be confirmable when procedures and findings are completely unbiased (Creswell, 2013; Glesne, 2006; Lincoln & Guba, 1985; Shenton, 2004). Therefore, qualitative researcher should seek to increase objectivity by reducing research biases and assumptions (Lincoln & Guba, 1985). To accomplish this, I stated my beliefs and assumptions that I had as a result of my experience in the field of online learning (Shenton, 2004). Lastly, I provided a detailed description of the
methodology and then, discussed any possible effects of limitations and shortcomings on research findings (Lincoln & Guba, 1985; Shenton, 2004).

**Transferability**

One of the strategies for enhancing the trustworthiness of research findings was transferability (Creswell, 2013; Glesne, 2006; Lincoln & Guba, 1985; Shenton, 2004). Transferability would occur as readers naturally projected findings from this context into their own contexts and areas of interest findings (Lincoln & Guba, 1985; Shenton, 2004). Although the results of the study could not be easily generalized to a larger population, rich, thick descriptions of elements of the study such as the participants, setting, and themes were accomplished to allow others to more easily reflect on how the results relate to their own experiences and settings (Lincoln & Guba, 1985; Shenton, 2004). In addition, I designed the literature review in such a way to frame the research questions that they were meaningful, compelling, and important, and provided rich descriptions of the phenomenon to give readers the opportunity to arrive at their own interpretations and conclusions (Lincoln & Guba, 1985; Shenton, 2004).

**Dependability**

A study’s dependability comes from the ability to replicate its findings (Creswell, 2013; Glesne, 2006; Lincoln & Guba, 1985; Shenton, 2004). Meaning, how far a study’s processes and procedures will produce similar findings in different circumstances, assuming nothing else has changed (Lincoln & Guba, 1985; Shenton, 2004). Therefore, in this study, I provided consistent results with the data collected by employing techniques that attempt to produce the same results if the study were repeated in different circumstances (Lincoln & Guba, 1985; Shenton, 2004). In
addition, I provided an in-depth description of the methodological process, including participant selection, data collection, and data analysis in order to enhance dependability of the research (Lincoln & Guba, 1985; Shenton, 2004).

Confidentiality and Ethical Considerations

Several steps were applied to sustain high confidentiality and ethical standards in this study. I provided participants with a consent form explaining the nature of the study, its purposes, and their role in it (Appendix D). The consent form also explained their right to confidentiality and their right to withdraw from the study at any point during the study, and they were asked to read it before the interview. Because the involved data in this study was of personal experiences, testimonies and realities of the participants, all of the identifying information were removed. I ensured confidentially by having a code name to each participant and using it to label the transcripts, and to discuss the study’s findings. Furthermore, at the stage of the member checking, the data did not contain any information that may lead to identify other participants.
Chapter 4: Results

Introduction

Beginning with the quantitative phase, this chapter includes the results of statistical analysis of the data collected according to the research procedures previously described in chapter three. Then, in the qualitative phase of this chapter, the results of phenomenological analysis of the transcripts of each of the 10 participant interviews are presented as an extended stage of understanding the results of the quantitative phase.

Quantitative Phase

The purpose of this phase is to examine and the level of graduate students’ intrinsic motivation in fully online learning environments. Consequently, two research questions were investigated quantitatively: 1. What is the level of graduate students’ intrinsic motivation in fully online courses? 2. Is there a significant difference in the level of graduate students’ intrinsic motivation in fully online courses in terms of: a. gender, b. registration status, c. employment status, and d. experience with fully online courses? In addition, before any statistical analyses were conducted, data were screened and coded. Then, data were compiled into SPSS.

Official Data Cleaning

The data collection for this study had secured 139 participants. Missing data, however, is a common problem for most survey studies that must be addressed before any further statistical analysis. The online survey collectors (Qualtrics) not only offered accessibility for data collection process, they also provided handy data cleaning operation. First of all, the aggregated survey completion percentage report showed that there were 9 out of 139 participants who only completed the demographic part; their input had to be removed because it did not provide useful
information in regards to the research questions in this study. Another 3 participants just went a little bit further by addressing the first two questions of the entire questionnaire. This portion was also removed because such high percentage of missing input would not provide any important and meaningful interpretation for this study. As a result of the above steps of cleaning, the total sample size was reduced from 139 to 127 valid cases. Additionally, since boxplots provide useful information about outliers (Cohen et al., 2013), Boxplots diagnostic was used to identify outliers. As seen in Figure 3, boxplots indicated no outlier cases for the level of graduate students’ intrinsic motivation.

**Figure 3**

*Boxplots for Level of Students’ Intrinsic*
**Demographic Data**

The majority of the sample identified themselves as female (70%). The sample ranged in age from 22 to 60 with majority of 22 to 30 (60%). Participants had varying levels of experience with fully online courses with (57%) of graduate students having taken five or more fully online courses, (21%) having taken three to four fully online courses, and (22%) having taken one to two fully online courses. In addition, the majority of the sample defined their employment status as full-time employee (60%), part-time employee (25%), and not employed (15%). In terms of registration status, (43%) of the participants were full time students and (57%) part time students.

**Validity and Reliability of IMeL**

Quantitative research requires the establishment of the grounds for validity and reliability of the instrument used in the study. Although Intrinsic Motivation in e-Learning IMeL Questionnaire has been used in research and has had its validity and reliability established (Fırat et al., 2018), in this study Cronbach’s alpha was used to assess the reliability of IMeL in this study’s sample. Cronbach’s alpha reliability coefficients range between 0 and 1. The closer the Cronbach’s alpha coefficient is to 1.00, the greater the internal consistency of the items in the scale (Cobb, 2009; Gliem, 2003; George, & Mallery, 2019). Consequently, IMeL was found to have high reliability (Cronbach's α = .82).

**Research Question one:** First of all, according to Fırat et al. (2018) study, using the computing mean score method, all responses to IMeL items were averaged to make one intrinsic motivation scale. The research question one, what is the level of graduate students’ intrinsic motivation in fully online courses? was proposed to be analyzed by using means and standard
deviation statistics. Accordingly, mean values for each item in the IMeL questionnaire and standard deviations of 127 graduate students participating in the study are displayed in Table 2. As seen in Table 2, the level of intrinsic motivation factor of the fully online courses students participating in the study was above 3 ($M = 3.80$). In other words, there were high frequencies of scores above the mean for all determinants of intrinsic motivation. The mean values of the graduate students’ intrinsic motivation in IMeL questionnaire varied between 3.40 and 4.21. Each element of IMeL questionnaire represents one of the most essential five determinants of the level of intrinsic motivation in fully online courses environment. Accordingly, it is observed that the level of intrinsic motivation of graduate students was higher than average in fully online courses environment.

Furthermore, the mean values for items of satisfaction and enjoyment for participants in fully online courses environments were similar 3.91 and 3.80, while the mean values for inherent and interest of participants were similar 3.40 and 3.50 as shown in Table 3. However, the mean values for autonomy (4.21) and inherent (3.40) were outstandingly different from the average. Accordingly, the highest mean value of the determinants of intrinsic motivation of fully online courses students was observed in autonomy (4.21), whereas the lowest mean value was observed in inherent (3.40). After presenting the descriptive statistics of students’ intrinsic motivation, the following section will be going into the statistical analyses of difference of students’ intrinsic motivation levels between groups (gender, registration status, experience with fully online courses and employment status).
Table 3

The Mean for Each Item in The IMel Questionnaire

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>I enjoy studying in fully online courses environment (enjoyment)</td>
<td>3.80</td>
<td>0.82</td>
</tr>
<tr>
<td>I prefer to study in fully online courses environment even if I have</td>
<td>3.40</td>
<td>1.14</td>
</tr>
<tr>
<td>printed materials (inherent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I look forward to studying in fully online courses environment (interest)</td>
<td>3.50</td>
<td>.94</td>
</tr>
<tr>
<td>I'm satisfied with my studies in fully online courses (satisfaction)</td>
<td>3.91</td>
<td>.77</td>
</tr>
<tr>
<td>I set my own learning needs (autonomy)</td>
<td>4.21</td>
<td>.76</td>
</tr>
</tbody>
</table>

**Research Question two:** Is there a significant difference in the level of graduate students’ intrinsic motivation in fully online courses in terms of: a. gender, b. registration status, c. employment status, and d. experience with fully online courses? was proposed to be analyzed by using independent two-sample $t$ test and one-way ANOVA with gender, registration status, employment status, and experience with fully online courses as independent variables and level of graduate students’ intrinsic motivation as the dependent variable.

First, as seen in Table 4, the male group ($N = 39$) was associated with the level of graduate students’ intrinsic motivation of $M = 3.52$ ($SD = .73$). By comparison, the female group ($N = 88$) was associated with a numerically higher level of graduate students’ intrinsic motivation of $M = 3.90$ ($SD = .63$). To test the hypothesis that there is a statistically significant difference in the level of graduate students’ intrinsic motivation in fully online courses in terms of gender, an independent samples $t$-test was performed. Initially, the assumption of normality distribution of data was tested and satisfied via Shapiro-Wilk’s test ($p > .05$) and a visual
inspection of Q-Q plots showed that the data were approximately normally distributed for both male and female participants with a skewness of -.025 (SE = .37) for males and -.097 (SE = .25) for females as shown in Figure 4. Additionally, the assumption of homogeneity of variances was tested and satisfied via Levene's $F$ test, $F(125) = 2.41$, $p > .05$. The independent samples $t$-test revealed a statistically significant effect, $t(125) = -2.73$, $p < .05$. Thus, there was statistically significant difference in the level of graduate students’ intrinsic motivation in fully online courses in terms of gender where female students reported statistically significantly larger mean level of intrinsic motivation. Cohen’s $d$ was estimated at .66, which was a medium effect based on Cohen’s (1992) guidelines.

**Figure 4**

*Q-Q Plots of Levels of Students’ Intrinsic Motivation by Male and Female*
Table 4

*Descriptive Statistics and T-Test Results of Intrinsic Motivation by Gender and Registration Status*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Groups</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>P (two-way)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>39</td>
<td>3.52</td>
<td>.73</td>
<td>-2.73</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>88</td>
<td>3.90</td>
<td>.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registration status</td>
<td>Full Time</td>
<td>53</td>
<td>3.60</td>
<td>.73</td>
<td>-2.29</td>
<td>.17</td>
</tr>
<tr>
<td></td>
<td>Part Time</td>
<td>74</td>
<td>3.80</td>
<td>.62</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Second, as shown in Table 4, the full-time group (N = 53) rated their level of intrinsic motivation in average at $M = 3.60$ ($SD = .73$). By comparison, the part-time group (N = 74) rated a numerically higher level of intrinsic motivation $M = 3.80$ ($SD = .62$). To test the hypothesis that there is a statistically significant difference in the level of graduate students’ intrinsic motivation in fully online courses in terms of registration status, an independent samples t-test was performed. Initially, the assumption of normality of distribution of data was tested and satisfied via Shapiro-Wilk’s test ($p > .05$) and a visual inspection of Q-Q plots showed that the data was approximately normally distributed for both full time and part time with a skewness of -.05 ($SE = .32$) for full time and -.11 ($SE = .23$) for part time students as shown in Figure 5. In addition, the assumption of homogeneity of variances was tested and satisfied via Levene’s F test, $F(125) = 3.84$, $p > .05$. The independent samples t-test was associated with no statistically significant effect, $t(125) = -2.29$, $p > .05$. Thus, there was no statistically significant difference in the level of graduate students’ intrinsic motivation in fully online courses in terms of registration status.
Cohen’s $d$ was estimated at .57, which is a medium effect size based on Cohen’s (1992) guidelines.

**Figure 5**

*Q-Q Plots of Levels of Students’ Intrinsic Motivation by Registration Status*

Third, the descriptive statistics with the level of graduate students’ intrinsic motivation across the three groups are reported in Table 5. It can be seen that the unemployed group had numerically the smallest mean level of intrinsic motivation of ($M = 3.60$) and the full-time employed group had numerically the highest mean level of intrinsic motivation ($M = 3.85$). In order to test the hypothesis that there is a statistically significant difference in the level of graduate students’ intrinsic motivation in fully online courses in terms of employment status (full-time, part-time, not employed), a one-way ANOVA was performed. Prior to conducting the one-way ANOVA, the assumption of normality of distribution of data was tested and satisfied via Shapiro-Wilk’s test ($p > .05$) and a visual inspection of Q-Q plots showed that the data was approximately normally distributed for all full time, part time and not employed students with a
skewness of -.10 ($SE = .27$) for full time, a skewness of -.40 ($SE = .42$) for part time and a skewness of -.53 ($SE = .52$) for not employed as shown in Figure 6. In addition, the assumption of homogeneity of variances was tested and satisfied based on Levene's $F$ test, $F(2, 124) = 1.50$, $p > .05$. The one-way ANOVA yielded no statistically significant effect, $F(2, 124) = 1.60$, $p > .05$. $\eta^2 = .27$. Therefore, the null hypothesis of no difference in the level of graduate students’ intrinsic motivation by employment status was not rejected, and we can say that there was no statistically significant difference in the level of graduate students’ intrinsic motivation in fully online courses in terms of employment status (full-time, part-time, not employed).

**Table 5**

*Descriptive Statistics and ANOVA Results of Intrinsic Motivation by Experience and Employment*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Groups</th>
<th>$N$</th>
<th>$M$</th>
<th>$SD$</th>
<th>$F$</th>
<th>$P$ (two-way)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment status</td>
<td>Full Time</td>
<td>77</td>
<td>3.85</td>
<td>.62</td>
<td>1.60</td>
<td>.21</td>
</tr>
<tr>
<td></td>
<td>Part Time</td>
<td>31</td>
<td>3.63</td>
<td>.72</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not Employed</td>
<td>19</td>
<td>3.60</td>
<td>.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience</td>
<td>First fully online course</td>
<td>14</td>
<td>3.20</td>
<td>.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Second fully online course</td>
<td>13</td>
<td>3.44</td>
<td>.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Third fully online course</td>
<td>16</td>
<td>3.70</td>
<td>.58</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fourth fully online course</td>
<td>10</td>
<td>4.10</td>
<td>.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fifth+ fully online course</td>
<td>74</td>
<td>3.50</td>
<td>.71</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Fourth, descriptive statistics for the level of graduate students’ intrinsic motivation across the five groups are reported in Table 5. It can be seen that the group of graduate students who have taken one fully online course reported numerically smallest mean the level of intrinsic motivation ($M = 3.60$) and the group of graduate students who have taken five fully online
courses reported the highest mean level of intrinsic motivation \((M = 3.80)\). In order to test the hypothesis that there is a statistically significant difference in the level of graduate students’ intrinsic motivation in fully online courses in terms of experience with fully online courses (first, second, third, fourth, fifth+), one-way ANOVA was performed. Prior to conducting the one-way ANOVA, the assumption of normality of distribution of data was tested and satisfied via Shapiro-Wilk’s test \((p > .05)\) and a visual inspection of Q-Q plots showed that the data was approximately normally distributed for all groups with a skewness of .34 \((SE = .61)\) for first online course, -1.05 \((SE = .59)\) for second online course, -.33 \((SE = .55)\) for third online course, -1.08 \((SE = .68)\) for fourth online course and a skewness of -.14 \((SE = .28)\) for fifth online course as shown in Figure 7. Additionally, the assumption of homogeneity of variances was tested and satisfied based on Levene’s F test, \(F(4, 122) = 1.95, p = .10\). In addition, the one-way ANOVA yielded no statistically significant effect, \(F(4, 122) = .30, p > .05\). \(\eta^2 = .87\). Therefore, the null hypothesis of no difference in the level of graduate students’ intrinsic motivation based on experience with fully online courses was not rejected, and we can say that there was no statistically significant difference in the level of graduate students’ intrinsic motivation in fully online courses in terms of experience with fully online courses.
Figure 7

Q-Q Plots of Levels of Students’ Intrinsic Motivation by Experience of Fully Online Courses

First fully online course

Second fully online course

Third fully online course

Fourth fully online course

Fifth fully online course
Qualitative Phase

The purpose of this phase is to analyze the transcripts of each of the 10 participant interviews as an extended stage of understanding the results of the quantitative phase in accordance with the data analysis plan. A sample of 10 graduate students participated in a phenomenological interview in which they were asked to describe their intrinsic motivation in fully online courses. Participants were interviewed after they completed IMel questionnaire explained above in the quantitative analyses of this study and agreed to be interviewed. For detailed sampling strategy see Chapter 3. All participants demographics are presented in Table 6.

Table 6

Participants Demographics

<table>
<thead>
<tr>
<th>Participant</th>
<th>Sex</th>
<th>Age range</th>
<th>Registration status</th>
<th>Employment status</th>
<th>Experience with fully online courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>Female</td>
<td>26 to 30</td>
<td>Part time</td>
<td>Full time</td>
<td>5+</td>
</tr>
<tr>
<td>Student 2</td>
<td>Female</td>
<td>22 to 25</td>
<td>Full time</td>
<td>Part time</td>
<td>5+</td>
</tr>
<tr>
<td>Student 3</td>
<td>Female</td>
<td>26 to 30</td>
<td>Part time</td>
<td>Full time</td>
<td>5+</td>
</tr>
<tr>
<td>Student 4</td>
<td>Female</td>
<td>36 to 40</td>
<td>Part time</td>
<td>Part time</td>
<td>5+</td>
</tr>
<tr>
<td>Student 5</td>
<td>Female</td>
<td>26 to 30</td>
<td>Part time</td>
<td>Full time</td>
<td>5+</td>
</tr>
<tr>
<td>Student 6</td>
<td>Female</td>
<td>46 to 50</td>
<td>Part time</td>
<td>Part time</td>
<td>5+</td>
</tr>
<tr>
<td>Student 7</td>
<td>Female</td>
<td>22 to 25</td>
<td>Part time</td>
<td>Full time</td>
<td>2</td>
</tr>
<tr>
<td>Student 8</td>
<td>Female</td>
<td>26 to 30</td>
<td>Part time</td>
<td>Part time</td>
<td>5+</td>
</tr>
<tr>
<td>Student 9</td>
<td>Male</td>
<td>36 to 40</td>
<td>Part time</td>
<td>Full time</td>
<td>2</td>
</tr>
<tr>
<td>Student 10</td>
<td>Male</td>
<td>36 to 40</td>
<td>Full time</td>
<td>Full time</td>
<td>3</td>
</tr>
</tbody>
</table>
Themes and Textual Description

Based on the data analysis plan and during the stage of phenomenological reduction, five distinct themes emerged: Clear expectation and guidance, Feedback, Flexibility and control, Interaction and collaboration, and Relevant content. All themes are presented in Table 7. Themes were organized alphabetically since each one of them was more or less equally represented in the participant interviews in the following section (Moustakas, 1994).

Table 7

Themes and Central Statements

<table>
<thead>
<tr>
<th>Themes</th>
<th>Central statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear expectation and guidance</td>
<td>Clear expectation increases level of engagement</td>
</tr>
<tr>
<td></td>
<td>Difficulties in instructor guidance</td>
</tr>
<tr>
<td>Feedback</td>
<td>The role of regular feedback</td>
</tr>
<tr>
<td></td>
<td>Lack of feedback and instructor interaction</td>
</tr>
<tr>
<td>Flexibility and control</td>
<td>Learning on their pace and any place</td>
</tr>
<tr>
<td></td>
<td>Opportunity for personal control</td>
</tr>
<tr>
<td></td>
<td>Need for individualized study</td>
</tr>
<tr>
<td>Interaction and collaboration</td>
<td>Opportunity for interacting with graduate students from different backgrounds</td>
</tr>
<tr>
<td></td>
<td>Small groups discussion facilitates better learning experiences</td>
</tr>
<tr>
<td>Relevant content</td>
<td>Importance of the relevance of content</td>
</tr>
<tr>
<td></td>
<td>Applicability of coursework and materials</td>
</tr>
</tbody>
</table>
Clear Expectation and Guidance

Throughout the interviews, participants had a lot to say about the clarity of course expectations and guidance. Several participants extremely stressed on the positive impact of providing clear and specific instructions throughout their fully online courses. Participants reported instances in which their instructors provided clear expectations and guidance resulted in increasing their sense of engagement and improving their learning experience. For example, Student 1 noted that there are certain instructors that have really developed online learning and made the layout of the course very clear and have set high “attainable” expectations. She cited an example of how her discussion boards experience was beneficial as a result of “explicitly communicated instructor expectations”.

I like knowing what is coming and having the ability to plan my schedule out way in advance. I also look forward to clearly defined schedules and rubrics, so I can be prepared for the whole semester… I have enjoyed working with classmates... but as you know the interactions do not always prove particularly constructive. I’ve only had one course thus far where I felt I really was benefitting from the feedback of my peers, and I believe that was due to a combination of content and explicitly communicated instructor expectations. In this class the instructor made a video in which he clearly laid out that discussion board commentary should be challenging without hostility. He made it clear that it was a place for meaning-making and that we should utilize it to build on each other’s ideas and would be graded on that basis. With that knowledge we really worked to challenge and further develop each other’s ideas… it was a course that was more directly appliable to my interests, so I think the intersection of these 2 dimensions made it the best discussion experience I’ve had.
Noting the importance of the clarity of course expectations, Student 1 added: “I’m looking forward to discussion boards if I feel the rubric and instructor expectations make me feel that it will be productive and not surface-level contributions and that’s not to disparage my peers.”

In the case of Student 7, she noted that the professors had and maintained “high expectations” for learning despite the summer session courses being slightly more condensed than a regular semester course, and assignments were “rigorous and reinforced reflection and critical thinking throughout.” In fully online courses, she prefers that all of the materials such as the syllabus and rubrics to be provided in advance for assignments, activities and papers in order to have maintained clarity throughout the course.

Other participants described how their courses’ objectives and goals were set clearly, and how that affected their learning experiences positively. Student 2 noted that once the expectations have been established, she “strives” to make her work meet “the highest of them”. She went on to add that “I like feeling like I’ve gone above and beyond. If I feel the instructor is invested, I’m invested. If I feel like they will give me a generic ‘nice work’, I’m less inclined to try and exceed expectations.” In addition, Student 3 described how learning more about each instructor’s expectations and professional information at the beginning of the course leads to be “successful in the course”. She also reported that most instructors post some “relatively personal and very professional information about themselves at the beginning of the course. I’ve learned it is very important to really listen and to pay attention to what they talk about to really grasp their expectations.” Explaining her first experience with fully online courses, Student 3 stated: “when I took my first course I was surprised by the rigor and expectations and timing. Somehow,
I thought online courses were more at your own pace. I couldn't have been more wrong. Getting behind does not lead to success.”

Despite the clear expectations and communication from their instructors that were experienced by several of the participants in this study, there were also some participants who had the opposite experience. For example, although Student 1 mentioned that she had some courses with high and attainable expectations, she noted that there were a couple times in her first semester where “an element of the assignment was unclear” to her. She realized the issue on Sunday at 6PM with “no hope of getting in touch with the instructor for clarification”. As result of this issue, she stated: “I now ensure that I am familiar with my upcoming tasks well ahead of the deadline.” Student 6 also noted that the most challenging experience she had in online courses is “making sure she keeps up with the due dates of assignments. Some Professors have clear schedules set up while others are not so clear.” Due to this lack of clear expectations, this led to a situation where Student 5 felt that she was “lost out on” the course.

Unfortunately, none of my professors have uploaded videos of themselves speaking about the course’s expectations and concepts we are learning. Sometimes, I need to read everything that is posted, the syllabus, course postings anything the professor has written so I can gain a connection to the professor. I feel that we lose out on the lecture although there is a way to provide us with one video.

Other participants who had difficulty in communicating with professors included Student 6. She noted that one of the things that concerned her the most was communicating with professors especially if she did not understand the material. She said that “because most of the work were collaborative so even though I didn’t understand I could look at other students work for guidance.”
Participants also commented on providing a clear guidance as an essential factor related to their intrinsic motivation in fully online courses. Several participants expressed concerns regarding the quality of courses guidance. For instance, when Student 8 was asked what most challenging about your experiences in online courses was, she responded that in every course, there is inevitably something that the professor wants to do that “I do not understand or need further clarification. I never hesitate to reach out and ask or even pose the questions to my peers and professor. Often time professors set up discussion boards specifically for this that helps streamline it.” She also described how one of her instructors had failed to provide a clear guidance for the coursework throughout the class. When discussing her experience with courses guidance, she said:

In one class when I did ask, I often got redirected to the syllabus even though I had made reference to the syllabus in the question and wanted the clarification on that thing. Ultimately, I never really got clear answers and just resorted to doing my best with what I thought I understood to be the directions. It was frustrating but I got through it.

In the case of Student 7, she believes that online courses can serve her educational needs by modeling what a rigorous and well sequenced class looks like and is supposed to be. She elaborated on the need for teaching by example:

I have always felt that teaching is very “meta” we are shown what to do properly by example and then asked to implement something similar. It’s teaching how to teach by example that makes the material and classes feel purposeful, since I can see the effects of the learning within myself (as a student and a teacher). I witness what works and what doesn’t for myself and therefore am better able to create materials for my students and anticipate proper scaffolds or misconception.
Other students also described their experiences in courses in which they felt that they had much less guidance and contact with their instructor than they would have liked. For example, Student 4 felt that the Blackboard interface is “very user friendly” but each professor formats their Blackboard page differently and she finds herself “having to search for assignments, rubrics, discussion boards, etc. within the classroom”. She went on to add “this can cause some anxiety as I am occasionally worried that I have missed an assignment or resource that is hidden in a part of the Blackboard classroom that I have not found yet.” Similarly, Student 9 stressed that details in “instructions” can sometimes be “lost in the online world”, but the examples that instructors provide are “helpful which can be reviewed multiple times”. In explaining how he overcomes those issues, he said “I read ahead with the material, so I am prepared for the work in the module which opens on Monday morning. I follow the syllabus or weekly announcements to be sure that I'm submitting materials by the due dates.”

As for Student 10, he thought that “there is no standard guidance so there is a learning curve for functionality in every class”. He stated:

I was most nervous that there would be an issue with clear guidance and that I would miss an important assignment because I didn’t see it or that there would be a glitch and my assignment would not be submitted properly. One time, I took a course at Montana State University at Bozeman and I spent the first module only doing about a third of the work I should have, because I didn’t realize that there was an “Assignments” subsection of the course, so I never even checked it...the inconsistency in course set up between faculty members can be difficult.

In the case of Student 1, however, she recounted a positive instance in which she had a practical guidance in one of her courses:
Feedback

Regular feedback, according to participants in this study, was an important factor in encouraging them to remain motivated and involved in the course. Participants clearly stated that professor feedback helped them master course concepts and increased their sense of engagement and improved their learning experience. Participants, in fact, found professor feedback extremely valuable in their learning process. For example, Student 1 explained how professor immediate feedback on the “micro-level” objects while building her entire course was very useful in engaging her with the material. Student 1 stated:

I’ve most enjoyed assembling large scale projects gradually over the course of the semester. I had a class where I built out an entire Civics course in Moodle bit by bit, receiving relatively immediate feedback (usually 1-2 days upon submission) as I went. The final project involved me assembling the parts into a polished whole, but I was very proud of the accomplishment and felt that I had received useful and practical guidance on minute factors I might not have asked about if I had only been expected to put forward a large project. I believe that receiving feedback on the micro-level objects was very useful.
to me in my job and engaged me with the material more since I felt as though I was on top of things.

Similarly, Student 2 and 7 added that prompt feedback gave them the sense that their “growth is being achieved”. Student 2 stated that, “prompt instructor feedback and the ability to learn on my own schedule is a great feature of online courses”. Student 7 added that, “I appreciate thorough instructor feedback. That is a critical component for me. The timeliness and depth of instructor feedback generally impact my perception of a course greatly. Guidance and critical feedback help me to feel that growth is being achieved.” Citing the importance of prompt feedback, Student 6 said “As a student, I would love to have prompt and continuous feedback throughout my online course.”

In addition, some participants noted that professor feedback clarified confusing points and provided them with the feel of successful. For example, Student 1 stated that “…communication with the instructor (if needed) have assisted with my success in online courses thus far. Also, I rely on rubrics heavily. I’m motivated personally by good grades and positive instructor feedback.” Student 8 also noted that “The rest of the class was enjoyable too because the instructor was really great about giving feedback and answering questions to clarify confusing points.” Moreover, when Student 6 was asked how satisfied she was in her experiences in the online course environments, she responded “I enjoyed getting useful and insightful feedback from the instructor and classmate.” However, she noted a weakness of feedback in online courses. “it is often difficult to receive feedback, particularly negative, in a face-to-face setting. It is easier to receive, and to give, negative feedback in an online setting.” Student 6 said.
In the case of Student 3, she described a good example of one of her professors who used a creative tool in providing timely feedback. She stated that “I really enjoyed taking all my courses, but I must say I learned so much when I took ETAP623 with Instructor A. He took the time out to not only give timely feedback, he recorded his feedbacks with tutorials and instructions.”

On the other hand, during the interviews, participants described several situations in which they felt that their professors did not provide detailed feedback or there was a lack of feedback. Student 4 described how she “enjoyed” all of the online courses she has taken so far, and how professors “have done a great job of selecting topical and engaging materials for me to read/watch/listen to.”. She added that “My largest issue that I’ve had with any of these courses is the lack of feedback received.” Student 4 elaborated:

In all of the online courses I have taken I have not received any grades or feedback until the course is over. I feel that these courses lack an element of interaction with the professor and it is hard to know if you are meeting expectations with your work when you do not receive feedback. Also, as an educator myself I have been taught that feedback and in integral part of helping students build knowledge, correct misconceptions, improve performance, etc. and without feedback from professors these pieces have been missing from the course.

For Student 10, he believed that professors should be as “responsive and attentive” as they would be in a traditional course, and if professors just concentrate on building the course and grading our work without interacting with us and facilitating our learning, “my motivation plummets”. He stated:
it is very stressful to submit an assignment that will seriously impact our grade in an online course. I think it’s very important to receive feedback on at least one draft of a major assignment before being graded on the final version. Since we may never have met the professor, we may not know their expectations and it can be hard to anticipate what they want. Rubrics help, but do not completely alleviate this anxiety. It’s the worst feeling to work really hard on an assignment, submit it, and receive a bad grade that can’t be changed because something was lost in communication across an online interface.

Student 2 and 5 brought up some issues related to interaction with instructors and receiving feedback during module discussions. For instance, when Student 2 was asked what was most challenging about her experiences in online courses, she responded, “A few times, I have observed Professors not receptive to the questions of my classmates, and this was concerning for me because I had similar questions.” Student 5 also noted that “would be nice” if more instructors “interjected” during module discussions in order to gain “valuable insight” from their experiences and points of view. She elaborated on the need for providing feedback on assignments and module postings:

What I miss most is more interaction with my instructor. I like to be able to learn vicariously through their wisdom and experiences. This isn't always possible in the online world. Some instructors are excellent at providing feedback on assignments and module postings…the biggest challenge to online classes is the inability to ask the instructor questions in real time…more interaction with the instructor, through comments on posts or via weekly or bi-weekly video office hours would be beneficial. I'd like to hear their opinions on the material we are covering.
**Flexibility and Control**

According to participants in this study, the flexibility of fully online courses was a major advantage of this format. Several participants emphasized that the flexibility of learning online helped them to have a reasonable balance between their academic, professional, and personal lives. For instance, Student 3 described how being able to complete her courses at her own pace and under her own circumstances was a decisive factor in getting her a graduate degree. She stated:

> Fully online courses provide the ability to further one's education no matter where you live. I live in a very rural area with little to no access to any sort of graduate work in an in-class setting. I would never get a graduate degree, which I should/must do to continue to teach, if I had to drive to Albany or Binghamton. Or elsewhere. I think it is more affordable than going to a campus, but neither choice is inexpensive.

Explaining how online courses served her needs of self-directed/paced learning, Student 3 went on to add “I can work all night and into the early mornings if I wanted to. Learning is not restricted to certain hours and when I am in a vibe- I just go… go… go and learn as much as I want.”

Student 5 also appreciated the flexibility of learning online, citing the extra she had with her kids during the pandemic:

> I enjoy the flexibility of online learning, especially with three kids at home during the pandemic. I do my homework during the time period they're in school, so I don't lose out on spending time with them having to commute to class. … I think that in online learning I have more programs available to me. If I were completing this program in person, most
classes would be in the evening which doesn't work for my family's schedule. I'm excited to see what Monday will bring in activities that we will focus on for the week in each module. I also enjoy the flexibility that we can utilize new technologies, especially since most of us are teaching remotely, the information is quite applicable in this unique situation. I love the fact that online courses are asynchronous… doing distance learning so I can manage my kids day and my work in between taking care of their needs.

When Student 5 was asked what strategies you use to succeed in online courses and how, she replied:

I have a routine to read the materials the week before the module opens. On Monday morning, I complete my initial posts…once the initial posts are due, I go back and respond to my classmates. For longer term projects, I complete some work every day as to not be overwhelmed with any one assignment.

Similarly, Student 6, 7 and 10 noted their appreciation for the flexibility of online courses where student 7 believes that her pursuit of studying would not have been possible without a mostly online environment offered in ETAP. She said that “the freedom to be at home with my family is fantastic. It allows me study even though I have two small children and a husband who works full-time.” Student 6 added that “I do not have to be on campus and I can learn basically at my own pace, in a way.” Furthermore, Student 10 explained how fully online courses served his needs as a teacher:

I also look forward to the freedom that comes with working at my own pace from home. I really like being able to work on my own time, because it is very draining to go to a night class for three hours after a long day of work or student teaching. I liked how I could
access course content when I was mentally present, rather than according to a predetermined schedule. I can learn anytime and any place. It was a choice I made to learn online. Actually, I could literally walk across the road to SUNY Buffalo but I chose to attend SUNY Albany for the experience to attend another school and hopefully another point of view.

Student 4 noted specifically her appreciation for the flexibility of the asynchronous learning environment. Noting fairly high level of freedom provided by asynchronous learning environment, Student 4 said “I particularly enjoy asynchronous online classes as they allow me to form my own schedule. Since I work full time as an elementary school teacher, it is nice to have the freedom to decide which days/times I will complete my assignments before the due date.” She elaborated on handling her online courses:

For example, if I need to read 3 articles, write a discussion post, and respond to at least 3 of my peers my Sunday night, I might aim to finish my readings and note taking my Tuesday night, Aim to have my response written by Wednesday night, Aim to post a fully edited version of my response by Thursday, and aim to respond to 3 of my peers by Sunday night. By breaking my tasks into smaller chunks, I am able to more effectively use the time I have in the evening and on the weekends to ensure that I have complete all of my work by the assigned due dates.

Other participants also reported that their learning process had been influenced by their own personal control. For example, Student 9 valued the fact he had “a variety of courses” to choose from and gave him an opportunity to be “an independent and self-regulated learner”. Student 8 also enjoyed classes where they are “multiple opportunities to analyze the material and perform different tasks”. She added “In one course, we had to do our weekly posts based on the
materials that we read, but we also had the opportunity to use the material in writing assignments, journal entries, and digital formats such as VoiceThread and Padlet.”

Although most participants seemed to value the control and flexibility afforded fully online courses, there was one participant who talked about the need for individualized study. When she was asked What you are most looking forward to in online courses, she responded:

The only thing I would say is missing is more opportunity for individualized study, so that I can tailor my curriculum to my own needs. This isn’t just a badge I’m trying to earn here; I really want to graduate confident that I know what I need to know to create adult learning experiences in asynchronous online environments.

**Interaction and Collaboration**

One of the most appreciated aspects of fully online courses, according to participants in this study, was the ability to interact with and learn from their peers. Several participants reported that fully online courses gave them the opportunity to have such a diverse community where they can interact and share their ideas with peers from different backgrounds, ages, and interests. For example, for Student 2, it was a great opportunity for her to interact with peers from different disciplines contribute to building her knowledge in the field of teaching. She stated:

Because there is a certain amount of anonymity in the virtual world, I feel that I have the opportunity to communicate with more students. Everyone is responsible for a weekly post which creates dialogue. I also appreciate the dialogue that gets started among classmates who are from different regions and subjects. I used to think that I wouldn’t have something different to offer, or that a classmate might have a similar answer to me
within discussion posts, but that’s almost never the case because we are from different disciplines and at different points in our teaching careers…I also think it benefits the learning environment to not just answer posed discussion questions, but to ensure the thought process or discussion continues, by asking my own discussion questions to my classmates.

Student 7 also described feeling that her experience as fully online student was not as “unhealthy” as she anticipated in terms of the quality of instruction prior enrolling in fully online courses. She explained enthusiastically:

During the fall 2019 semester, I have been fortunate to be in a fully online class. It is a core class, and while I was initially worried that I would not get the kind of quality instruction I expect from this level of study... but I have happily been proven wrong. The community created by the instructor and the level of active participation of the students has fostered a truly inspirational community of practice… breakout rooms are facilitated in such a way that there is frequent time spent with students you have worked with and new students, allowing for an experience where all voices are heard and through which all voices have value.

Furthermore, interaction with different students was the most positive aspect of fully online courses for Student 5 as it gave her an opportunity to see how others think and express themselves. She noted that she copied a couple of students’ answers as guide to help her answer her own discussion posts. Student 3 also enjoyed the opportunity to be in a classroom with a “diverse student group” sharing their personal experiences; whether it was their ethnicity or the socio-economical environments they taught. She added “students in the graduate program are at
very different stages in their lives, have varied backgrounds and ages. I realized that I am part of that group and participate as well as I can.” Similarly, Student 4 stressed that hearing about how her peers have incorporated the topics that they discussed in online courses into their own classrooms is invaluable opportunity. She went on to add “being able to connect with so many professionals in the same field as me really helps conceptualize my learning and helps inspire me to implement these concepts into my own classroom.”

In the case of student 1, she found online discussion a supportive tool to overcome her fear of “speaking” in front of people. She explained how this tool helped her:

I’ve never been one to enjoy classroom discussions, so the ability to engage in that via an online discussion board I think (at least for me) presents a more equitable forum to discuss ideas. I am someone who is not comfortable speaking at length in front of others, so it’s valuable for me to be able to craft out a well-reasoned response where I feel that my ideas are being represented accurately. Also, in one course, I had a lot of replies to my comments and it felt exciting to take the issue to the next level with my classmates. We were able to move beyond the research and make connections with our classroom practices. Many people raised questions and other issues… it seemed like the essence of teaching and learning.

Going beyond the discussion board, the majority of participants seemed to prefer small group discussion as it facilitates the best learning experiences and the deepest understanding. Although he enjoyed the positive “written dialogue” in response to module posts and felt “fortunate” to have an incredibly and respectful group of classmates, Student 9 noted that small group discussions have helped reinforce material from the module. He also wondered whether a
“video meeting” could be used to facilitate a small group discussion since learning and knowledge creation is a “social cognitive” exercise. He went on to add “some instructors have utilized live office hours on a weekly or bi-weekly basis which is a great way for class members to interact with one another.”

Student 8 enjoyed using the small group discussions to learn more about her peers. She explained:

Small group discussions are best for me when there is an interaction between the classmates. When I feel uncomfortable with the class community, I tend to not give my all. I also feel like the professor is an asset when they are involved in the discussion…I think I learn best in small group discussions because it helps cut down on the number of posts out there to respond to. Also, this was another way to consistently get to know people in my class. I usually try to make efforts to respond to different people in discussion posts that are whole class, but I think everyone has a tendency to gravitate towards the same people.

Despite these benefits they cited by students, the same participants did have issues with interaction in fully online courses environment. For example, Student 4, when she was asked what was most challenging about her experiences in online courses, she responded:

I sometimes find it difficult to engage in meaningful discussions on discussion board when the class as a whole seems to share one common opinion or understanding. It can be very monotonous to type a variation of the same response to a variation of the same post.
Student 4 also described how she handled the situation. She said, “to respond this challenge I have started to write questions as a part of my responses in order to engage my peers in a further discussion that may lead to some nuance in opinion, experience, or understanding.”

Similarly, although Student 5 initially found the online discussion boards to be beneficial, she recalled feeling that this tool was not being used to its full potential. She noticed that some groups remain “quiet” throughout the course so students don't get other “classmate's perspectives” as she suspects they would with in-person classes because changing group members would be “less challenging”.

In the case of Student 10, he described a situation in which he felt that discussion boards may lack depth as some instructors require minimum post lengths. He stated:

sometimes discussion boards require minimum post lengths make discussions feel manufactured and sometimes students just write to fulfill the word requirement rather than to communicate something meaningful…my satisfaction with online courses has been very hit or miss. One graduate course was missing rigor, as discussion post prompts were superficial and didn’t motivate much academic discussion. I also found it challenging to write discussion posts as often as was required since I needed to check in frequently throughout the week to see if anybody had responded to my posts.

As for Student 6, she asserted that one of her biggest concerns about taking online courses, especially doing a master’s program as fully online courses, was “the lack of interaction” with her teachers and classmates. She noted that “while most of my professors have
done a good job of fostering these interactions so far, I wonder if we can integrate more opportunities or more variety in the ways in which we interact.”

In regards to collaboration in fully online courses environment, the participants in this study were nearly unanimous that working in collaborative environments has been a challenge because of the asynchronous nature of their courses. Student’s preferences to work alone in fully online environments as a result of the extra challenge involved in group work and different schedules. For example, Student 2 asserted that collaborative work in asynchronous courses is “very challenging” since individuals in those courses often have different schedules and it can be “very difficult to find a common time to meet or collaborate”. Similarly, Student 4 noted that collaborative projects can be “nice to get to know classmates”, but it can be “difficult to coordinate meeting times”, while Student 1 thought that collaborative in online courses is “tough to pull off in an asynchronous environment”. She added “many of us are working full time, so to get fully on the same page and each devote the same amount of effort to a project is challenging at best.”

In the case of Student 6, when she was asked what was most challenging about collaboration in fully online courses, she responded:

Some students know how to let others work while other want to control the whole group. I did what I was required to do. If needed, I contacted the professor privately about the situation…dealing with students who did not share the same views and did not know how to express themselves without sounding condescending and rude. As an adult learner I have realized that some people are old enough to be my children. With this mindset, I dismissed their inappropriate behavior as immaturity.
Although most participants did not seem to prefer working collaboratively in fully online courses environment, there was one student for whom this was not the case. She enthusiastically explained her experience where she had to work collaboratively with her classmates using Google Slides:

In one of my online courses for the CDIT program, we had the opportunity to use the Zoom Video Conferencing platform. We were put into small groups of no more than 3-4 students, and we had to organize a time to meet once a week for 3-4 weeks, so it wasn’t the entirety of the course. It was like we were testing out this way of “meeting up”. When we met, we had to work collaboratively in Google Slides to discuss a picture. We typed up our answers to the questions and got to know each other a bit in the process. It was a great way to get to know some of the people in my class.

**Relevant Content**

The importance of the relevance of course content was brought up several times by the participants during the interviews. Participants highly emphasized that relevance is an essential aspect of their online courses in order to drive their interest in the material. They also believed that the relevance of course content played an important role in motivating them to engage in the learning process. For instance, Student 2 talked about how she appreciated the relevance of her two courses on introduction to online teaching and introduction to distance education, she stated:

This past summer I was able to take introduction to online teaching and introduction to distance education. Both classes were designed by Instructor B and relevant to current events regarding Covid-19 and virtual learning I was experiencing as a teacher since March. I registered for these classes in February, so this was just good timing to have
these classes available to fulfill my CDIT requirements. The classes were very relevant to how I was teaching, even over the summer. The classes were based in online learning theory and each class’ final project was a direct application of such theory.

Student 2 went on to add that the relevant nature of the material learned in these classes as well as the projects which were useful for her “future teaching endeavors”. For example, she described how these two courses were beneficial for her in designing her own asynchronous course:

I enjoyed the relevant nature of the material learned in these classes as well as the projects which were useful for my future teaching endeavors. For example, in introduction to online teaching, I was required to design my own asynchronous course within the subjects I already teach. I wasn’t sure at the time what school model my district would be following in the fall, but I designed my final project/class with the intention of using the lessons and materials this school year. In other words, I felt like the teachers for this and the other summer course chose projects that were relevant and designed with purpose and consideration for what might happen regionally in the fall, even though they were in different locations from many of us.

Similarly, Student 9 and 10 noted that each course experience is different and to similar degree as face-to-face courses, they were “beholden to the quality of the course design for shaping the context of the experience”. Therefore, Student 10 believed that online courses would be motivating “when course materials were relatable and grounded in real life experiences.” In addition, citing the importance of the relevance of course content in one of her courses, Student 7 talked how relevant material she had helped her to build a toolbox of research that she can build
on in the future when she is designing her own research projects. She added “with the most up-to-date and relevant research articles in my classes, I can keep up with the area I wish to gain expertise in.”

In the case of Student 1, when she was asked what she enjoyed most about her experience in the online course environment, she responded enthusiastically:

I’ve been enjoying a class that I’m taking this semester that allows me to pursue a line of inquiry specific to my job and interests. I’m a Learning Technology Manager right now hoping to eventually become an instructional designer on my corporate Learning + Development team. The freedom to pursue learning through my own specific lens has been very valuable to me since I (unlike the vast majority of my classmates) am not planning to teach in a K-12 setting.

However, Student 1 expressed her concern that some courses having no relevance to her goals whatsoever and time management. She stressed that “when the material has no bearing on my reality it can be a real drag to get through”. She believed that when she can connect the concepts to her life and goals, she will be interested and engaged, and it’s enjoyable to complete her assignments. In contrast, she added that “when I don’t feel that the material is of any use to me (and never will be), I’m just getting through it. It makes it tedious.”

Other participants who found their content of their courses to be relevant included Student 6, who talked about one of her courses which allowed her to get practical experience. She stated:
I loved learning about the different theories in this course and hope to one day write my paper on Collaborative learning, something which I am very interested in. I especially loved the scaffolding strategy he implemented in his course as there are times when you are lost for ideas and having those sentence starters really jog your mind. I love that the courses are created in a way that you get practical experience, not only theories. I am members of different ID groups who are completing their master’s degree as well and their number one complaint is that they have not gotten any practical experience. I love this program because I am getting lots of practice. I prefer practical than theory, although once I understand it I love implementing them to my work. one of the main things that I looked for in this program was an opportunity to practice what I am learning. The program has lived up to its name and I am having a ball practicing all sorts of ID strategies. Can you imagine I have never created a lesson plan before? I have had the opportunity to also teach virtually.

In addition to the importance of the relevance of course content, applicability was another element that was brought up frequently by the participants in this study. Participants described several situations in which they felt that their fully online courses provided them with material applicable to their own career goals. For example, Student 3 elaborated on the benefits of learning applicable coursework and material:

I like to learn things that I know will be useful and implemented in my own practice as a teacher. I prefer creating projects I may use in my work, such as lesson planning or resource curating. It was especially helpful to share applicable experiences with my classmates generally, but more so considering the events of Covid-19 and the stay at
home orders. I feel that if the work is relevant and applicable the extra time is worth the work because my students will benefit directly from it.

For Student 4 and a number of other participants, the fact that the courses created to develop useful knowledge and skills that were applicable to their career goals was very motivating factor for them during any fully online course. Student 4 thought that assignments that require her to think about her opinion on the topics discussed and how she would incorporate those concepts into her own classroom are “the most meaningful” to her, while Student 7 on the other hand, enjoyed creating artifacts such as “curriculum development, KnILTs, websites, blogs and something” that she can use in the future or with her current students. Furthermore, Student 5 went on to add:

I enjoy learning about and utilizing new technologies, especially since most of us are teaching remotely, the information is quite applicable in this unique situation. Having a class where I’m able to surround myself with material applicable to my own career goals has been very interesting and one of the best experiences I’ve had yet.

Combining Quantitative and Qualitative Results

In accordance with the research design described in chapter three, the quantitative phase in this study revealed that the level of intrinsic motivation of graduate students was higher than average in fully online courses environment where female students report statistically significantly larger mean level of intrinsic motivation where female students reported statistically significantly larger mean level of intrinsic motivation. Therefore, there was a need for more investigation of factors and reasons that were related to graduate students’ intrinsic motivation in fully online courses. Accordingly, 10 participants who completed the questionnaire in the
quantitative phase of this study participated in follow-up interviews about their intrinsic motivation in fully online courses by answering open-ended questions that were designed by me based on Intrinsic Motivation in e-Learning Questionnaire (Fırat et al., 2018). Furthermore, in-depth interviews uncovered a number of factors that were cited by graduate students as having been influential in their intrinsic motivation in fully online courses. Those factors are clear expectation and guidance, feedback, flexibility and control, interaction and collaboration and relevant content. The relation of these findings to the existing literature and implications are discussed in chapter five.
Chapter 5: Discussion

Online courses enrollments have been increasing in many universities and colleges. Many universities believe that online education is significant for their long-term strategy to provide opportunities and meet the needs of a growing and increasingly diverse student population (Liaw, 2008; Rumble & Latchem, 2004; Seaman et al., 2018). At the same time, many education leaders and students are worried about the performance of students in online education methods which provide a completely new environment of learning where students’ success can be heavily affected by their ability to actively engage in the learning process in this new learning environment (Cavanaugh & Jacquemin, 2015; Wang et al., 2013). Although research regarding online learning has been increasing, there is a lack of depth in the research regarding the role of intrinsic motivation in online learning compared to the traditional classroom environment (Bekele, 2010; Hartnett, 2016; Jones & Issroff, 2005; Miltiadou & Savenye, 2003). Consequently, this mixed methods research was conducted to gain a deeper understanding of the nature of graduate students’ intrinsic motivation in online learning environment.

This study utilized the explanatory sequential mixed methods research design which stated with an initial quantitative survey and then the follow-up qualitative interview in order to grasp a deeper understanding of graduate students’ intrinsic motivation in fully online courses. In the quantitative phase, Intrinsic Motivation in e-Learning IMeL questionnaire with a sample of 127 graduate students from a public research university in upstate New York was used to answer the first two research questions; 1. What is the level of graduate students’ intrinsic motivation in fully online courses? 2. Is there a significant difference in the level of graduate students’ intrinsic motivation in fully online courses in terms of demographic features of the students.
For the research question one, participants (fully online graduate students) reported above the average intrinsic motivation in the IMeL questionnaire. Accordingly, the findings revealed that graduate students had high levels of intrinsic motivation in online courses environment. In this regard, the current research findings are consistent with past research showing that in online learning environment, students tend to be more intrinsically motivated (Chyung et al., 2010; Firat et al., 2018; Hartnett et al., 2014; Hoskins & Van Hooff, 2005; Johnson et al., 2015; Kim & Frick, 2011). It has also been reported in the literature that, intrinsically motivated online students demonstrate a deeper understanding of the course material (Firat et al., 2018; Hartnett et al., 2014; Hoskins & Van Hooff, 2005).

Furthermore, after analysis of the IMeL scores based on the five determinants of the level of intrinsic motivation, the current study found that the determinant of intrinsic motivation with the highest average for the fully online courses students is autonomy. This finding supports self-determination theory and, it is similar to past research that found autonomy is positively related to graduate students’ intrinsic motivation in online learning environment (Chen & Jang, 2010; Firat et al., 2018; Ryan & Deci, 2017; Zhou, 2016). Self-determination theory emphasized individual sense of choice, volition, and commitment (Deci and Ryan, 2010), which is defined as autonomy that is an essential element in online learning process (Bouhnik & Marcus, 2006; Richardson et al., 2017). Notable empirical research in self-determination theory has confirmed that when these needs are satisfied, a range of positive practical outcomes can be expected in terms of quality of motivation and self-regulation (Chen & Jang, 2010; Ryan & Deci, 2017,). Concerning intrinsic motivation, self-determination theory assumes that social and environmental circumstances that support autonomy, competence, and relatedness will increase
intrinsic motivation, whereas conditions that undermine these basic psychological needs will result in low levels of intrinsic motivation (Ryan & Deci, 2017).

For the research question two, past research has shown that motivation is not related to students’ gender (Cerasoli et al., 2014; Fırat et al., 2018; Martens et al., 2004; Stewart & Johnson, 2010a). Therefore, it was expected that online graduate students’ intrinsic motivation would not be different in terms of students’ gender. However, the findings of this study did not support that and revealed that the level of graduate students’ intrinsic motivation in fully online courses differ significantly by their gender where female students report statistically significantly larger mean level of intrinsic motivation. Nevertheless, it is crucial to note that the sample of this study is predominantly female which might be a major factor contributing to this significant difference.

Moreover, in the context of graduate students’ experience with online courses and its impact on the level of intrinsic motivation, this study found that there is no difference between graduate students’ level of intrinsic motivation based on their experiences with online courses. This finding contradicts past research indicating that motivation is affected by students’ prior experience with online courses (Ivankova & Stick, 2007; Osborn, 2001; Richardson & Newby, 2006). Research demonstrates that students who have prior experience taking online courses are more confident, motivated, self-regulated, organized and that they utilize more learning strategies and are more likely to complete an online course ((Richardson & Newby, 2006; Osborn, 2001). For example, Ivankova and Stick (2007) found a number of factors that enhanced students’ intrinsic motivation including their experience with online courses and viewing completion of the course as a personal challenge and an ultimate goal. In addition, research
indicates that students become more responsible for their own learning as they gain experience
with online learning (Hattie & Gan, 2011).

Furthermore, in the qualitative phase of this study, a phenomenological approach to
inquiry was applied as an extended stage of understanding the results of the quantitative phase.
Therefore, a sample of 10 fully online graduate students who completed IMel questionnaire
participated in in-depth interviews in order to describe their intrinsic motivation in fully online
courses. As a result of this process, the study revealed a number of factors that were cited by
graduate students as having been influential in their intrinsic motivation in fully online courses. Those factors are clear expectation and guidance, feedback, flexibility and control, interaction
and collaboration and relevant content. In addition, these factors are discussed in relation to the
existing literature in the following section.

Factors Related to Intrinsic Motivation in Fully Online Courses

In literature, it has been emphasized that the provision of instructor positive feedback
facilitates individual’s intrinsic motivation (Kawachi, 2003; Pittman et al., 1980). Commonly,
students need engaging learning environments that promote direct interaction between instructors
and learners, and immediate feedback (Clayton et al., 2010). In fully online courses environment,
this study revealed that graduate students were intrinsically motivated by their instructors’
feedback. Participants clearly asserted that professors’ feedback helped them master course
concepts and increased their sense of engagement and improved their learning experience.
Additionally, while the timeliness of the feedback was a serious factor, participants seemed to
place a higher importance on the clarity of the feedback and how detailed and beneficial it was.
Graduate students indicated that meaningful, constructive and clear feedback on their work was
needed in order to remain motivated and successful in their courses. However, the lack of
detailed and regular feedback made graduate students to question whether or not they were meeting course expectations with their work and unable to predict which areas they should focus on to progress.

With regards to the importance of instructor feedback, the current study findings are consistent with past research indicating that in online learning environment, graduate students need timely and meaningful feedback to be more intrinsically motivated (Grant & Thornton, 2007; Hartnett et al., 2014; Lee, 2014; Shroff & Deneen, 2011). Shroff and Deneen (2011) found that provision of immediate feedback to students has a direct impact on online graduate students’ intrinsic motivation. In addition, Lee (2014) concluded that students in online courses noted that constructive and clear feedback on their coursework was needed in order to enhance their learning experience. More than 95% of students agreed or strongly agreed that the professor’s prompt and detailed feedback on their work was valuable to their academic progress (Lee, 2014).

Another factor related to graduate students’ intrinsic motivation in fully online courses was relevance and applicability. In higher education, enhancing students’ motivation through establishing the relevance of course content by providing graduate students with early contact to their eventual profession and enabling them to realize the need for background knowledge and skills (Kember & Hong, 2008). With regards to graduate students’ intrinsic motivation in fully online courses, this study showed that graduate students were intrinsically motivated to engage in the learning process when course materials were related to the student’s current or future career. Participants highly emphasized that incorporating their relevant experience into the course is an essential element of their online courses for driving their interest in the material. In addition, in this study, graduate students’ intrinsic motivation was impacted by the provision of applicability
to real-life issues. Participants were very intrinsically motivated when they felt that their courses designed to develop useful knowledge and skills that were applicable to real career situations.

These findings are supported by research conducted by Grant and Thornton (2007) who found that by relating online course materials to real world situations, learners are more motivated to engage in their learning as students can see interesting and relevant topics and connections to their eventual professions. Grant and Thornton (2007) also concluded that faculty need to “recognize the need for variety when assigning learning activities to motivate student interest and encourage control over their own learning environment” (p. 351). Similarly, Hartnett et al. (2014) found that relating course content to students’ personal lives supports them in connecting their learning with real life and in becoming more motivated and engaged with their learning.

Another factor that participants had cited as a contributing to their intrinsic motivation in fully online courses was the clarity of course expectations and guidance. Participants in this study emphasized that their learning experiences and sense of engagement in coursework was highly affected by the provision of clear and specific instructions throughout their fully online courses. For example, one participant noted that when instructor made the layout of the course very clear and have set high achievable expectations, she enjoyed the class and could have the ability to plan her schedule out way in advance. Another student recalled that once the course expectations have been established and maintained clarity throughout the course, she works hard to ensure that her work meets the highest of them. In both cases, the participants cited these factors as having contributed to their intrinsic motivation and productivity in fully online courses.
In addition, in this study, participants noted that the guidance that they had received from their instructors in the form of detailed instructions for their assignments and course’s activities enhanced their learning experience. Participants reported a need for guidance with some part of the online learning experience such as explaining a specific concept or completing one of their assignments which highly contributed to their intrinsic motivation throughout their courses. As an example of this, one of the participants noted how receiving useful and practical guidance made her to enjoy assembling large scale projects gradually over the course of the semester.

In this regard, the findings of this study align with previous studies demonstrating online learners are motivated when they have clear guidance and expectations about course goals, requirements, and policies of communication throughout their courses (Kim et al., 2014; Stanford-Bowers, 2008). In a mixed method study, Kim et al. (2014) found that a “clear course structure with supporting tools such as guiding prompts and instructions must be designed to help students prepare for participation and then success in achieving learning goals” (p. 45).

A final factor that impacted the graduate students’ intrinsic motivation in this study was the opportunity to interact with their peers. Participants in this study stressed that the level of active interaction between students from different backgrounds and interests has fostered a truly inspirational community of practice. Although most of students’ interactions with peers took place in the discussion boards that were built into their course, the majority of participants valued the opportunity to interact with their peers in small group discussion as it facilitates the best learning experiences and has a high quality of interactions in terms of sharing ideas and experiences. For instance, one participant noted that that small group discussions have helped him reinforce material from the module due to highly the in-depth discussions with his peers. In regards to the influence of interaction on graduate students’ intrinsic motivation, the current
study findings are consistent with past research indicating that interaction is a key ingredient to motivate online students and fundamental to building community in the online environment (Hartnett et al., 2014; Ke, & Xie, 2009).

Furthermore, this study revealed that collaboration in fully online courses environment impeded graduate students’ intrinsic motivation. Participants reported that they were not motivated to work collaboratively as a result of the nature of fully online courses. For example, two participants noted that since students had different schedules, working collaboratively in fully online courses was very challenging to find a convenient time to meet or collaborate, and devote the same amount of effort to a project. The results of this study contrasted with the existing literature in regards to collaboration in online courses environment showing that learners enjoy the opportunity to collaborate with others in working on class projects and believe that collaboration is beneficial to their learning (Chen, 2007; Kim et al., 2014).

**Implications**

In this study, the findings of exploring graduate students’ intrinsic motivation in fully online courses have largely supported past studies in the field of online education. The current study found that graduate students had high levels of intrinsic of motivation in online courses environment. Additionally, results from this study provided some insights into the graduate students’ intrinsic motivation in fully online courses by identifying a number of factors related to graduate students’ intrinsic motivation, the majority of which were consistent with previous research on this topic.

Beneficial understanding regarding graduate students’ intrinsic motivation in fully online courses was obtained in this study. For instance, this study and previous research have shown
that intrinsic motivation is an important characteristic of online learners and associated with intent to participate and persistence (Hoskins & Van Hooff, 2005; Hartnett, 2016; Johnson et al., 2015; Shroff et al., 2007). This knowledge could be valuable for online instructors, instructional designers, and administrators of online programs when designing and instructing their online courses in order to foster graduate students’ intrinsic motivation.

In this study, various factors were identified that faculty and instructional designers should give them thoughtful consideration to promote graduate students’ intrinsic motivation in full-online courses. For example, it appears that graduate students had a great deal of the need for online courses content that is relevant and is able to be adjusted to meet the unique needs of individual students. Therefore, stakeholders are advised to thoughtfully design high quality fully online courses that consider the relevance and applicability of concepts, coursework and activities to learners’ current or future careers. In addition, thoughtful instructions and tools should be incorporated all together in order to foster graduate students’ intrinsic motivation to participate in online discussion and promote students’ meaningful interaction. Thus, the opportunity to interact in small group discussion should be taken into consideration during the course design process as it improves learning experiences and allows for high quality of interactions when it comes to sharing ideas and knowledges.

Similarly, faculty and instructional designers are advised to be aware of, and avoid if possible, any factors that may decrease students’ intrinsic motivation in fully online courses environment. For instance, although previous studies have shown that online learners are motivated to work collaboratively (Chen, 2007; Grant & Thornton, 2007; Kim et al., 2014), this study revealed that online graduate students do not appreciate collaborative learning projects as a result of the nature of asynchronous online courses. Given that, faculty and instructional
designers should be cautioned when incorporating collaborative projects, and they need to avoid forcing graduate students to work collaboratively as students have different schedules and prefer to work on their own pace. However, faculty and instructional designers are advised to take advantages of several applications that allow graduate students to work collaboratively and at the same time meet their needs for flexibility and freedom such as Google slides, blogs and wikis (Simonson, et al., 2019). In summary, it is suggested that faculty and instructional designers implement a variety of motivational elements in order to better satisfy the needs of all of their students. By providing a fully online learning environment that fosters graduate students’ intrinsic motivation, students’ learning and performance can be optimized (Hartnett et al., 2014; Shroff & Deneen, 2011).

Contributions of This Study

This study contributed greatly to the field of online research by investigating intrinsic motivation in online courses environment. This study filled the gap that exists in the literature between the role of intrinsic motivation in face-to-face courses and the inadequate knowledge and information of the role of intrinsic motivation in students’ profound learning and high achievement in online courses. In addition, this study provided faculty and instructional designers with some implications that may help them in adjusting their courses content and improving conditions that may affect graduate students’ intrinsic motivation.

Moreover, as several research has demonstrated that self-determination theory provides a valuable and practical analytic tool for investigating the complexity of motivation in online contexts (Chen & Jang, 2010; Giesbers et al., 2013; Hartnett, 2010; Xie et al., 2006), this study by implementing self- determination theory as a framework to investigate graduate students’ intrinsic motivation in fully online courses, supported the validity and applicability of the theory.
in online learning environments using different population and research setting. Additionally, the supportive data for self-determination theory in online learning and the new knowledge of this study and will help future researchers who are interested in applying this theory in practice to expand the understanding of graduate students’ intrinsic motivation in online learning.

Limitations and Future Research

Although this study advances the literature, as with all research, there are several limitations that should be discussed. In regards to courses selection, there was a lack of diversity where the fully online courses used in this study were only ETAP master’s courses. Given that, it is possible that this study may not have addressed all potential factors that may influence graduate students’ intrinsic motivation as other colleges and departments might use different instructional design and integrate various motivational tools.

Another potential limitation is the lack of gender diversity in the sample which was predominantly female. Therefore, it is difficult to generalize results to both male and female students. Similarly, in context of generalizability, intrinsic motivation certainly is not just limited to graduate college level students, undergraduate students are also in their critical stage to shape their future majors. The research findings from this study should not be easily carried over to these students without caution.

Given these limitations, future studies should attempt to replicate this study using a larger sample size from different populations and a variety of online courses from other colleges and departments in order to provide additional understanding of students’ intrinsic motivation in online courses. Replication is important in educational research where it allows researchers to confirm the accuracy of empirical findings, explain the conditions of the phenomenon under
study, and validate the significance of research (Brandt et al., 2014; Kaufmann & Tatum, 2017; McElreath & Smaldino, 2015).

In regards to measurement, although researchers have developed several questionnaires to measure learners’ intrinsic motivation in face-to-face learning environment, IMeL questionnaire used in this study is the only questionnaire that was designed to measure the level of intrinsic motivation of college students in online learning environment. Therefore, there is a need for more research to develop valid and reliable instruments to accurately measure academic intrinsic motivation in online learning environment. In addition, as result of the complexity of the nature of motivation (Bachman & Stewart, 2011; Chang, 2005; Chyung et al., 2010), investigating intrinsic motivation from qualitative approach angel is still a challenge. Therefore, it is recommended that future qualitative researchers should consider investigating students’ intrinsic motivation over a semester by interviewing students several times throughout their courses in order to track learners’ intrinsic motivation.
References


Bech, M., & Kristensen, M. B. (2009, March). Differential response rates in postal and Web-
ased surveys in older respondents. *In Survey Research Methods* (Vol. 3, No. 1, pp. 1-6).


doi:10.1177/009628311411798


Bernard, R. M., Borokhovski, E., & Tamim, R. M. (2014). Detecting bias in meta-analyses of *distance education research*: big pictures we can rely on. *Distance Education, 35*(3), 271-293.


[https://doi.org/10.1016/j.chb.2010.01.011](https://doi.org/10.1016/j.chb.2010.01.011)


strategies and choice of environment whether traditional or including an online component. *British Journal of Educational Technology, 41*(3), 349-364.


higher education cost curve? (No. w20890). National Bureau of Economic Research.


Gagné, M., Forest, J., Vansteenkiste, M., Crevier-Braud, L., Van den Broeck, A., Aspeli, A. K.,


Johnson, R., Stewart, C., & Bachman, C. (2013). What drives students to complete online
courses? What drives faculty to teach online? Validating a measure of motivation orientation in university students and faculty. Interactive Learning Environments. doi:10.1080/10494820.2013.788037


Kang, B., & Tan, S. (2008, March). Impact of digital games on intrinsic and extrinsic motivation,
achievement, and satisfaction. In Society for Information Technology & Teacher Education International Conference (pp. 1825-1832). Association for the Advancement of Computing in Education (AACE).


https://doi.org/10.1016/j.iheduc.2009.08.001


Instructional Techniques and Academic Motivation. *Journal of Instructional Psychology, 35*(1).


Lee, J. (2014). An exploratory study of effective online learning: Assessing satisfaction levels of
graduate students of mathematics education associated with human and design factors of an online course. *International Review of Research in Open and Distributed Learning*, 15(1), 111-132.


McAuley, E., Duncan, T., & Tammen, V. V. (1989). Psychometric properties of the Intrinsic
Motivation Inventory in a competitive sport setting: A confirmatory factor analysis.

*Research quarterly for exercise and sport, 60*(1), 48-58.


Oaks, CA: Sage


interactions on social presence, achievement and satisfaction. *Journal of Computing in Higher Education, 30*(1), 154-175. doi: 10.1007/s12528-017-9157-x


Ojokheta, K. O. (2010). A Path-Analytic Study of Some Correlates Predicting Persistence and Student's Success in Distance Education in Nigeria. *Turkish Online Journal of Distance Education, 11*(1), 181-192.


FPintrich, P. R., & Schunk, D. H. (2002). Motivation in education: *Theory, research, and
applications (2nd ed.). Upper Saddle River, NJ: Merrill Prentice Hall


Peterson, E., Rubie-Davies, C., Osborne, D., & Sibley, C. (2016). Teachers' explicit expectations and implicit prejudiced attitudes to educational achievement: Relations with student achievement and the ethnic achievement gap. *Learning and Instruction*, 42, 123-140. doi: 10.1016/j.learninstruc.2016.01.010


for understanding socio-cultural influences on student motivation. In D. M. McInemey & S. Van Etten (Eds.), *Big theories revisited*. Greenwich, CT: Information Age.


University at Albany. (2021, April 29) *Graduate Regulations and Degree Requirements*. Ualbany. https://www.albany.edu/graduatebulletin/requirements_degree.htm


Appendix A: Participant Recruitment Email

Dear Scott,
Would you please forward this email ONLY to ETAP master’s students?

To all ETAP master’s students at the University at Albany,

You are invited to participate in a research study seeking to examine and understand the level of graduate students’ intrinsic motivation in fully online learning environments. You are being invited to participate because you are currently studying or have recently taken a fully online class at the School of Education at University at Albany. Participation in the study is completely optional and will entail answering a few demographic questions as well as responding to a brief survey regarding intrinsic motivation in fully online courses. The initial demographic questions should take less than 2 minutes to complete, and the survey should take approximately 3-5 minutes to complete.

If you would like to participate, please click the link below to begin.


If you have any other questions or concerns, please feel free to reach out to me via email at aalhahmari@albany.edu.
Appendix B:

Graduate Students’ Intrinsic Motivation in Fully Online Courses Survey

I am seeking responses to this survey from ETAP graduate students who studied in fully online courses. Your participation is entirely voluntary and will in no way affect your grade in your course. I will use the information you provide in my pilot study regarding graduate students’ intrinsic motivation in fully online courses. All your answers will be kept confidential. You do not have to answer any questions you do not want to answer. It should take you about 5-8 minutes to complete the survey. I am conducting this study under supervision of Dr. Reza Feyzi Behnagh (rfeyzibehnagh@albany.edu), the University at Albany. If you have any question or concerns please contact me at 302-450-8520 or email me at aalahmari@albany.edu. By clicking the submit button at the end of the survey you confirm that you have read and understand this section and consent to participate in the survey.

General Information: Please enter or select the best answer for each of the questions that follow (Please select a response for each question.).
Part A

1. Gender:
   - Male
   - Female

2. Age:
   - under 18
   - 18 to 21
   - 22 to 25
   - 26 to 30
   - 31 to 35
   - 36 to 40
   - 41 to 45
   - 46 to 50
   - 51 to 55
   - 56 to 60
   - 61 to 65
   - 66 or above

3. Employment Status:
   - Part time
   - Full time
   - Not employed

4. Registration Status:
   - Full time
   - Part time
5. Please describe your level of experience with fully online courses. This was my...

- First fully online course
- Second fully online course
- Third fully online course
- Fourth fully online course
- Fifth+ fully online course

Part B
Intrinsic Motivation in e-Learning (IMeL) Questionnaire

The following questions ask about your intrinsic motivation in online courses environment. Remember there are no right or wrong answers, just answer as accurately as possible. Use the scale below to answer the questions. If you think the statement is very true of you, choose/click 5; if a statement is not at all true of you, choose/click 1. If the statement is more or less true of you, find the number between 1 and 5 that best describes you.


<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree (1)</th>
<th>Disagree (2)</th>
<th>Neutral (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I enjoy studying in online courses environment</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I prefer to study in online courses environment even if I have printed materials.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I look forward to studying in online courses environment.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I'm satisfied with my studies in online courses environment.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I set my own learning needs.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Appendix C: Permission to Use (IMeL)

Re: “Intrinsic Motivation in e-Learning (IMeL) Questionnaire”

Mehmet Fırat <firat707@gmail.com>
Thu 4/19/2018 4:55 PM

To: Alahmari, Ahmed M <alahmari@albany.edu>
Cc: Mehmet Fırat <m.firat@ankadolu.edu.tr>

Dear Ahmed,

It is nice to hear your interest on our paper. You have our permission to use IMeL. The scale have 5 item. As you can see from the paper, the research conducted in Turkish. So the whole form of questionnaire will not be useful for you.

Best wishes and successful research,

Assoc.Prof.Dr. Mehmet Fırat

19 Nis 2018 Per, saat 21:34 tarihinde Alahmari, Ahmed M <alahmari@albany.edu> şunu yazdı:

<table>
<thead>
<tr>
<th>Dear Dr. Mehmet</th>
</tr>
</thead>
</table>

I am Ahmed Alahmari, a PhD student in SUNY at Albany, interested in conducting a mixed method study on the level of students’ intrinsic motivation in online courses. I have read your interesting paper “Level of intrinsic motivation of distance education students in e-learning environments”. I would like to thank you for this significant contribution to the field of online education. It is my pleasure to have your permission to use and cite your survey “Intrinsic Motivation in e-Learning (IMeL) Questionnaire” in my study. Also, could you please provide me with the whole form of the questionnaire and score information.

Thank you so much and I appreciate your help.

Sincerely,

Ahmed Alahmari
PhD Student

Appendix D: Informed Consent
University at Albany

INFORMED CONSENT INFORMATION
FOR RESEARCH PARTICIPATION

Study Title: Graduate Students’ Intrinsic Motivation in Fully Online Courses

Principal Investigator: Ahmed Alahmari

Co-Principal Investigator: Reza Feyzi Behnagh

IRB Study Number:

I am Ahmed Alahmari at the University at Albany, in the School of Education/ The Department of Educational Theory and Practice. I am planning to conduct a research study, which I invite you to take part in. This form has important information about the reason for doing this study, what we will ask you to do if you decide to be in this study, and the way we would like to use information about you if you choose to be in the study.

Why are you doing this study?

You are being asked to participate in a research study about Students’ Intrinsic Motivation in Fully Online Courses. The purpose of the study is to examine and understand the level of graduate students’ intrinsic motivation in fully online learning environments. This study will help researchers and practitioners to provide practical recommendations to enhance the level of student’ intrinsic motivations and the learning process’s outcomes through rich online learning means, interaction tools, activities, and environments.

What will I do if I choose to be in this study?

You will be asked to complete two parts:

1- Intrinsic Motivation in e-Learning (IMeL) Questionnaire, 2- participate in an interview.

Study time: study participations will take approximately total of 5-8 minutes on completing the questionnaire and 25-30 minutes for the interview sessions. This includes the time required to read and sign the electronic consent form.

Study location: all study procedures will take place (according to the participant’s preference) face-to-face at the School of Education, Skype, or Zoom.
I would like to audio-record this interview to make sure that I remember accurately all the information you provide. I will keep these tapes in my password-protected desktop and laptop computers and they will only be used by me. If you prefer not to be audio-recorded, I will take notes instead.

I may quote your remarks in presentations or articles resulting from this work. A pseudonym will be used to protect your identity, unless you specifically request that you be identified by your true name.

**What are the possible risks or discomforts?**

Your participation in this study does not involve any physical or emotional risk to you beyond that of everyday life. As with all research, there is a chance that confidentiality of the information we collect from you could be breached – we will take steps to minimize this risk, as discussed in more detail below in this form.

**What are the possible benefits for me or others?**

You are not likely to have any direct benefit from being in this research study. However, the scientific community will benefit from a greater understanding of factors influencing the students’ intrinsic motivation in online learning and providing practical recommendations to enhance the level of student’ intrinsic motivations and the learning process’s outcomes.

**How will you protect the information you collect about me, and how will that information be shared?**

Results of this study may be used in publications and presentations. Your study data will be handled as confidentially as possible. If results of this study are published or presented, individual names and other personally identifiable information will not be used.

To minimize the risks to confidentiality, participants' responses to electronic survey will be stored on Qualtrics secure servers. These data will only be accessible with authorization and authentication protocols using a secure username and password by me. Once received and downloaded, data will be kept on my password-protected desktop and laptop computers. Only I will have access to the identifiable information. After linking the participants' survey results with interview results, anonymized data will be analyzed. Measures will be taken to regularly back up the data offline and on University at Albany secure Storage Servers, to ensure the data is safe and is not lost due to unforeseen circumstances. According to the regulations, all data will be kept for three years, after which they will be discarded (deleted/purged). In the unlikely event that the data or identifiable information is jeopardized, the IRB Board will be notified immediately.

I may share the data I collect from you for use in future research studies or with other researchers – if I share the data that we collect about you, I will remove any information that could identify you before I
share it. If I think that you intend to harm yourself or others, I will notify the appropriate people with
this information.

Financial Information
Participation in this study will involve no cost to you. You will not be paid for participating in this study.

What are my rights as a research participant?
Participation in this study is voluntary. You do not have to answer any question you do not want to
answer. If at any time and for any reason, you would prefer not to participate in this study, please feel
free not to. If at any time you would like to stop participating, please tell me. We can take a break, stop
and continue at a later date, or stop altogether. You may withdraw from this study at any time, and you
will not be penalized in any way for deciding to stop participation. If you decide to withdraw from this
study, the researchers will ask you if the information already collected from you can be used.

What if I am a University at Albany student or employee?
You may choose not to participate or to stop participating in this research at any time. This will not
affect your class standing, grades, employment, or any other aspects of your relationship with the
University at Albany.

Who can I contact if I have questions or concerns about this research study?
If you have questions, you are free to ask them now. If you have questions later, you may contact the
researchers at:

Ahmed Alahmari
Department of Educational Theory & Practice
University at Albany, State University of New York
Tel: 302-450-8520
Email: aalahmari@albany.edu

Faculty Advisor:
Reza Feyzi Behnagh, PhD
Assistant Professor
Department of Educational Theory & Practice
University at Albany, State University of New York
Tel: (518) 442-5011
Email: rfeYZibehnagh@albany.edu

If you have any questions about your rights as a participant in this research, you can contact the following office at the University at Albany:

**Institutional Review Board**
University at Albany
Office of Regulatory and Research Compliance
1400 Washington Ave, MSC 100E
Albany, NY 12222
Phone: 1-866-857-5459
Email: rco@albany.edu

**Consent**
I have read this form and the research study has been explained to me. I have been given the opportunity to ask questions and my questions have been answered. If I have additional questions, I have been told whom to contact. I agree to participate in the research study described above and will receive a copy of this consent form.

By agreeing to participate you are indicating that you are over the age of 18 and currently studying or have recently taken a fully online class at the School of Education at University at Albany.
Appendix E: Interview Protocol

Project: Graduate Students’ Intrinsic Motivation in Fully Online Courses.

Time of Interview:
Date:
Location:
Participant Identifier:

Introduction:
1. The researcher will briefly review the following items with the interviewee:
   - Purpose of the study
   - Overview of the interview process
   - Description of how the data will be managed to protect the confidentiality of the interviewee

2. Prior to beginning the interview, the researcher will then turn on and test the digital audio recorder.

Questions:

Enjoyment

1- Can you give me an example or describe a situation where you enjoyed your experience in the online course environment?

2- What did you enjoy most about your experience in the online course environment and why?

Inherent

1- How would you describe how you like to learn in online courses?

2- What materials help you learn in the online course environment (e.g., PowerPoint slides, videos, lecture, small group discussion, collaborative work)?
Interest

1- What are you most looking forward to in online courses, regarding expectations and others?

2- What are you most concerned with /worried about /nervous about in online courses? Why?

Satisfaction

1- How would you describe how satisfied you were in your previous experiences in the online course environments? What was challenging/difficult/missing?

2- In what ways could online courses serve your educational needs?

3- What was most challenging about your experiences in online courses? How did you respond to the challenge? Could you give some examples?

Autonomy

1- How are you preparing yourself to be a successful learner in an online course environment? Could you give some examples?

2- As a student, what could you do to improve the quality of your online courses?

3- How did you manage your time, set objectives, goals, and expectations etc.?

4- What strategies did you use to succeed in online courses and how? Working independently, etc. Could you give some examples?

Concluding Remarks:

The researcher will conclude the interview by taking the following steps:

1. Thank the interviewee for their cooperation and participation.

2. Ask the interviewee if they have any questions and then let them know how they
can contact the researcher if a question comes up at a later date.

3. Assure the interviewee of the confidentiality of their identity.

4. Review the next steps, notably the procedures for reviewing the transcript of their interview.