4-2022

A Mixed-Method Study on the Online Learner Readiness Questionnaire Instrument at a Midwest University

Sky Toland

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by

Sky Toland

A Dissertation submitted to the Education Faculty of Lindenwood University

In partial fulfillment of the requirements for the

Degree of

Doctor of Education

School of Education

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This dissertation has been approved in partial fulfillment of the requirements for the degree of

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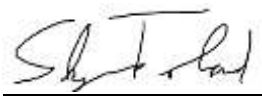
Dr. Dale Walton, Dissertation Chair	3/9/22 Date
Lynda Leavitt, EdD Dr. Lynda Leavitt, Committee Member	04/01/2022 Date
Donald E. Heidenreich Jr. Dr. Donald Heidenreich, Committee Member	3/14/2022 Date

Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work here at Lindenwood University and that I have not submitted it for any other college or university course or degree here or elsewhere.

Full Legal Name: Sky LeTourneau Toland

Signature:  Date: 04/08/2022

Acknowledgements

I would first like to thank my dissertation chair, Dr. Dale Walton. His can-do attitude was nothing short of the rock that kept me going when things got tough. As someone I considered a mentor long before entering this program, it has been a truly brilliant experience being able to work under his mentorship for this academic achievement. I would next like to thank Dr. Don Heidenreich, who served as my chair early on in the program during the first iteration of my dissertation project and who I hold in the same regard as Dr. Dale Walton. Both of these men have helped me and guided me through my higher education journey and simply put, I would not be where I am today without them. I would also like to thank my third committee member Dr. Lynda Leavitt; I must admit, I was scared every time I met with Dr. Leavitt, as she has an extremely sharp talent for being able to identify areas of concern in a project. However, this project simply would not have been possible without her insight and I must thank her for her guidance and brutal honesty. I also wanted to acknowledge my supervisor at Oklahoma City University, Dr. Paul Gebb, who brought the initial idea for this study to my attention and who was extremely helpful with his advice as well as letting me look at his Ed.D dissertation when I was stuck. I also must extend a very special thank you to my data host and co-worker, Josh Waggoner, not only for the work he put in to make this project work but also for being an ear to listen and a friend throughout this entire process. I wanted to give a shout out to my closest friend in the program, (soon to be Dr.) Lori Vaughn. Finally, I wanted to thank my mom and dad for all their support throughout, as well as my dog Frankie, who I could always count on to be there for me when I needed a break.

Abstract

Online learning readiness is a field of study that has emerged and become increasingly relevant over the past two decades. Several instruments have been developed and used to measure readiness for online learning in college students. The Online Learner Readiness Questionnaire, or OLRQ, sought to measure student readiness for online asynchronous learning through a 30-question instrument. The OLRQ generated feedback for students, based on their answers; this feedback was designed to address both strengths and areas of deficiency, giving specific guidance on how to strengthen these areas. Literature in this field typically fell under the larger umbrella of online and distance learning, with online learning historically being a facet of distance learning. Today, online education has largely replaced all other forms of distance education. Still, empirical research conducted on other aspects of online learning is relevant to online learner readiness; this is because online readiness must be flexible enough to adapt to a changing online learning landscape and the measurement of readiness in a varying degree of online programs. This study sought to determine if the OLRQ made a significant difference in the mean final grades of participants who were given the instrument with answer-generated feedback versus participants who were given an alternative version of the instrument that included no feedback. Three demographic groups were also measured: gender, college-class level, and number of previous online courses taken. A qualitative end-of-course survey was also given to participants in the experiment group, asking them to describe their perceptions of the OLRQ and its effect on their online learning. Results from the quantitative data indicated that no significant difference was found between the mean scores of the experiment and control groups. Results from the qualitative survey

found that identification of self-discipline habits in online coursework was the biggest take-away for participants. Data gathered, based on course length, indicated a need for future research on whether shorter course lengths equate to higher academic performance, an unexpected find of the study.

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Chapter One: Introduction

Introduction

Prior to the COVID-19 pandemic, online learning was considered, essentially, an alternative to on-ground learning. That is no longer the case. One of the most remarkable things about online asynchronous learning is the flexibility that is offered to every student. Online asynchronous learning eliminates the "immovable object" that is class time in favor of students being able to learn and complete coursework on their own time throughout a semester. COVID-19 forced students out of the physical classroom and into the virtual space, and although many schools kept class times and simply changed the meeting space, many others adopted asynchronous coursework instead. Signs of the pandemic slowly, but steadily relinquishing in 2021 signaled a possible return to some semblance of pre-COVID normalcy, but online learning has cemented its foothold as a viable method of education. Therefore, it is important that it be scrutinized with the same academic and empirical acuity that other forms of learning have been for decades.

One form of online learning examination is testing the readiness of college students to undertake online asynchronous learning, as many of them may not have been exposed to this form of education prior to enrolling in a higher education institution. The Online Learning Readiness Questionnaire (OLRQ) is an instrument that was developed at Penn State University and licensed under Creative Commons for public use. The OLRQ instrument is the basis of this dissertation; participants answer 30 questions about different aspects of online learning, with the instrument generating feedback and guidance, based on answers to help students know where any deficiencies are in their online learning readiness and how they can improve upon them. This study sought to

determine if the OLRQ could be connected to higher academic performance in the form of final grades of students who were given the instrument against those who were not.

Rationale of the Study

The prevalence of online courses and e-learning has grown immensely in the past few years. Between 2016 and 2018, post-secondary distance learning, in which students' degree programs were entirely online, rose from just 10% of students to nearly 17% (National Center for Education Statistics, 2018, Table 1). The COVID-19 pandemic forced an evolution of many existing curricula and courses into a distance learning and e-learning format. This transition has given rise to a myriad of previously unforeseen challenges in virtual and asynchronous teaching and learning.

There are several scholarly studies centered on the concept of online learning. Several studies focus on the area of readiness in terms of online learners and how said readiness can increase or decrease academic performance. One such study, conducted in Romania after the advent of the COVID pandemic, sought to internalize connectivity theory in a world isolated by the pandemic and examine what faculty members thought online learners needed most to have a quality online learning experience (Altinay et al., 2020). The Altinay et al. (2020) online learning experience focused on the concept of learner connectivity through both the technology in use as well as the course itself. The focus of the study was whether faculty thought that sufficient preparation had been implemented for student learning in the online space. The use of qualitative data gathered by online interview questions found that 78% of participants believed, in terms of a technological infrastructure, the preparations for online learning were not at a sufficient level (Altinay et al., 2020). Perhaps even more interestingly, 81% of participants

interviewed believed there were not enough studies and trials before the mass introduction of online learning (Altinay et al., 2020). This statistic makes a case for a tool such as the Online Learner Readiness Questionnaire, and the need to gauge the preparedness of new online students to the online learning space.

There was also a dire need for preemptive support for online learning. One of the main rationales for the study was to identify deficiencies in online learning proficiency among incoming online students before the deficiencies result in poor educational outcomes. Said deficiencies could and most likely would decrease academic performance, which may be displayed in lower scores, grades, and overall success in online coursework. Lower success in online learning for new online learners is likely caused by a simple lack of honed skills required to do well in an online course; a student who does not do well in an online course should not be written off as a bad student per se, but simply one who may not be aware of, or proficient in, the ideal skillset for such learning. Lorenzetti (2015) compiled research from multiple sources that laid out three sets of characteristics commonly found in successful online learners; the most prevalent were a strong sense of academic self-concept, sets own learning goals/ self-direction, and collaboration with other students (Lorenzetti, 2015). The commonalities may not be something every incoming online student inherently possesses, especially those who have never experienced self-directed learning; the lack of further emphasizes the need for formative assessment prior to beginning online coursework. The findings of Lorenzetti (2015) concluded online course readiness assessments, if nothing else, give prospective online students a chance to fully reflect on whether they possess the skills, habits, and discipline necessary for success in online coursework and may prompt them to either opt

out or work toward honing ideal skills, if they believe they are deficient (Lorenzetti, 2015).

One online learner readiness study took place in August 2009 and used over 1,000 Taiwanese online learning students as participants; researchers conducted surveys regarding the participant's perceived proficiency in the areas of self-directed learning, motivation for learning, computer/Internet self-efficacy, learner control, and online communication self-efficacy (Hung et al., 2010). The study also grouped participants by factors, such as college grade (freshman, sophomore, junior, or senior) and gender (male or female). Findings included differences in certain areas between college grade level, but little difference regarding gender. The study confirmed the validity of the multi-dimensional instrument used, which was dubbed the Online Learning Readiness Scale, or OLRS (Hung et al., 2010). This instrument was empirically shown to be useful in formative assessment of online learning readiness; however, it differed from the OLRQ in that the assessment does not seek to give guidance to online learners as a result of user input on the survey. The OLRS certainly demonstrates the usefulness of measuring online learning readiness, but further research should occur to determine if formative assessment-based guidance, given as a result of user input similar to the Online Learner Readiness Questionnaire, can contribute to higher academic performance.

The Online Learning Readiness Scale has also been utilized outside of this study. Researchers at Anadolu University in Turkey used the OLRS in a similar assessment to determine if certain demographic and technological proficiency factors made a difference in learners' readiness for online education. The Anadolu researchers in the study, Firat and Bozkurt (2020), utilized the term Open and Distance Learning, an umbrella including

both asynchronous and virtual learning (Firat & Bozkurt, 2020). The Anadolu study differs from the scope of the proposed study, which sought to utilize the OLRQ for online asynchronous formats only. The focus of Firat and Bozkurt's (2020) study is still relevant however; setting aside the difference in the scope of the researched learning format, the results revealed that Firat and Bozkurt (2020) used demographic groups, based on gender, age, employment status, average internet usage, and preferred technological devices as measurements for determining if correlational evidence existed linking these groups with readiness for online learning (Firat & Bozkurt, 2020). The proposed study used demographic indicators, such as college-class level, cumulative GPA, gender, and prior enrollment in an online asynchronous course to determine a possible relationship between the implementation of the OLRQ and increased academic success. The demographic research conducted at Anadolu University provides an empirical backdrop and precedent for demographic correlation between specific groups and online learning readiness. Findings from the proposed study and Firat and Bozkurt's (2020) have comparative value as well; the proposed study can be viewed as relational, further providing empirical data on certain demographic's online learning readiness.

In summary, the researched university currently lacks online learner readiness instrumentation that utilizes feedback to help students be better prepared for online coursework. Testing the OLRQ's question-generated guidance is relevant to the field of online learning readiness because it will be able to determine if more can be done to help ensure the academic success of online learners.

Purpose of Study

The purpose of this project is to measure if the OLRQ instrument makes a difference in grades for participants in the study. The field of online asynchronous learning is growing, as is meta research on how to best prepare students for the challenges of the online asynchronous classroom. These challenges can differ greatly from those found in the traditional classroom.

Current instruments that exist in the field of online learning readiness that seek to measure the preparedness levels of students for undertaking online asynchronous coursework. However, these tools, such as the Online Learning Readiness Scale, gather data but do not necessarily generate guidance for users to better prepare for online learning. The Online Learner Readiness Questionnaire, or OLRQ, is an instrument that asks 30 questions pertaining to different areas of preparedness for online coursework. The OLRQ is designed to generate feedback and advice for the user, based on student responses. This project measured the difference this feedback made as it pertained to academic performance in online coursework and will compare academic performance, in the form of finals grades, of students who took the Online Learner Readiness Questionnaire and students who did not. A *t*-test was used to determine if mean final grade scores differ, based on the use of the OLRQ prior to beginning the course. The researcher hoped to determine if the Online Learner Readiness Questionnaire can be connected to better higher final grades in the course. Demographic indicators such as gender, college-class level, and number of previous online courses (meaning the number of online asynchronous college courses the students have completed prior to this one), will also be used to determine if the OLRQ makes a difference in two groups with similar

characteristics. Additionally, to determine if any intragroup statistical significance can be found in the difference made by the OLRQ. A one-way ANOVA test was used to determine if any significant differences exist between the mean final grades of the three demographics in the experiment group: gender, college-class level, and number of previous online courses.

The participants were students in multiple sections of the Methods of Scientific Inquiry – S01 – SCI100301 course at Oklahoma City University. There were two versions of the instrument. For the purpose of explanation, the terms “primary” and “alternative” will be used. The term “primary” was used to indicate the version of the instrument (Online Learner Readiness Questionnaire, or OLRQ) that was given to the experiment group. This primary version of the instrument was the one that generated feedback and advice for online learning readiness, based on the user’s answers to the instrument questions. The term “alternative” was used to indicate a separate instrument; this instrument included the same questions as the primary, but instead of generating feedback and advice for online learning readiness once answers were submitted, it generated a uniform message thanking them for their participation, with no feedback or advice. The alternative instrument was given to all participants in the control group. Separate links to each version were generated and given to the instructor of the course. Instructions were given to the instructor, indicating the list of students that were to receive the link to the primary instrument and the list of students that were to receive the alternative instrument. Instructors sent the links out within normal welcome emails before the course began. No indication was given to potential participants about which version of the instrument was being received.

There was also an optional end-of-course survey for participants in the experiment group. This survey included open-ended questions intended to gather student perceptions of how they felt the OLRQ guidance helped or did not help them succeed in their online coursework. These responses were coded and used to determine, qualitatively, if trends existed in student perception of the influence of the OLRQ on their online learning.

The results of this study provided empirical data on the importance of online learner readiness in the world of higher education online learning. The COVID-19 pandemic has seen a large exodus of learning from the traditional classroom to the online classroom. This largely includes virtual synchronous learning but also a high number of online asynchronous courses as well. This study aimed to explore the issue of online learning preparedness and determine the difference made, if any, of the OLRQ on student grades as an instrument for helping new and returning online students be better prepared for the unique challenges of the online classroom. The OLRQ could pave the way for additional online learning readiness instruments that utilize preparedness feedback to ensure better success for students in online coursework.

Questions and Hypotheses

Null Hypothesis 1: There is no difference in the averages of final grades of students who were given the Online Learner Readiness Questionnaire and received the instrument's feedback prior to starting the online course than students who were not given the Online Learner Readiness Questionnaire.

Null Hypothesis 2: There is no difference in the averages of final grades of students given the Online Learner Readiness Questionnaire, based on gender

Null Hypothesis 3: There is no difference in the averages of final grades of students given the Online Learner Readiness Questionnaire, based on college-class level

Null Hypothesis 4: There is no difference in the averages of final grades of students given the Online Learner Readiness Questionnaire, based on number of previous online courses taken.

RQ1: How did surveyed students perceive the OLRQ on their online learning?

RQ2: What patterns or themes emerged, based on student responses to the end-of-course survey?

Study Limitations

The limitations of this study were straightforward. One of the main limitations was the issue of sample size. This study sought to look at one specific course, the Methods of Scientific Inquiry course at Oklahoma City University. This was an online asynchronous course. The students of the Methods of Scientific Inquiry course in the Summer and Fall 2021 semesters made up the participant pool. Although this number was small, the reason it was chosen was to ensure that all participants received the same content in the same online asynchronous format. The small sample size had the potential to limit the strength of the connections drawn between the Online Learner Readiness Questionnaire instrument and its effect on academic performance; however, the content in the course remained uniform, which minimized the potential limitation of differing content and student experience with the content diluting the OLRQ's impact.

Another limitation was the differing of instructors for each section of the course. Four separate sections of the course were used as data collection groups: one in the Summer II 8-week session (taught by Professor A, course dates: 6/28/21-7/29/21), two

Fall semester 16-week sessions (both taught by Professor B, course dates: 8/23/21-12/17/21), and one Fall semester eight-week session (taught by Professor C, course dates: 10/18/21-12/17/21). The Methods of Scientific Inquiry online course utilized one course structure and design, so although instructors may grade slightly differently, the interaction with content by students remained unchanged from section to section.

The limitation of session length should also be noted. There were four sections of the course being used to collect data from participants. One of these sections was a four-week course, one section was eight weeks in length, and two of them were 16 weeks in length. A limitation here was the shorter four and eight-week sessions in which content was compounded more than in the 16-week sessions. However, this limitation was acceptable to this study, based on the concept that each course was uniform in its content and structure. It also had the potential for comparison of different course lengths in a future study.

Definition of Terms

ANOVA test – Statistical test that seeks to determine variance among several means by comparing variance among groups (Larson, 2008).

Asynchronous learning – Learning that can occur in different times and spaces for each learner. Instructors generally facilitate a learning path that students engage in on an individual basis, as opposed to synchronous learning that takes place at the same time and place with groups of other students and the instructor (Finol, 2020).

Brightspace by D2L (D2L) – For the purpose of the study, the Oklahoma City University Learning Management System.

Digital divide – The concept of a gap or divide existing in the possession or application of digital technology between individuals or groups; in this work, it is used to refer to the possession, or lack thereof, of technology as a measurement of readiness for online learning (this definition serves for the purpose of this work).

Distance learning – Instruction in which students and the instructor, or students and other students, are separated by distance and/or time. It can include virtual setups, such as webcam-based class sessions, or non-live discussions and assignments (this definition serves for the purpose of this work).

Learning Management System – A learning management system (or LMS) is any web-based platform that is used for building, organizing, and offering courses to a school. The LMS used by Oklahoma City University is known as D2L (this definition serves for the purpose of this work).

Lexical Semantics – a branch of semantics that focuses on inherent aspects of word meaning and the relations between words, as well as the ways in which a given word meaning is related to the syntactic structure in which it is found (Stringer, 2019).

Online learner readiness – Student characteristics, such as online work skills or technological literacy, influencing online academic performance (Joosten & Cusatis, 2020).

Semantics – the study of how language is used to represent meaning, specifically how literal meanings are encoded and decoded by speakers and hearers (Stringer, 2019).

Synchronous learning – All types of learning where students and the instructor are in the same location, whether it be a physical space or a virtual one, at the same time,

with instruction being given in real time. The use of live video is not necessarily required, although it is often a component (Finol, 2020).

Virtual learning – Learning that refers to synchronous approaches in which students and the instructor meet virtually on a regular or semi-regular basis during a term. Although the term generally refers to the use of live video streams, such as Zoom or Skype, live text-based chats can also be considered virtual learning (this definition serves for the purpose of this work).

***T*-test** – Statistical testing used to compare the means of two populations if the sample size is less than 30 (Siegle, 2021).

Summary

In summary, the researcher focused on measuring online learner readiness using the Online Learner Readiness Questionnaire, or OLRQ. Online asynchronous learning has emerged as its own form of education. The main goal was to determine whether the OLRQ could be linked to higher academic performance in the form of final grades, as well as measuring how academic performance might differ among demographic groups such as gender, college-class level, and number of previous online courses taken. The other main goal was to look for patterns and themes in student perceptions of the OLRQ and how it affected their learning for that semester. Limitations existed, as they do with every study, including the use of different instructors for each course, different course lengths, and the potential for a small sample size. These limitations were minimized in impact by the uniformity of the content that each participant interacted with during the course. The purpose of this study was not only to measure online learner readiness, but to offer guidance and advice in key areas that seek to influence online learners in such a

way that it positively impacted their final grades for the semester. This guidance was generated by the answers the user inputted into the instrument questions, meaning it sought to help, based on the user's level of online readiness.

Chapter Two: Review of Literature

Introduction

Online learning readiness as a concept, while relatively new, is one that has been researched extensively. One must bear in mind that this notion did not exist prior to the existence of online learning, but that its subject matter does bear some resemblance to previous forms of distance learning such as correspondence courses, which were popular before education went online. The main difference is the presence of the internet; prior to online asynchronous learning, the concept of distance learning was done via mail, with students and professors communicating lessons and assignments through the post office box rather than the home computer. Distance learning, which has been used as something of an umbrella term since the inception of online learning, used to refer to both correspondence courses and online asynchronous ones. However, in recent years, correspondence courses are extinct in higher education; for this reason, distance learning in this work, as well as in the present context, refers almost exclusively to online/e-learning. Online learning readiness is tied into several related concepts, such as technological literacy, accessibility, asynchronous learning, and social competencies, such as motivation and discipline. These will be explored and analyzed in various pieces of literature in this section, underlining their inherent tether to the concept of online learning readiness.

Online Learning

Use of the term “distance education” has, in and of itself, an interesting history. Distance education used to refer to what are known today as correspondence courses. Before the inception of the world wide web, correspondence courses were the main form

of distance education. The learner would interact with the content in whatever way they were instructed and take an assessment, returning it by mail. This process is understandably slow by current standards, where content and assessments can be disseminated, absorbed, and assessed in a matter of hours. The rise of the internet has rendered the aforementioned types of distance education all but extinct. Instantaneous transmission of content and communication between instructor and learner is undeniably a more efficient system. Innovations in technology have taken online learning from humble beginnings to a form of education all its own. The COVID-19 pandemic put virtual and asynchronous learning on the main stage, where they were able to be established not just as alternatives to traditional classrooms, but as forms of education with their own merits and advantages. However, even the current concept of online learning did not spring up overnight; rather, it has been refined over the past couple of decades; many of the teaching and learning techniques on which online education is based go back more than a century.

The Origins of Technology-based Distance Learning

The teaching and learning community has always had a certain intuition for identifying the technologies of its day and finding a way to turn those into a foundation for education. Distance learning in the United States can be traced back to the 1800s. George Ticknor, a Harvard professor and founder of the Boston Public Library, had a daughter named Anna Ticknor who, in collaboration with her father, sought to establish one of the first correspondence schools in America (Corey, 2008). Interestingly, this correspondence school, one of the first of its kind, was for women only; once gaining acceptance to the school and choosing a core area of study, women would be mailed a

syllabus and assignments which they would then return via mail (Vincenzes et al., 2019). This trend spread like wildfire over the course of the 19th century and by 1892, the University of Chicago had implemented and recognized the first college-level distance learning program (Corey, 2008).

Technological innovations in the 20th century were quite prevalent and quick to be adopted for educational uses. Perhaps the largest of these innovations in the first decades of the 20th century was the radio. The invention of radio was groundbreaking in many industries; messages that had to be transmitted via telegraph or traditional mail could now be sent over the radio instantaneously. The technological jump from traditional snail-mail to radio in correspondence education was fast; the first public radio broadcast occurred on Christmas Eve in 1906 and about 10 years later, in 1916, the first radio-administered class took place when the University of Iowa transmitted 75 class lessons to students (later, in 1934, it broadcast the first televised lesson) (Vincenzes et al., 2019; Corey, 2008). Although correspondence courses via radio are rarely talked about today, in 1923 over 10% of all stations were owned by higher education institutions (Corey, 2008). It should be noted that radio has little bearing on online education today, but it is important to understand the swiftness with which education adopts and implements new technologies.

Television soon replaced radio as the preferred medium for distance education. Utilization of visual aids held a clear advantage over the audio-only radio method. Televised educational lessons simulated the feeling of being right in the classroom with the instructor, a concept that continues to be a major goal of virtual and online education, even today. In 1963, the Federal Communications Commission created 20 low-cost

fixed-range channels specifically for educational institutions; these channels were supported by companies such as CBS and NBC, with the groundbreaking educational Public Broadcasting System (PBS) being created a short time later, in 1969 (Vincenzes et al., 2019). For the first few decades after its inception, televised educational materials were asynchronous in nature; most were recorded and then televised afterwards. Early televised educational materials were often given in a classroom setting and/or televised at certain times of the day, requiring students to be present in a traditional classroom or at the very least, be tuned in at a certain time. The introduction of satellite television, which allowed for live synchronous courses, saw an even larger number of educational institutions embracing the format. By the mid-1980s, some 200 college courses were taught through televised cable and over 1,000 higher education institutions utilized some form of satellite-broadcasted course (Moore & Kearsley, 2012).

The AIM Project

Many modalities in distance education have served as forerunners to online learning as it exists today. Indeed, it would not be inaccurate to say that internet education is something of an amalgamation of the best parts of distance education from radio, television, and even mail-in correspondence coursework. One project however, laid an important foundation for understanding how these methods of delivery could be utilized effectively for distance learning. This project was known as the Articulated Instructional Media (AIM) Project. In essence, the project used multiple types of instructional materials and media as a low-cost, high-quality way of supplementing education for students at traditional brick-and-mortar universities (Vincenzes et al., 2019). The AIM Project was developed and tested between 1964 and 1968 at the

University of Wisconsin; a sequence of advanced interdisciplinary courses in humanities, social studies, and sciences were developed and offered through a combination of different modalities (Wedermeyer & Najem, 1969). These included short class sessions, off-campus seminars and, most importantly, independent study supplemented by printed study guides, pre-recorded audio tapes, telephone conferences and telelectures, mobile resources from local libraries, and peer-tutoring and review (Wedermeyer & Najem, 1969; Vincenzes et al., 2019). One can draw parallels between these early tools of distance education and those uses in the present day. The AIM Project, while existing decades before the widespread implementation of the internet, served as an important piece of research for understanding how different delivery systems could be used for higher education purposes and student learning.

The Rise of the Information Superhighway

One of the main hallmarks of distance education has always been the transfer of information in an efficient and meaningful way from instructor to learner. Indeed, even the early days of distance learning held true to the concept of information transfer using the technology available at the time; whether that technology was postal mail, radio, or television, a way was found to commandeer and repurpose it for education. Corey (2008) stated that the first true distance education in America was conceptualized and implemented in the 1800s; therefore, it can be said that the education community has a habit of identifying and utilizing technology of the day to create more efficient and widespread access to education. It is interesting that education is often on the crest of these technological waves, and it gives credence to the argument that education has and continues to be at the forefront of innovation in both America and the world at large.

The Oxford English Dictionary (2021), in its definition of the information superhighway, cites a 1983 *Newsweek* article that described how the major metropolitan hubs of Boston, New York, Philadelphia, and Washington D.C. would be interconnected with hundreds of miles of fiber optic cables to create instantaneous sending and receiving of information for a variety of industries (Oxford English Dictionary, 2021). This information superhighway continued to be discussed without great consequence throughout the rest of the decade, giving rise to the question of not only what it was, but also what it would mean for virtually every information-based industry. The concept of an interconnected network that could reach millions of people all over the globe certainly had the attention of educators and tech enthusiasts alike. By the early 1990s, the information superhighway had reached a much more established premise and was being put in the spotlight in the technology community. The "information superhighway" colloquialism had even been given an official moniker: the National Information Infrastructure, or NII (Deal III, 1994). Many uncertainties regarding this National Information Infrastructure arose, revolving mainly around scope, cost, and questions of censorship and intellectual property. However, by 1991 the average household was at least aware of the concept of the information superhighway and its more tangible version, the internet (Vincenzes et al., 2019). By 1993, the application to education was easy for even the least experienced technologist to see; the NII information superhighway would have the capability to "combine voice, data, and video signals for interactive simultaneous transparent operation" (Deal III, 1994, p. 45). One could easily imagine the possibilities with this magnitude of information exchange, and it was not long before higher education implemented it as well.

Early Online Education and the First Online University

By the early 1990s, early adopters had started utilizing the internet for various information-sharing functions. Educators were a part of this group. One of these was a man by the name of Glenn R. Jones. Jones was a cable television executive who, by the 1990s, was notable for several reasons; one of these was the creation of the first basic cable television network devoted entirely to interactive distance learning, known as Mind Extension University, or ME/U (Gorski, 1994). Jones was no stranger to distance learning and was one of the first to identify the internet as the next technological modality for delivery of educational content; thus, in 1993, Jones International University was created and became the first completely online university in the world (Vincenzes et al., 2019). Students were able to pursue undergraduate programs in business communication, information technology, and business administration, as well as graduate programs in business communication, business administration, and education (the latter two including several specializations in English, Spanish, and different grade levels) (United States Department of Education, 2007). Each of these degrees could be taken via the internet without ever taking an on-campus class, even though the school had a physical administrative base in Centennial, Colorado. Although the school was established in 1993, it was not until March 5, 1999, that the North Central Association of Colleges and Schools gave Jones International University full accreditation; this was based primarily on the fact that it met the rigorous criteria for accreditation and also solved a growing issue for students who desired to attend a higher education institution but for whom traditional options were not workable (Helfer, 1999).

One of the most remarkable things about Jones International University was its electronic library; this is due in large part to the historical prevalence of the campus library as *the* place to go for study resources, study space, and resources. In 1993, the concept of a fully electronic library was groundbreaking. The advisory board for Jones International University made the electronic library one of its top priorities during early planning stages; according to Helfer (1999), the board made "a strong commitment to developing an electronic library that would support the activities of a campus-based academic library and promote information literacy as a means of supporting lifelong learning" (p. 62). In essence, the Jones International University e-library sought to provide the same information resources to students that an on-campus physical library would while also helping to train online students in the practice of utilizing an online information hub, not only in the pursuance of their degrees at Jones but also to help hone their virtual information resource literacy for the future. Jones International University had a vision for the future of distance education and wanted its students to be able to take the skills they learned there with them into future careers in business and education.

Online Education in the early 21st Century

Jones International University was an early adopter of online education, but it would not be the last, and the prevalence of online coursework spread like wildfire over the rest of the decade. Only a few years later, during the 1997-1998 school year, over 1.4 million students were enrolled in internet-based distance education classes in the United States alone (Shea & Lewis, 2001). It became clear that this was a very cost-efficient way of enrolling students with a university while not necessarily needing to provide the same benefits and on-ground resources that a traditional student might need, such as room and

board. Tucker (2001) conducted a study in which distance education students and traditional students were compared on achievement test scores, finding that distance education students scored 5 to 10 points higher than traditional students on average (Georgiou, 2018). By 2002, 1.6 million students were reportedly enrolled in some form of online education; three years later, in 2005, that number had tripled and continued to increase 17% annually, as of 2011 (Perry & Pilati, 2011).

The growth during the early 2000s was notable and outshone only by the growth displayed in the years immediately following it. The U.S. Department of Education (2014) published a study from 2012 that found that 21,147,055 students were enrolled in some type of distance education; it should be noted that this does not exclusively include online education and can also include other modalities, such as correspondence courses (Vincenzes et al., 2019). However, the decline of other modalities in the face of the rise of the internet suggests that, of these 21 million, very few would be involved in distance education that does not involve the internet in some way. The Department of Education study suggests that the popularity of online education between 2005 and 2007 skyrocketed. Interestingly, one major technological innovation also happened in this timeframe that may have a correlation. This technology was the modern smartphone. The smartphone was new in 2007 and it caught on quickly because it was essentially a computer in one's pocket. The smartphone initially represented a small sector of the mobile market; by 2012, smartphones represented a majority of the phones available on the consumer market, becoming clear that it was a popular technological development (Martini et al., 2016).

Recent Trends in Online Education

Online education truly came into its own in the first decade of the 21st century. A direct result of this shift was the amount of access available to a larger portion of the learner population. Richard Levin, a former president of Yale, was quoted in 2014 as saying, “in 10 or 20 years, when we judge the great universities, it will not just be on their research but on the reach of their teaching” (as cited in Kentnor, 2015, p. 30). This thought has been echoed by others, such as John Landis (2020), mentioned later in this chapter; online opportunities for learning, coupled with technological advances, have the potential to reach virtually any person in the world. In addition, Allen and Seaman (2011) reported that 65% of higher education institutions stated that online learning was a critical component in their long-term strategic plans (Allen & Seaman, 2011).

Fındık-Coşkunçay et al. (2018) conducted a study that identified several different factors in learning management system engagement; some of these were perceived usefulness and ease-of-use, enjoyment and satisfaction, subjective norm, and interactivity and control (Fındık-Coşkunçay et al., 2018). One of the most significant findings was a positive relationship between perceived usefulness and ease-of-use. Fındık-Coşkunçay et al. (2018) found that perceived ease-of-use had a large impact on perceived usefulness, primarily suggesting that if students consider a learning management system easy to use, they will also consider e-learning a more useful venture in their academic life (Fındık-Coşkunçay et al., 2018). One can see a clear connection between this finding and the aforementioned concept of smartphone usage with online learning and learning management systems. Inclusion of e-learning access on smartphones was not solely an evolution in accessibility during the last decade; it was also an advance in engagement as

well. Creating an engaging, intuitive platform in the form of smartphone apps directly implements Fındık-Coşkunçay et al.'s (2018) empirical finding that ease-of-use increases buy–in from students to e-learning in general. The intuitive design approach has built increasingly on itself, with newer iterations seeking to streamline the flow of student interaction in learning management systems in order to further improve ease of use and accessibility and, as a result, belief in the effectiveness of e-learning.

Online Learning Today: Poly-teaching, Video Games, and Nonlinear Design.

The rise in learning management system engagement has underscored another push in online learning; the concept of self-directed and peer-based learning. This engagement is not solely delegated to the hardware side of the issue (such as the access afforded to smartphones in recent years), but also to the "soft" side in terms of actual content, delivery, and learner engagement/interaction. Online education, especially in higher education, is seeing the role of the instructor go from centerpiece to facilitator. This notion of the formal instructor as facilitator gives credence to a still-evolving yet increasingly prevalent concept known as poly-teaching. According to Borba et al. (2018), poly-teaching refers primarily to the various roles that have a hand in an online/distance learning course's life-cycle; this can vary from institution to institution, but typically includes the instructor of the course (who may have a different sub-role depending on the course/school), and other members of the design cycle such as instructional designers (who help to design the structure and objectives of the course before students interact with it), face-to-face tutors (who meet with students as support staff to help assess and overcome and difficulties the student may be having with the course), and members of a multi-disciplinary team (these can include media experts, IT professionals, and others

who may have specific expertise in one or more areas of the online course being taught that can assist if needed) (Borba et al., 2018).

According to Mill (2010), teaching in distance education is fragmented; this is clear from the concept of poly-teaching which, although not always labeled as such, is very common in online asynchronous courses. Mill (2010) also stated however, that poly-teaching can include more subjects than just those in faculty and staff capacities; it can include students assuming the role of poly-teacher through their use of digital technologies (Mill, 2010). Almeida (2016) explained that courses in which collaborative interaction is encouraged by teachers and built into the course by designers are ripe for students to act as poly-teachers in the virtual environment (Almeida, 2016).

Poly-teaching is a peer-learning approach that points to a larger trend of student-led and student-directed learning with instructors facilitating that learning (Mill, 2010). This trend is becoming the meta for online courses, particularly at the graduate level in which peer-interaction is built in. The open-concept classroom takes less-linear approach to higher education learning. Distance education has been discussed and examined at length in this chapter; one of the deeper implications however, of a more widespread distance education trend, is a gradual departure from traditional approaches to teaching and learning in favor of a more open approach. An apt comparison for this concept is to look to the world of role-playing video games. In a role-playing game, players assume the identity of a character of their creation that typically has a mission or a world to explore. Early titles in this genre tended to favor a linear approach; the player's character would "spawn" (or start) at a given beginning point in a world or level. The player would then play through a pre-defined path, completing objectives along the way. Towards the end

of the level, a player would often be subjected to some sort of final test or challenge, often in the form of a "boss" enemy that the player had to defeat or overcome in some way. Once this final challenge had been completed, the level was then over. However, another style of game that is more open-world existed as well; although it did include some linear aspects, the overarching direction was up to the player, who could go anywhere, do anything, and, true to the term, build their own "sandcastles."

One can clearly see the parallels between open-world video game design and online asynchronous courses that depart from the traditional class structure. The linear approach that previous game designers used as the standard can be equated to the traditional classroom setting that, with some exceptions, was the main higher education standard for decades. It is somewhat understandable to see why; for years no virtual space existed, and distance education, while growing, was never able to garner the same popularity that the physical classroom was. Students and instructors meeting synchronously in a campus classroom space had little wiggle room to explore unconventional approaches to teaching and learning outside of some classroom technologies. However, different approaches are becoming more and more tangible, especially in the nonlinear environment. A 2021 study sought to look at video game design tactics and how they could be applied to online courses. McDaniel and Telep (2021) discovered that one main tactic that was useful for teaching technical communication in hybrid and online courses was nonlinear association for creative thinking. The study found that allowing students to think outside of a linear education path was critical to fostering a sense of creativity in their individual approaches to their learning as students. Here can be seen a clear link between the growing nonlinear trend in

game design and the benefit of applying the same approach to online course design. This approach is still relatively recent. It can be speculated that the growth in popularity of video games is becoming a factor in how many people interact intuitively with technology. As of 2014, there were reportedly 1.82 billion video gamers in some form or other; the same report expected the number to rise to well over two billion by 2021 (Shliakhovchuk & Munoz Garcia, 2020). People who regularly play video games may very well be familiar with the feel of an open-world concept and have experience with allowing their creativity to direct them. It stands to reason that they would then utilize this same approach in a nonlinear course. A nonlinear course may have some differences that are inherent to the fact that it is not a video game and is, instead, an educational class. These may include things like assignments and assessments that must be turned in for credit; failure to turn them in could result in failing the class rather than just failing the game. However, the drive to complete these can be seen as an objective similar to a video game and present a similar reward structure for students that they may be familiar with. Use of technology can keep these assignments interesting and open to fostering a creative approach for students, similar to how an open-world sandbox game allows players creative input in how they play. Other similarities exist, but one experimental approach that is slowly but surely rising in popularity is what is known as a massive open online course.

MOOCs and Beyond

Massive-multiplayer online role-playing games, or MMORPGs, can be equated in a similar vein to open-world RPGs and nonlinear course structure. These MMORPGs (known colloquially as “MMOs” for short) allow thousands of players to log in at any

time and play in one single shared world (Oxford English Dictionary, 2021). Online learning has begun developing an MMO of its own in some respects, one that stands on its own merits of openness and mass accessibility. Massive open online courses, or MOOCs, are online courses that are developed and exist in a virtual environment for learners in all fields; their main focus is on the expansion of knowledge, skills, and perspectives (Zidova, 2020). The difference between an MOOC and a normal online learning course is found mainly in the number of learners MOOCs seek to reach and the level of open-source a MOOC utilizes. If a normal online asynchronous course can be considered nonlinear, then an MOOC, by comparison, would practically be freeform. However, the difference comes not necessarily from the structure of the content, but rather from the decentralized nature of instruction. MOOCs typically enroll several hundred or more learners at a time, and there are variations in how instruction and knowledge are disseminated. According to Wirapong et al. (2021), one of the first recognized MOOCs to be open to learners came about in 2008; the course was created and distributed by George Siemens and Stephen Downes, enrolled some 2200 learners, and was focused on the theory of connectivism and connective knowledge (Wirapong et al., 2021). Connectivism will be explored later in this chapter.

The concept of an MOOC was still new, innovative, and somewhat obscure in 2008; realistically, MOOCs have the potential to reach even greater numbers of learners. This notion has come to fruition between 2008 and the present day on the grounds that advancement of web technologies and data processing had made it possible to share information with an even greater number of learners and potential learners. In addition, media can be accessed and shared from a great many online sources, making it possible

for MOOCs to draw upon a vast wealth of content for learners to access. Still, it must be noted that MOOCs were quick to receive attention for the innovativeness attached to their design and implementation, with the *New York Times* designating 2012 as the year of the MOOC (Chauhan, 2014). In 2013, two variations of the original MOOC structure were devised, known as cMOOCs and xMOOCs (Wirapong et al., 2021). The first of these, cMOOCs, were a true freeform approach in that they allowed students enrolled in the MOOC to choose which skills and concepts they wished to learn, with each of these skills and concepts being introduced and imparted to the student *by* another student; in essence, the learners in cMOOC played the role of both student and source of information (Wirapong et al., 2021). This variation was, and is still, experimental but was a significant step in building a foundational base for creating and implementing more open-ended online courses in the future. A second spin-off of the original MOOC design was known as the xMOOC. The xMOOC approach focused on online learning resources, such as recorded lectures, automated feedback, and other digital media, being shared in a one-way direction on a single platform (Wirapong et al., 2021). This variation did not focus on open-source sharing of information and content, but rather a hyper-linear approach in which the instructor disseminated all knowledge to learners, making it something of a contrast to cMOOCs. Still, the xMOOC employed an uncomplicated, straightforward approach that could fulfill the main goal of reaching large numbers of learners in a relatively simplistic fashion. One of the most interesting points of the Wirapong et al. study (2021) was the research conducted between 2015 and 2020, as the study focused on MOOC literature written about MOOC studies between those years; one of the main discoveries was that the keyword “gamification” was the most prevalent among the

studies that were examined (Wirapong et al., 2021). This implies that a large focus of MOOC research and initiatives in recent years has been on gamifying courses, a growing trend in online education overall. Furthermore, one can see another link between the aforementioned example of massive multiplayer online role-playing games and massive open online courses. Both utilize their large user base ("players" in MMOs, "learners" in MOOCs) as a main advantage of their design, seeking to reach the largest amount of people possible. MOOCs continue to grow and evolve, with top-tier institutions, such as Harvard and MIT developing their own MOOC courses (Wirapong et al., 2021).

The "tomorrow" of online learning may bring about even more up-ending of the traditional system in favor of a more accessible and fluid approach. The 2010s saw the beginnings of a shift from a linear, traditional course progression, to one that is gradually including more ideas of a nonlinear, self-directed approach. The instructor/teacher as the fountain of knowledge has also started to give way in some areas to a more facilitative role. This effort gives students free-form control over their learning to some degree, and certainly has the potential to be built upon in the future; this concept is referred to as self-directed or self-regulated learning. Du et al. (2021) found that using recommendation-based systems had a positive impact on promoting self-regulated learning in students. Their results indicated that a majority of participants had a positive attitude towards recommendations for self-regulation; although this would be considered a baby step towards a fully free-form style class, it is still a measure of progress. Increased flexibility and accessibility give an institution the ability to reach a larger base of prospective students. Single parents, full-time professionals, and others can benefit from self-regulated learning approaches. The technological advances that will be made are also

unpredictable, as is the utilization that education professionals may find in applying them to online learning. In online education's inception, few would have been able to fathom the vast reach that it would one day have; interconnectedness was a large selling point even then, but creation of platforms and content that are as engaging as the traditional classroom was a far reach at the time. Furthermore, world events, such as the COVID-19 pandemic had extremely lasting impacts on the world of online learning. Similar events may occur in the near future, once again spurring online education and associated technologies forward.

The Beginnings of Online Learner Readiness Research

Between 1998 and 2011, online learning readiness measurement was researched by several individuals, and it is important to note the various approaches taken towards the measurement of online learning readiness. Wei and Chou (2020) provided an informative analysis of the various online learning readiness studies that have been conducted and how they have been impactful. Wei and Chou (2020) posited that the concept of readiness for online learning as a subject of study first arose in 1998 from Warner and Choy (2020) in their empirical study titled "The Readiness of VET Clients for Flexible Delivery Including Online Learning." Multiple studies conducted in the immediate years that followed built upon the foundation laid by Warner and Choy (2020). In 2000, McVay developed a 13-item instrument that was designed as an orientation tool for measuring learner readiness in an online distance course; McVay's instrument would prove to be a major stepping stone for future research into online learning readiness (as cited in Wei & Chou, 2020). Smith et al. (2003) sought to build upon McVay's work by utilizing his instrument, finding that there were two main factors

to consider with online learner readiness: the level of self-direction that a learner possessed, as well as the learner's comfortability with the learning tools and resources available in a given learning sequence (as cited in Wei & Chou, 2020). The immediate focus on the measurement of learner readiness marked a clear focus on the importance of student preparedness to undertake online asynchronous schooling. One of the main reasons for this was online learning's clear difference from traditional on-ground classwork; the challenges present in the online-asynchronous arena differed considerably from traditional learning. This notion was clearly present in the Smith et al. (2003), as they named self-direction as being one of the two main factors in online learner readiness, chiefly due to the fact that the asynchronous style provided a deadline for the student and trusted them to be self-disciplined enough to do the coursework, reading, and application themselves. Furthermore, Smith et al. (2003) posited that McVay's work, being only 13 questions and taking roughly 5 to 10 minutes to complete, paved the way for further research. McVay's 13-item questionnaire proved to be a springboard for yet another study: Bernard et al. (2004) developed an extensive, 38-item instrument (that included McVay's original 13) aimed specifically at measuring readiness for online learning achievement (as cited in Wei & Chou, 2020). The results of the Bernard et al. (2004) study indicated a four-factor solution; these factors included general beliefs about distance education, confidence in prerequisite skills, self-direction and initiative and desire for interaction (Bernard et al., 2004). Self-direction made yet another appearance here as a major contributing factor to readiness for online learning.

A Focus-Shift to Technological Literacy

The early 2000s saw enormous leaps forward in technology. The rise of the internet in the 1990s clearly contributed to online learning, as innovators were quick to recognize the applicability of the world wide web to the realm of distance learning. Accessibility of technology also rose dramatically around the world, with the prevalence of laptop computers becoming more commonplace in education, as well as mobile devices, such as smartphones, breaking onto the scene. Dray et al. (2011) sought to validate and refine their instrument for measuring online learner readiness. The study they conducted resulted in a better definition of what "ready" meant in several areas relative to education technology: these areas were learner characteristics, digital divide, and information and communications technology (Dray et al., 2011). Wei and Chou (2020) remarked on the various practical applications of the Dray et al. study as well, such as users' ability to use technological applications while also measuring their beliefs, values, comfort, and confidence with technologies used in education.

The digital divide refers to a gap of accessibility to technology for educational purposes. An example of this would be those who have computers versus those who do not or those who may possess the hardware but do not have readily available internet access versus those who do. Dray et al. (2011) cited a 2003 study conducted by Chelus entitled, "Access, Assessment, and Bandwidth: High Speed Internet and Distance Education," in which the success of online asynchronous students was measured, based on their internet speeds for logging on and doing coursework. This study, utilizing the knowledge gap theory, found that students with higher internet speeds participated more in class and achieved higher grades (Dray et al., 2011). Although the context of high

bandwidth in 2003 is less applicable to the online world of 2021, it is certainly not irrelevant; many areas of the United States (and the world) experience poor connectivity to online services, whether it be geographically, economically, or both. Chelus's study gave a tangible example of how the digital divide coined in the Dray et al. (2011) study directly affects success in online learning and therefore can and should be a criterion for assessing online learning readiness.

Social Competencies and Online Learning Readiness

Several studies have shifted gears from a technological viewpoint to one that measures some of the more intrinsic aspects of online learner readiness. Rather than focusing on the type of hardware, these studies tend to focus on the types of motivation and self-direction that learners have and how they relate to the readiness for online learning.

Khalid and Zainuddin (2020) conducted a study in Malaysia that sought to explore the use of gamified learning objects in relation to situational motivation and online learner readiness. This study had great significance, as it used an instrument for measuring different types of motivation to see which appeared with more prevalence among participants in this context; it then compared the relationships between those motivations and the dimensions of the instrument they used for online learner readiness. The online learner readiness instrument for the Khalid and Zainuddin (2020) study, known as the SOLR scale (Student Online Learning Readiness scale), was a 20-item questionnaire that focused on four dimensions in online learning: social competencies with classmates, social competencies with lecturers, communication competencies, and technical competencies. Student motivation data were received using an instrument

separate from the SOLR, known as the Situational Motivation Scale, or SIMS. The study used a mixed methods approach, with both quantitative and qualitative data used as indicators of how motivation is associated with online learner readiness when using gamified learning objects; the quantitative aspect was administered using a Likert scale questionnaire and the qualitative data were gleaned via an open-ended questionnaire.

The data gathered by Khalid and Zainuddin (2020) were interesting in the scope of online learner readiness, but also in the larger context of using gamified learning objects. The results indicated that, of the motivation-measuring criterion utilizing the SIMS instrument, students had higher levels of intrinsic motivation and identified motivation; loosely defined, intrinsic motivation refers to the desire to complete a task, based on one's own will and interest, while identified motivation refers to desire to complete a task as a means to an end and not for the task itself (Khalid & Zainuddin, 2020). The results of the SOLR instrument revealed that participants had high social competencies with classmates, as well as technical competencies, with lower levels of social competencies with lecturers and communication competencies (Khalid & Zainuddin, 2020). This suggested a connection between learners that are drawn more also succeed more in online learning and a desire to interact with peers as a form of learning and ideation. The correlation between online learners and social competency with peers was an interesting discovery, considering online asynchronous learning tends to be inherently singular for the learner, as opposed to traditional classes where one is surrounded by classmates in constant interaction. One of the major challenges in online learning has always been to replicate the traditional classroom experience; this challenge is particularly prevalent in discussion-based learning, as discussion boards are the main

form of discourse between students and faculty in the asynchronous environment. However, the results of the SOLR instrument in the Khalid and Zainuddin (2020) study may suggest that online asynchronous students are either inherently or gradually becoming more prone to higher social competency with peers, which could signal a rising of the perceived discussion merit of online discussion boards.

The results of the SOLR instrument indicated high technical competencies among online students (Khalid & Zainuddin, 2020). The notion that students' social competency with classmates was high, but that the social competency with lecturers was low, indicated that the online learning space is more oriented toward peers than instructor. The results of the SIMS instrument were related to the results of the SOLR instrument in the scope of self-motivated learning. The higher mean in intrinsic and identified motivation gave credence to the idea that online asynchronous learners utilized self-direction to a considerable degree; their intrinsic motivation was much more prevalent, as there was not a specified class meeting time or instructor to proverbially look-over-their-shoulder. The Khalid and Zainuddin (2020) study also correlated the results of the two instruments and found that students grouped by high levels of intrinsic and identified motivation also scored higher in the SOLR; the result suggested that groups with high autonomous motivation also tended to be more ready to undertake online asynchronous learning (Khalid & Zainuddin, 2020).

The SOLR instrument was an important contribution to the main body of empirical work on online learning readiness. Yu and Richardson (2015) published an analysis of the SOLR instrument that sought to develop an effective online learning readiness instrument that had reliable predictors of factors that may affect online learning

success to include learning outcomes and learning satisfaction. The main focus, as echoed in the Khalid and Zainuddin (2020) study, was on social, technical, and communication competencies; of the four factors, which were all judged reliable using Cronbach's alpha and all achieving above a 0.8, two focused on social competencies while one focused on technical and the final on communication (Yu & Richardson, 2015).

The SOLR instrument's social competency factors were social competencies with students and social competencies with lecturers; these were based on research conducted by Tinto (1975), who posited that social influences were a major factor in the retention of higher education students, among others, such as academic and financial factors. Yu and Richardson (2015) appropriated the concept of social competencies as influences from Tinto's (1975) study and utilized them as dimensions for measuring online learner readiness in their SOLR instrument, finding connections between social competencies and motivation in online learners.

The OLRQ does not focus primarily on social competencies; rather, the approach is more on the learner as an individual. One could say it focuses on the technical aspects of individual asynchronous learning, such as self-direction, planning skills, self-discipline in studying, computer usage, and technical hardware competency. However, the second section contains two items that do pertain to social influences somewhat; one having to do with comfortability of group work and one having to do with online communication in the form of emails and online discussions. The bottom line for comparison is that the OLRQ focuses more on the individual's intrinsic predisposition to undertaking online learning and online learning success, whereas the SOLR focuses more on motivations

and social competencies, although it should be noted that they share some overlap in the areas of technical and communication competencies (Yu & Richardson, 2015).

Considering Teacher Readiness in Relation to Student Readiness

The concept of teacher readiness for online teaching is a concept that can be related and useful in the study of online learner readiness. The onset of the COVID-19 pandemic caused concern in higher education institutions throughout the world, as courses that had never been taught outside of the physical classroom were suddenly thrust into the virtual or online asynchronous spaces. Worse yet, many faculty who had never taught in these formats were also forced to transition to them practically overnight. Scherer et al. (2021) sought to empirically measure online readiness for teachers rather than students and used COVID-19 as the context for measuring this readiness. Scherer et al. (2021) referred to the concept of faculty members moving from the traditional classroom to the online setting as Online Teaching and Learning (OTL); it should be noted that this study did not refer exclusively to asynchronous online learning but rather virtual and asynchronous online learning, all falling under the OTL umbrella. Results and analysis of this study must therefore be taken with a small grain of salt when put into the context of online asynchronous learner readiness, as the OLRQ being used in this study measures asynchronous, not virtual, learner readiness. Despite these differences, the measurement of readiness in Scherer et al. (2021) is still relevant. The study explained the approach to readiness as, “Readiness is explored in relation to teachers’ perceptions of their own confidence to teach in an online space (“personal readiness”) and their perceptions of how well their institution is prepared to support OTL (“contextual readiness”) (Scherer et al., 2021, p. 2). Scherer et al. (2021) mentioned (in the

aforementioned quote) that personal readiness, described as how a given teacher felt about their level of preparedness and confidence to teach online, was measured. Items that appear in the OLRQ asked for similar conceptions from the participant regarding their belief in their own ability to carry out the necessary functions of online asynchronous class participation and self-directed learning, primarily in the third set of items, which focused on measuring the participant's confidence in completing work in a timely manner, focusing, and seeking assistance when needed.

One of the other interesting similarities that Scherer et al. (2021) shares with the OLRQ instrument study is the collection and utilization of demographic data, specifically in the areas of gender and prior experience with online learning. The Scherer et al. (2021) study grouped participants into three profiles, categorized as low readiness (profile 1), inconsistent readiness (profile 2), and high readiness (profile 3) (Scherer et al., 2021).

A difference between the OLRQ and the Scherer et al. (2021) study is that the Scherer et al. (2021) study was conducted on an international scale; indeed, none of the researchers were American and very little of the demographic population was even from North America. The OLRQ for the purpose of this study is being looked at in an American context. The gender demographic data showed that the high readiness profile in Scherer at al. (2021) contained nearly twice as many women as men; it should be noted that all the profiles contained more women than men, however the gap in this profile is much more dramatic than in the low readiness and inconsistent readiness profiles (Scherer at al., 2021). Another observation was the correlation between those who had prior online teaching experience and those who did not; the high readiness profile also contained the majority of those with prior online teaching experience at nearly twice the

percent of the profiles for low readiness and inconsistent readiness, respectively (Scherer et al., 2021). Conclusions that may be drawn from just these two demographic indicators could be both explanatory in future research, as well as in online readiness. The data also suggested a clear advantage to those who had taught an online course before, over those who had not. While this is a speculation that may seem obvious, it also suggests somewhat deeper implications, the main one being that there was a clear learning gap for faculty who have never taught an online course. The existence of this gap may also suggest that there is an empirically measurable readiness gap for students who have never taken an online course and students who have. This learning gap means that simply thrusting faculty into the world of online teaching without meaningful training is difficult, as was the case during the COVID-19 pandemic. The data from Scherer et al. (2021) showed that faculty could not simply intuit their way from the physical classroom to the virtual and/or asynchronous, at least not in every case; the same may be said for students, as well.

Online Learning Readiness, Structure, and Interaction

The concept of interaction among online students has been touched on briefly in this chapter, primarily as it pertains to the OLRQ. Indeed, the OLRQ, as previously mentioned, focuses on the individual capability of a learner to succeed in the online asynchronous environment by measuring their capabilities for self-directed learning in the areas of self-direction, planning skills, self-discipline in studying, computer usage, and technical hardware competency. These skills are all crucial to successful asynchronous learning; by its very definition, this type of learning takes place outside of any real time conjunction with others, further underscoring the importance of self-

direction for success. However, discussion sections can be found in many online asynchronous courses. This area has often been touted as the alternative to the classroom discussion. Naturally, the discussion board that can be found in nearly every online asynchronous course requires participation from the entire group, students and instructor. This area seems relatively straightforward, and requirements set by instructors for class participation in this section are usually not terribly dissimilar from other online courses the student may have taken.

Those with little to no experience in the online learning space may find participating in discussion board discussions to prove difficult. The hallmark of this interaction is the asynchronous style; rather than a live discussion where two people are there in front of one another, asking and answering; this asynchronous call and response may take place hours, or even days, apart. Challenges arise in this format, such as lack of recognizable tone, inflection, or even simply forgetting to respond, just to name a few. It is because of these unique challenges that online learner readiness has been utilized to analyze a learner's potential for success in a format of interaction with classmates that they may not have been exposed to before. The reasons for this are numerous. One of the largest ones is the compounding effect that frequent enrollment in online classes can have on the quality of discussion participation for students. A student who finds themself in an online discussion section but does not know how to provide meaningful insight into the material or respond thoughtfully to classmates may not even realize their shortcoming in this area. This same student will most likely go on to other online courses. As of 2015, 15% of online students earned that degree entirely online, with 25% of students in associate degree programs having taken at least one class online (Luscinski, 2017). The

high number of exclusively-online students in the current age, coupled with the rising number of students who are taking at least one online course points to the notion that this unaddressed deficiency in discussion board participation may never be fixed for these students.

Connectivity is in a similar vein to the concept of interaction among online students as it pertains to online learning readiness. One may recall the mention of connectivism earlier in this chapter, with its relation to the first massive open online course in 2008. This area falls more into the theoretical realm as opposed to a practical, observable instance. Connectivity does, however, still relate to the overall concept of online learner readiness, as it attempts to provide one theoretical foundation for the use of technology as a type of external learning. Carreño (2014) discussed in depth the paradigms surrounding learning, both traditional and asynchronous, while also positing the prevalence of connectivity theory as a basis for how online students interact with the technologies at play. It should be noted however, that "connectivity theory" is something of a misnomer; for the purposes of this work, it can serve as a placeholder for the concept, but Carreño (2014) makes note of the difficulty in coining connectivity a bona fide "theory." Carreño (2014) stated that it was not strictly relevant to define connectivity (in the context of the work) as a model or theoretical framework; this was because, as its implications and functionalities were where its true usefulness lay, it was an epistemological approach that focused mainly on the interactions within networks of online learning.

Carreño (2014) used three established learning theories as something of a backdrop for comparing connectivity theory: behavioral theory, cognitive theory, and

constructivist theory, with social constructivist theory being alluded to on multiple occasions. Comparisons were drawn between these three theories and connectivity theory, focusing primarily on areas, such as how learning occurs and what it was influenced by the role of memory and how transfer occurred, and the types of learning that each theory was best able to explain. Learning occurs in connectivity theory via a technologically enhanced and socialized network; Carreño (2014) quoted an explanation of this concept by Siemens (2005), "Experience has long been considered the best teacher of knowledge. Since we cannot experience everything, other people's experiences, and hence other people, become the surrogate for knowledge. 'I store my knowledge in my friends' is an axiom for collecting knowledge through collecting people" (Carreño, 2014, p. 112; Siemens, 2005). The quote essentially described the social aspect of external learning in that a network of others' experience is crucial to the learner, as the learner can then use the lived experience of others in this network to build off of in the learning process. The relation of the connectivist socialized networking strategy to online learner readiness underlines yet another need for measuring the readiness of leaders. Students may not be able to readily identify that they store some portion of experience-based knowledge in others. If a learner is unable to understand the value of this social aspect of learning, they may not utilize the experience of others to its highest degree, much of which is displayed in discussion boards, as many include some level of personal reflection and recalling of personal experiences, which can help others learn, as in the George Siemens (2005) quote. However, when a learner does not recognize the value of this external learning, it may not resonate within them to engage with it as much as it would if they were aware of it.

The network of technology as an external source of learning is somewhat more abstract than that of the socialized network. One can visualize a network of peers, classmates, and even student-instructor relationships in which an individual learner gleans information and experience from. The technology network is presented by Carreño (2014) as something that functions inherently similar to a socialized one; this is true to some extent, but the technology-based network for external learning requires a deeper understanding of how technology plays the role of network node in the online asynchronous environment. Dr. John Landis (2020) is Education Development Manager for Apple University, the main training division of Apple Inc. A seminar Landis (2020) gave for Lindenwood University was titled, "The Future of Learning, Today;" in this seminar, he discussed his own approach to learning technology, Apple's approach to learning technology, and the relationship learners can, do, and should have with established and emerging learning technologies. Three of the main tenets that were described are very helpful in illustrating the technology network described by Carreño (2014); in these three concepts, the technology network can resonate more dynamically. Connection, as explained by Landis (2020), means learners have equitable access to quality content anytime, anywhere. Collaboration means that learners form relationships to build understanding and contribute to our world (Landis, 2020). Creativity means that learners discover their potential through inquiry and discovery; engagement improves retention. (Landis, 2020).

The connection aspect holds that learners should have equitable access to quality content anytime and anywhere; this content is both a product of technology as well as a way of teaching about it. Learners can access this external repository of knowledge at

their will, forming a solid foundation for a network of interconnected technologies. The relationship between this tenet of connection and online learner readiness should not be ignored either. Instruments that measure online learner readiness seek the learner's base knowledge of many areas, one of them typically being technology, which can vary in its sophistication and depth. However, learners must know not only how to use technology, but also how to utilize it to its fullest potential in order to access the quality content experience that Landis (2020) described.

A more in-depth look at the socialized network is crucial to understanding its role in the overall concept of online learning readiness. One way of looking at the socialized network is through interaction. The idea of interaction as a measuring stick for the socialized network discussed in Carreño (2014) functions practically in that individuals must interact with each other in the online asynchronous learning environment in order for a socialized network to exist at all. Kaymak and Horzum (2013) helped to further explain the interaction piece of socialized networks. The study focused mainly on the concepts of interaction and online course structure; both served as dependent variables in the study and were measured using the Perception Scale for Online Courses instrument (Kaymak & Horzum, 2013). The research goals of the study were to determine whether or not readiness levels of online learning students were significant predictors of perceived structure and perceived interaction of students of online learning (Kaymak & Horzum, 2013). The importance of the scope of this study in relation to socialized networks was underlined by the focus on perceptions of students in terms of interaction and online learner readiness. This study did not use a learner readiness instrument similar in nature

to the SOLR or OLRQ, but instead focused on student perception of how interaction and structure affected readiness.

The results of the Kaymak and Horzum (2013) study yielded interesting and useful results. Relationships found between aspects of the study indicated insightful correlations between online learner readiness and various perceptions of students. The results indicated that an increase in learner readiness correlated with a decrease in perception of structure, and vice versa. This can be viewed as an indicator that those who display a higher level of readiness for online learning may depend upon the structure of the online course less, and those with a lower level of readiness rely on the structure of course design more. One possible reason for this could be that those with a higher readiness to participate in online learning have an inherent intuition of how to navigate and utilize course content over those with lower readiness.

Perhaps the most notable finding was between readiness for online learning and student perception of interaction within online learning, for which there was a positive and significant relationship (Kaymak & Horzum, 2013). Equal in importance to this finding is its negative; there was a negative and significant relationship found between structure and online learner readiness/interaction (Kaymak & Horzum, 2013). These positive and negative relationships suggest a few things; first, that an increase in interaction leads to a decrease in structure. Put another way, when online students interact more with each other, instructors, and even content, the need for structure, as does the student perception of structure. The reason for this decrease is that online asynchronous students are able to absorb learning and knowledge through interactions with other members of the online course (Kaymak & Horzum, 2013). The structure of the online

course begins to play less and less of a prevalent role when this happens. Interaction in this format is a living example of the socialized network in action.

Kaymak and Horzum (2013) found that self-directed learning and student control, defined as the ability to take responsibility and manage one's own online learning process, were important variables in online learning readiness. Self-efficacy for internet and intrinsic learning motivations, mentioned also in Khalid and Zainuddin (2020), were also found to be important (Kaymak & Horzum, 2013). The connection these findings have to interaction brings both the socialized network and the network of technology into a symbiosis. Although interactions between online students and each other, as well as online students and instructors were significant, the Kaymak and Horzum (2013) examined and found that interaction with content stood out the most, explaining that interaction with content allowed learners to get information from relevant materials (Kaymak & Horzum, 2013). This discovery shed light on the previously discussed idea of external learning through a network of technology. Students in the Kaymak and Horzum (2013) study were found to have the most meaningful interaction with the content in the course, utilizing it as a network node for learning and information. The resulting connection to be drawn from this is that online asynchronous student interaction is extensive both between other members of the online course (the socialized network) as well as with the content and technology itself (the technology network).

COVID-19 and Online Learner Readiness: A New Normal

One of the most challenging aspects of any empirically researched topic is the introduction of a timeline event so major that it fundamentally alters the landscape in which the topic is situated. The onset of the COVID-19 pandemic was that event for the

topic of online learning readiness and, in a broader sense, online learning in general. The disease spread dangerously fast, and within a matter of weeks, vast numbers of students of all ages found themselves on the computer rather than in the classroom. Teachers found themselves having to relearn techniques they had been using for years in order to transition them from the online space to the virtual and, in many cases, online asynchronous space. March 2020 was the main timeframe for this frantic transition that will almost assuredly go down in education history. This work is being written in late 2021. The wound is still somewhat fresh, and the topic of online learning in the wake of the COVID-19 pandemic is still relatively new and untouched. The pandemic is still ongoing at the time of this writing, and it is unclear when an official "end" will be declared. This work references studies that have sought to produce empirical data regarding online learner readiness for this new era of online learning.

One such study by Tang et al. (2020) is titled, "Comparative analysis of student's live online learning readiness during the coronavirus (COVID-19) pandemic in the higher education section." The main goal of this study was to explore areas, such as learning motivation, learning readiness and student self-efficacy in participating in live online learning during the pandemic, while accounting for gender and degree level differences (Tang et al., 2020). Tang et al. (2020) focused on live online learning; this was meant to mean virtual learning in the sense that it was taking place in real time over video communication tools such as Zoom or Skype. Therefore, findings from this study must be taken within the context of the time of live online learning, as opposed to online asynchronous learning (of which the differences have been discussed in this chapter). The areas of the study focusing on online learning readiness do share overlap with areas of

online learning readiness for asynchronous learning though, primarily in the areas of technology readiness, communication, and self-direction in learning, including motivation and control. Tang et al. (2020) also bears an interesting connection to this doctoral study in that its two main demographic groups, gender and degree level, are also factors being used in conjunction with the OLRQ.

The findings of Tang et al. (2020) that are most relevant to the study this work is about are those pertaining to gender and degree level differences in terms of readiness for online learning. The results of this study found relatively small differences between male and female genders; males tended to have slightly higher technology readiness and self-directed learning averages, while females tended to be more motivated for learning (Tang et al., 2020). Tang et al. (2020) explains the motivation of females as being higher due to their possessing more enthusiasm for using communication and technological tools for learning (Tang et al., 2020; Ünal et al., 2014). Perhaps even more interesting are the mean differences in all five areas for different degree levels. Tang et al. (2020) measured technology readiness, learner control, online communication self-efficacy, self-directed learning, and motivation for learning; the commonalities between these areas and other learner readiness studies are quite clear. Of the three degree-levels measured (sub-degree, undergraduate, and post-graduate), post-graduates scored higher in every category by relatively high margins (Tang et al., 2020).

A possible explanation of the differences between postgraduate and undergraduate/sub-degree could be that post-graduate students possess a more robust and weathered academic persona, one that is adaptable to a variety of changes. Tang et al. (2020) posited that the main reason behind the statistically higher level of readiness of

post-graduate students was the expectation for this group simply being higher than the other two groups; post-graduates were ready and more willing to accept online learning than sub-degree or undergraduate students (Tang et al., 2020). Further study in this field may investigate the differences in course format and learning between post-graduate classes/students and those of the sub-degree and undergraduate groups, as there may be other factors present, aside from academic experience, that influenced a higher level of readiness among post-graduate students.

Summary

Distance education has come a long way from its humble beginnings, from mail-in courses to the current day with fully online degree programs. The age of the internet has revolutionized distance learning to the point of nearly universal access anywhere on the planet. Online education has become such a sophisticated form of learning that online learner readiness is steadily becoming a necessary metric for ensuring that prospective students have the tools needed for success. The field of online learner readiness has seen several empirical studies based both on the measurement of certain aspects of online learning readiness, as well as instruments designed specifically for this measurement. This study focuses on another of these instruments, the Online Learner Readiness Questionnaire. The literature reviewed in this chapter lays out a solid foundation for a mixture of quantitative and qualitative data gathering; past studies on online learner readiness have found that the two complement each other well, often helping to explain findings, as well as adding dimensions of insight in the case of any deficiencies. The OLRQ brings in many aspects of online education and, through instrument-generated

feedback, seeks to impress upon students the importance of both technological efficacy and self-efficacy for success in online asynchronous learning.

Chapter Three: Research Method and Design

Introduction

The focus of this study, and the pool from which participants are being drawn, was the Methods of Scientific Inquiry online asynchronous course at Oklahoma City University. This course, in keeping with the definition of an online asynchronous course, was one in which learning could occur in different times and spaces for each learner and did not take place in a traditional classroom. This study was mixed methods, including both a quantitative and qualitative instrument. The quantitative instrument, known as the Online Learner Readiness Questionnaire (OLRQ), was used to measure online learner readiness to undertake online asynchronous learning. The qualitative instrument utilized an end-of-course survey, asking open-ended questions regarding participant perception of how the OLRQ did or did not have an impact on their performance in the Methods of Scientific Inquiry online asynchronous course. This chapter will reiterate the study research questions and null hypothesis as well as explain in detail the methods of participant recruitment, how and where data were collected, the specifics of each instrument, and address issues of bias, validity, and reliability.

Research Questions and Null Hypotheses

Hypothesis 1 (H01): There is no difference in the averages of final grades of students who were given the Online Learner Readiness Questionnaire and received the instrument's feedback prior to starting the online course than students who were not given the Online Learner Readiness Questionnaire.

Hypothesis 2 (H02): There is no difference in the averages of final grades of students given the Online Learner Readiness Questionnaire, based on gender.

Hypothesis 3 (H03): There is no difference in the averages of final grades of students given the Online Learner Readiness Questionnaire, based on college-class level.

Hypothesis 4 (H04): There is no difference in the averages of final grades of students given the Online Learner Readiness Questionnaire, based on number of previous online courses taken.

Research Question 1 (RQ1): How did surveyed students perceive the OLRQ on their online learning?

Research Question 2 (RQ2): What patterns or themes emerged, based on student responses to the end-of-course survey?

Research Site

The research site was Oklahoma City University in Oklahoma City, Oklahoma. The study examined learner readiness for online asynchronous learning. Asynchronous learning has been previously defined in this work as: "Learning that can occur in different times and spaces for each learner; instructors generally facilitate a learning path that students engage in on an individual basis, as opposed to synchronous learning that takes place at the same time and place with groups of other students and the instructor" (Finol, 2020, p. 11). The main prerequisite of an online asynchronous course was that it takes place online; this online realm was usually (but not by definition) in the form of a learning management system, or LMS. This study was conducted at Oklahoma City University, but not in a physical sense. The participants and data were gathered from the Oklahoma City University LMS, known as D2L. Therefore, it should be noted that the research site was the Oklahoma City University D2L platform, and not a physical space on the actual campus.

Rounds of Data Collection

Data collection took place during three separate rounds between June 2021 and December 2021. Each of these rounds took place during a specific semester block and was conducted on one or more sections of the Methods of Scientific Inquiry (MSI) course, which is an online asynchronous course.

- The first round took place during the Summer II, six-week semester block at Oklahoma City University. This six-week block began on 6/24/21 and concluded on 7/29/21, with the instrument being sent to potential participants on Monday 6/14/21. This round included (1) section of the MSI course.
- The second round took place during the Fall, 16-week semester block. This 16-week semester block began on 8/23/21 and concluded on 12/17/21, with the instrument being sent to potential participants on Monday, 8/16/21. This round included (2) sections of the MSI course.
- The third round took place during the Fall, eight-week semester block. This eight-week semester block began on 10/18/21 and concluded on 12/17/21, with the instrument being sent to potential participants on Monday 10/4/21. This round included (1) section of the MSI course.

Minimization of Bias

In order to minimize any possibility of bias on the part of the researcher, a data host was used. The data host's main duties included the assignment of participant numbers to students in each section of the MSI Course and the inputting of participant data into the restricted data Excel sheet. These two primary duties will be explained in detail below.

- **Assigning participant numbers –** The data host used a random number generator to assign each student in each section of the MSI course a number. This step took place before participant recruitment, meaning every potential participant will be assigned a number, regardless of participation. Once the instrument had been distributed to each section, the data host monitored the questionnaire responses. Each response included the B-number (Oklahoma City University's form of student/staff identification) of the participant. This was done in order for the data host to be able to identify who each participant was by matching up the inputted B-number to the name of a student in the class. The data host could then match final grades for each student to participants at the end of each semester block.
- **Inputting participant data** – The data host stored participant numbers in two secure excel spreadsheets: a restricted spreadsheet and a shared spreadsheet.
    - The restricted spreadsheet was only able to be accessed by the data host. It served as a key that matched each student with their corresponding participant number.
    - The shared spreadsheet was able to be accessed by both the data host and the researcher. It contained only participant numbers and no names. It also contained demographic data that was asked for in the questionnaire, as well as the final grade of each participant when that information became available at the end of each semester block.

Primary Instrument and Alternative OLRQ Instrument

The OLRQ contained 30 questions regarding readiness for online learning, with participants being able to choose from three choices: Agree, Somewhat Agree, or Disagree. These questions were broken down into five sections. The questions in each section were all based around a central theme. These themes were (in the order each section appears on the OLRQ): goal-setting, self-determination for learning, self-discipline for learning, internet self-efficacy, and technology self-efficacy. Appendices A and B contain all 30 questions divided into each of the five sections. Once submitting answers, the OLRQ then generated one of four different responses, based on the input of the participant. These responses were generated, based on how many Agree, Somewhat Agree, or Disagree answers the participant submitted. Appendices C and D contain the user-generated feedback in the OLRQ instrument. The basis of this study was whether the Online Learner Readiness Questionnaire, or OLRQ, had an impact on academic performance in the form of higher final grades of online asynchronous learners at Oklahoma City University. Therefore, it was necessary to compare participants who took the questionnaire and received the instrument guidance and feedback with participants who did not. Accomplishing distribution of this in an online college course had the potential to be challenging. The solution was to have two instruments, a primary instrument and an alternative instrument.

The primary instrument was the OLRQ as it was created, with all 30 questions and instrument-generated feedback in its entirety. The solution was to randomly select students as participants and email them the link to the questionnaire, designating them as the experiment group, while simply leaving the rest to be designated as the control group

and receive no correspondence of any kind. However, this approach could have led to potential issues, the main one being that college students and their classmates tended to talk to one another. If two classmates were to converse with each other and discover that one of them received correspondence from the instructor regarding a questionnaire and one did not, it has the potential to raise difficult questions from the participant pool, aimed at the instructor and possibly even the researchers. Therefore, to maintain impartiality of participant groups, it was necessary to create an alternative instrument.

The alternative instrument was identical to the front-end of the primary OLRQ instrument in every way; it included the same demographic questions, the same 30 questionnaire items, and of course, the same consent information and options. The difference between this alternative and the primary was what happened when participants click the "submit" button. Rather than calculating feedback based on user responses, the alternative instrument generated a generic response to every user that reads, "Your responses have been recorded. Thank you for your participation in this survey" (see Appendix E). Participants in the control group, as a result, did not receive the same instrument guidance that experiment group participants did. This feedback and guidance were the essence of the OLRQ's impact on better online learner readiness. Therefore, by removing it from the control group's experience, a valid measurement could be gathered between participants in both groups, as to whether the OLRQ had a positive academic performance impact on students. Additionally, it solved the issue of some students being participants and some not, since all students are given the opportunity to complete a seemingly identical questionnaire.

Qualitative End-of-Course Instrument

The qualitative instrument for this study measured participant perceptions of the OLRQ through the use of open-ended questions. The qualitative survey was given to participants during the second-to-last week of course period. The last week of each course period is always finals week; for this reason, it was more prudent (both in the interest of the researcher and of the student participants) to distribute the survey at the beginning of the week *before* finals week so that participants had time to complete it thoroughly and thoughtfully and to ensure that it did not take focus away from final exams. It should also be noted that the qualitative survey was only distributed to participants in the experiment group; the reason for this was that the qualitative survey asked questions that specifically sought participant perceptions on the instrument-generated feedback from the OLRQ; it was mentioned previously in this chapter that this feedback is exclusive to the OLRQ primary instrument and not the alternative, meaning only the experiment group had perceptions of this function, because the control group had not experienced it at all.

There were three questions on the qualitative survey. Appendix F shows each of the questions as they appeared to the participant in the qualitative instrument. The first question asked how the OLRQ effected the participant's online learning. The aim of this question was to gather qualitative responses about the personal perceptions of participants and what effect the OLRQ (if any) had on their online learning. This did not explicitly ask how it affected the MSI course, and it is possible that participants described the OLRQ having an effect on a broader spectrum of their online learning to include other courses they may be enrolled in. This information would be insightful and could

suggest avenues of approach for future studies on online learner readiness. The second question focused specifically on the feedback generated by the OLRQ and the effect it had on participants performance in the course, asking which feedback from the OLRQ helped the participant in the course. This question also asked what type of guidance and feedback the participant would have liked to have received if none of the feedback they did receive helped them. The aim of this question was both to understand participant perception of the effects of the feedback element of the OLRQ and also to understand how participants believed they could have been helped better in their online learning readiness. The third question asked if there are any other ways the researcher could help to better prepare students for online learning in the future. This question sought participant perceptions of the big picture of online learning readiness. The information gathered from the third question had the potential to help improve the OLRQ, as well as online learner readiness approaches in future studies.

Grouping/Participant Recruitment

The study consisted of two groups of participants: experiment and control. Participants were drawn from four sections of the Methods of Scientific Inquiry (MSI) class at Oklahoma City University. Each round of data collection was looked at specifically and grouping strategies were determined case by case.

The first round of data collection occurred during the Summer II, six-week semester block. This block had only one section of the MSI course. In order to draw participants for both the experiment and control groups, the data host randomly assigned participant numbers to each student in the course. These participant numbers were then randomly sorted into the experiment group or the control group. Once groups were

determined, the data host contacted the instructor of the course via email with two lists; the first list had the students who had been randomly selected for the experiment group and the second list had the students who had been randomly selected for the control group. Also included in this email was verbiage written by the researcher briefly describing the study and requesting student participation, as well as links to the primary and alternate instruments on *Qualtrics* with the lists of the experiment and control groups, respectively. It should be noted here that the researcher was not copied on this email, as it contained names of students, rather than simply participant numbers and it was important for the researcher to not know the names of the students in order to avoid any type of bias. A follow-up email was created by the researcher and given to the data host after the one-week mark. The purpose of this email was to send as a gentle second request/reminder to students in the MSI class who had not taken the survey yet. The data host determined who from each group has not participated yet based on the already-completed surveys with B-numbers. This list was then to be shared with the instructor, along with the follow-up email.

The second round of data collection occurred during the Fall, 16-week semester block. There were two separate sections of the MSI course during this block, both taught by the same instructor. Instead of splitting the course via randomization (as was the strategy with the first round of data collection), one section was used as an experiment group pool and the other as a control group pool. The data host sent the request-for-participation email to the instructor. Both versions were identical, aside from the link they contained; one led to the primary instrument and the other to the alternative instrument. The instructor then distributed it to both course sections. Due to the timing of

the beginning of this semester, it was sent out only one week in advance. The reason for this was that the beginning of the 16-week semester had many students coming off of a lengthy multiple-month break from academics. Most course information and communication during this time is sent out only a week prior to the first day of classes; the student body typically is more active in response and participation at this time as well. Ergo, the initial email was sent out by the instructor one week prior [Monday] to the beginning of the course, with the follow-up email being sent out the same week [Friday] to those who had not participated yet.

The third round of data collection occurred during the Fall, eight-week semester block. This block had only one section of the MSI course. The same approach that was used for the first round of data collection, in which the class was split and students are randomly placed into experiment and control groups, was to be used for the third round, with the same email communication being utilized two weeks prior to the start of the course and one week prior. However, this course was used as an offset, since numbers in one group were dramatically higher than the other. Therefore, the entire class list was used as experiment, meaning they received the appropriate instrument and no split was used.

Sampling of MSI Course

The use of the MSI course at Oklahoma City University as the pool for drawing participants was looked at through the lens of purposive and convenience sampling. Both types of sampling were used in this study for drawing a sample size from students at Oklahoma City University. Convenience sampling was defined by Andrade (2021) as a sample drawn from a source that is convenient to the researcher, but may not necessarily

be representative of the population at large (Andrade, 2021). This study utilized all students as potential participants in each section of the MSI course shells during the three rounds of data collection. No student was excluded as a potential participant; participation was, however, voluntary, meaning that not every student was expected to participate. Therefore, the sample that was used was based on the number of students who participated and consented to allow their participation to be used for the research study; this was convenience sampling, based on the fact that all consenting participants were used but this pool may or may not have been representative of entire population of the course shells, or of Oklahoma City University.

Purposive sampling was also utilized as a method for drawing a sample size for this study. Andrade (2021) defined purposive sampling as a sample whose characteristics are defined for a purpose that is relevant to the study (Andrade, 2021). This study utilized one major characteristic that was mandatory for participation: enrollment in one of the online asynchronous MSI course shells at Oklahoma City University during one of the three rounds of data collection between June and December 2021. Therefore, only students from these sections of the MSI course were invited to participate, because they all shared the one required characteristic of enrollment in said course. The reason for this was that the OLRQ instrument measured online learner readiness for online asynchronous learning. These sections of the MSI course were all online asynchronous courses and the students in them, by association, all shared the characteristic of enrollment in an online asynchronous course. However, this sampling did not include students in other online asynchronous courses at Oklahoma City University; in this way, the purposive sampling was even more exclusive in that it only sampled students from

these specific MSI courses. This was done to minimize any threat reliability that may have arisen from different content and different subject matter; the MSI online asynchronous course content was uniform across each section.

Demographics

One of the main measuring factors for this study was the comparison of demographic groups. There are three demographic groups that were being looked at in the study. The first of these was comparison of final scores of those who took the OLRQ and those who did not, based on gender. There were three gender options for participants to choose from: male, female, or non-binary/third gender. The second group was classified as college-class level. This referred to the participants' status as a freshman (0-29 credit hours completed), sophomore (30-59 credit hours completed), junior (60-89 credit hours completed), or senior (90 or more credit hours completed). The MSI course was an undergraduate course in which all potential participants fell into one of these categories. The third and final demographic group was number of previous online asynchronous courses taken. The groups for this are 0, 1 to 5, or more than 5.

Reliability and Measurement

The most important factor for reliability in this study was the uniformity of class content. Benton and Cashin (2012) defined the concept of reliability as referring to measurement data by the factors of consistency, stability, and generalizability (Benton & Cashin, 2012). One of the main factors in this study, in terms of reliability, was each student being exposed to the same content in each section of the MSI course. Each course utilized the same content and course structure to ensure that every student received the same content experience in this online asynchronous course. The only differences that

occurred between courses in each of the three rounds of data collection were different instructors and different semester lengths. These factors could have played a role in reliability; however, instructor variance for these courses was minimized, due to the fact that the entire online course shell was pre-constructed, including all pieces of instructional content, as well as assessment materials, such as quizzes. Therefore, the instructor played a rather minimal role and acted as more of a course facilitator, whose job it was to ensure content was dispersed in a practical manner for the course at hand; for this reason, changes in instructor were not a threat to reliability. Course length variance changed between each round of data collection. It would not be accurate to say that course length played *no* role in the way in which content was absorbed; indeed, the simple fact was that some participants were students in courses that went for longer than others. Instructor proficiency in ensuring a quality learning experience and dissemination of content in a timely manner ("timely" referring to the length of the course in this case) was the main role of the instructors in these courses and, as a result, reduced the reliability concern brought on by differing course lengths. Furthermore, Misko and Korbel (2019) found in a study on whether course length matters that study participants held the common view that a high-quality learning experience was not determined singularly by the length of the course (Misko & Korbel, 2019). The report also found that quality courses were ones that provided sufficient time for instructors to ensure students could acquire the knowledge and practical application of content and skills they needed to succeed, in addition to the availability and accessibility of necessary resources pertinent to the course (Misko & Korbel, 2019). Considering the uniformity of content

and the mastery of each instructor in facilitating the dissemination of that content, reliability issues, based on course length were minimized for this study.

Threat to Validity

Heale and Twycross (2015) defined validity as the extent to which a concept is accurately measured in a quantitative study (p. 66). One way to think about this is to determine if research questions and hypotheses were aligned with questions in an instrument such as the OLRQ. The hypotheses focused on academic performance in the form of final course grades and whether or not those participants who took the OLRQ survey had higher grades than those who did not; they also looked at demographic groups and whether these played a role in differing academic performance as a result of use of the OLRQ. This demographic information was asked for as a part of the overall survey, indicating that hypotheses and questions were connected and valid. The questions in the qualitative end-of-course survey focused on gathering participant perceptions of how the OLRQ impacted their performance in their online learning. The research questions connected to this asked how students perceived their online learning after taking the OLRQ, as well as what patterns emerged among participants who took the OLRQ. These research questions were valid, because they were aligned with the questions on the qualitative survey in that they sought to understand participant perceptions, connect themes or trends that may have emerged among them, and understand how participants really felt about the usefulness of the OLRQ.

Summary

The methodology of this study centered primarily around the measurement of online learner readiness by the OLRQ and how it pertained to different groups. Rounds of

data collection were taking place between June and December 2021, with four sections of the MSI course as the participant pools. The use of a data host for the minimization of bias was crucial to the design of the study. This data host was responsible for assigning participant numbers to individual participants and transcribing data from the course in the D2L LMS and *Qualtrics* survey tools to a de-identified participant Excel spreadsheet for the researcher to view; the researcher therefore never knew the identities of the participants. The initial distribution of the OLRQ-generated quantitative data on online learner readiness while the qualitative survey towards the end of the course generated a set of data on participant perceptions of the OLRQ on their learning. Participant grouping was randomized in order to minimize bias on the part of the data host. Purposive and convenience sampling was used. The sample was characteristic of convenience sampling for the reason that no consenting participants were excluded, but the sample may not have necessarily been reflective of the population at large. The sample was characteristic of purposive sampling because all participants shared the main defining characteristic of enrollment in a section of the MSI online asynchronous course between June and December 2021. Demographic indicators were based on gender, college-class level, and number of previous online courses taken. Reliability was ensured by uniformity of course content and instructor adherence to dissemination of that content in a quality manner, despite differences in course instructor and course length. Finally, validity was ensured, due to alignment of research questions and hypotheses with the OLRQ and qualitative survey questions. The hypotheses sought to find if the OLRQ made a difference in academic performance among experiment and control groups, as well as different demographic groups. The research questions sought to understand participant perceptions

of the impact of the OLRQ as well as search for trends in perceptions that may have emerged.

Chapter Four: Analysis

Introduction

The analysis for Chapter Four focused on understanding the impact that the Online Learner Readiness Quiz (OLRQ) instrument on the final grades of student participants in the Methods of Scientific Inquiry online asynchronous course. The focus was specifically on whether or not the final grades of the student participants who took the full OLRQ were higher on average than the student participants who did not. In addition, the study also explored whether or not those in three demographic groups who took the OLRQ had higher on average final grades than those in other groups; the three groups utilized were gender, number of previous online courses taken, and college-class level (freshmen, sophomore, junior, and senior).

A mixed-method approach was utilized for this study, with the quantitative data being gathered from the OLRQ results, and the qualitative data being gathered from an end-of-course survey with open-ended questions. This qualitative survey asked participants in the experiment group three questions focusing on online learner readiness. The first of these asked participants to describe their experience with the OLRQ instrument that they took prior to beginning the course. The second asked what feedback, if any, that they received from the OLRQ helped them in the online asynchronous course they had taken. The third question asked what other ways they thought the university could prepare students for undertaking online course work. These results were coded, and trends were identified and presented in this chapter.

Data collection for this study was conducted in three rounds between June 2021 and December 2021. Participants were drawn from multiple sections of the Methods of

Scientific Inquiry online asynchronous course. Each round corresponded to a different block of instruction that contained one or more sections of the Methods of Scientific Inquiry course. These blocks of instruction varied in size from four weeks, eight weeks, and 16 weeks. Both the four-week and eight-week blocks of instruction contained one Methods of Scientific Inquiry course section, while the 16-week contained two sections. The Methods of Scientific Inquiry, four-week section potential participants were split using a randomization scheme; the data host for the study assigned every student in the course a participant number, then randomly selected participants numbers to be in the experiment and control groups. Potential participants were then sent one of two emails, depending on which group they had been sorted into; the experiment group participants were sent an email briefly explaining the study, requesting their participation, and providing them with a link to the Online Learner Readiness Questionnaire (OLRQ; dubbed the primary instrument). The primary instrument questionnaire generated feedback and advice, based on user answers. Control group participants were sent the same email explanation and request for participation, but the link to the questionnaire went to a modified version (dubbed the alternative instrument) that did not generate feedback, based on answers and instead generated a uniform message thanking them for their participation with no feedback or advice. Experiment group participants were also sent a qualitative questionnaire at the end of the course to gather their perceptions of the impact and usefulness of the online learner readiness questionnaire, as well as to gather information on what they, as participants, felt could be done better for online learner readiness.

Null Hypotheses and Research Questions

H01: There is no difference in averages of final grades of students who were given the Online Learner Readiness Questionnaire and received the instrument's feedback prior to starting the online course and those who were not given the Online Learner Readiness Questionnaire.

H02: There is no difference in averages of final grades of students given the Online Learner Readiness Questionnaire, based on gender.

H03: There is no difference in averages of final grades of students given the Online Learner Readiness Questionnaire, based on college-class level.

H04: There is no difference in averages of final grades of students given the Online Learner Readiness Questionnaire, based on number of previous online courses taken.

RQ1: How did surveyed students perceive the OLRQ on their online learning?

RQ2: What patterns or themes emerged, based on student responses to the end-of-course survey?

Statistical Testing Utilized

The study utilized two types of statistical tests to understand the data. These tests were a *t*-test and a one-way ANOVA. A *t*-test was used for H01. The reasoning behind this decision was that H01 examined the difference in means between only two populations: the experiment and control groups and whether there was a difference in means between them. A one-way ANOVA test was planned to be used for H02, H03, and H04, since these hypotheses focused on variances between more than two sets of data. The ANOVA test results were then planned to be displayed on a box-and-whisker plot to

visualize variance, both intra-group (within one category) and inter-group (between multiple categories).

Qualitative Coding

Coding was done using a lexical semantic approach; this concept focuses on inherent aspects of word meaning and the relations between words, as well as the ways in which word meaning is related to syntactic structure, or the context in which it is in (Stringer, 2019). Keywords, phrases, and ideas were identified and quantified. A Text Unit, or TU, system was used that assigned one TU per occurrence of an identified keyword, phrase, or idea. This system was based on Dias and Diniz (2014) study that utilized a TU system for coding qualitative data, based on learning management system usage (Dias & Diniz, 2014).

Hypothesis 1 Findings

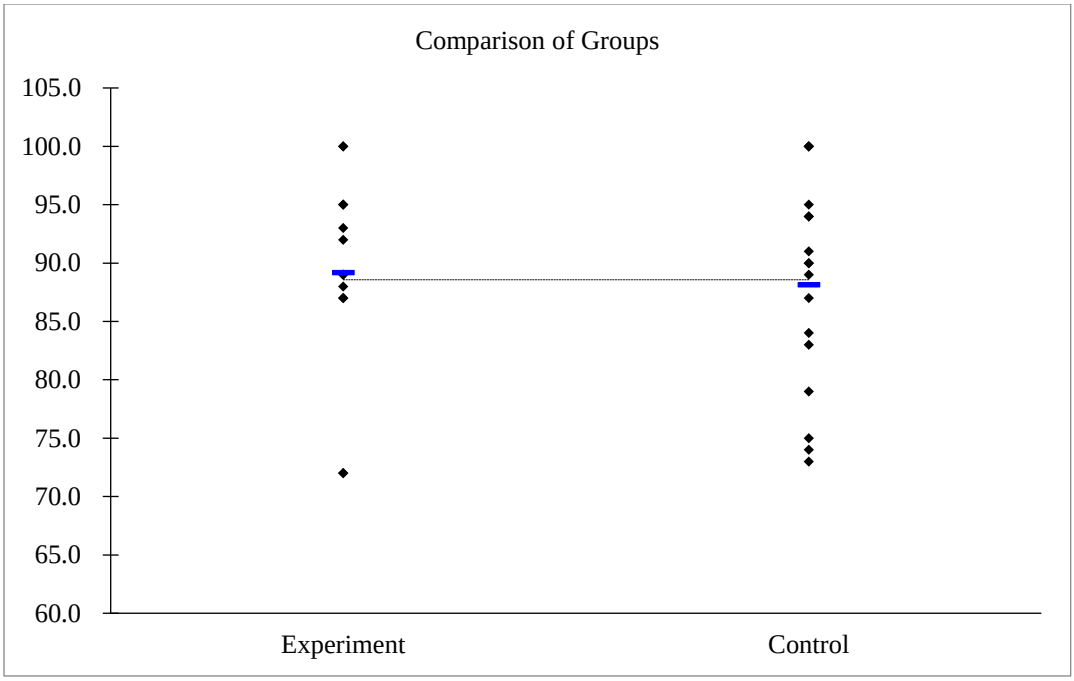
H01 – There will be no difference in averages of final grades of students who were given the Online Learner Readiness Questionnaire and received the instrument's feedback prior to starting the online course and those who were not given the Online Learner Readiness Questionnaire.

The researcher analyzed participant data from the OLRQ instrument to calculate the mean final grade of participants in the experiment group and participants in the control group; the experiment group was n=13, with the control group being n=17. The researcher ran an *F*-test to test for equality of variances; $F = 1.04$ which was not equal to 1.00, determining that the variances were unequal. Therefore, an unequal variance two-tailed *t*-test was used. The experiment group mean was 89.15 and the control group mean was 88.12. respectively. The *t*-test showed that the mean final scores of the experiment

group (M = 89.15, SD = 8.78) were not significantly different from the scores of the control group (M = 88.12, SD = 8.96). Figure 1 shows each data point plotted on a line graph, with each dash displaying the mean of each group.

Figure 1

Comparison of Experiment and Control Group Scores and Means



A confidence interval of 95% was used (lower = -5.673, upper = 7.745), with a margin of error = 6.709. This analysis indicated that there was no difference between the mean scores of those in the experiment group who took the OLRQ and received the instrument's feedback prior to starting the online course, and those in the control group who did not. The researcher therefore failed to reject the null hypothesis.

Hypothesis 2 Findings

H02 – There will be no difference in averages of final grades of students given the Online Learner Readiness Questionnaire, based on gender.

The researcher analyzed participant data from the OLRQ instrument to calculate variance between final grades of participants in each of the three gender demographic groups (male, female, and non-binary/third gender). Unfortunately, sample sizes for these demographics were extremely lop-sided; participants of the experiment group, female gender demographic, were n=10 and the control group, female gender demographic, was an additional n=15. Participants of the experiment group, male gender demographic, were n=2. Participants of the experiment group, non-binary/third gender demographic, were n=1. According to Fraenkel et al. (2012), "Some sample sizes, of course, are obviously too small. Samples with 1 or 2 or 3 individuals, for example, are so small that they cannot possibly be representative" (p. 102). Data gathered from the Oklahoma City University Registrar revealed a large disparity between the number of female and male students in the class; this will be discussed in the next chapter. However, due to the insufficient number of participants in both the male and non-binary/third gender demographic groups, the hypothesis was unable to be statistically analyzed.

Hypothesis 3 Findings

H03 – There will be no difference in averages of final grades of students given the Online Learner Readiness Questionnaire, based on college-class level.

The researcher analyzed participant data from the OLRQ instrument to calculate variance between final grades of participants in each of the four college-class level demographic groups (freshman, sophomore, junior, and senior). Unfortunately, sample sizes for these demographics were extremely uneven; participants of the experiment group senior college-class level demographic were n=9. Participants of the experiment group junior, sophomore, and freshman college-class level demographics were n=1, n=1,

and n=2, respectively. According to Fraenkel et al. (2012), “Some sample sizes, of course, are obviously too small. Samples with 1 or 2 or 3 individuals, for example, are so small that they cannot possibly be representative” (p. 102). It should be noted that numbers in the control group college-class level demographics were relatively more evenly distributed; senior (n=4), junior (n=4), sophomore (n=7), and freshman (n=2). This disparity is discussed in greater detail in Chapter Five. However, due to the insufficient number of participants in the junior, sophomore, and freshman experiment group college-class level demographic groups, the hypothesis was unable to be statistically analyzed.

Hypothesis 4 Findings

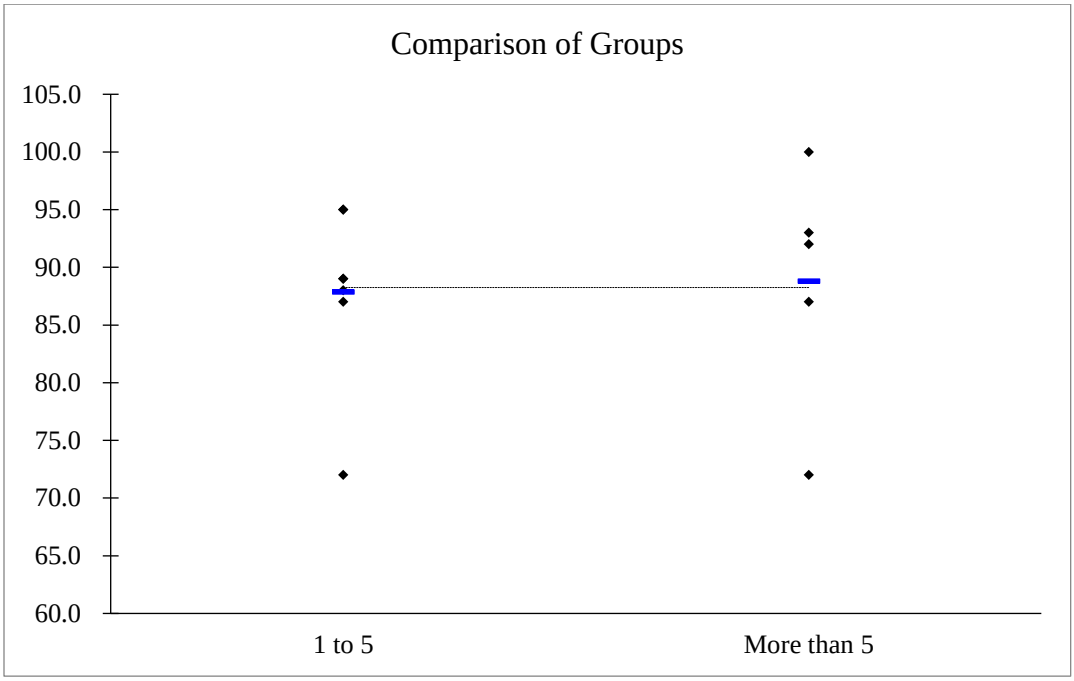
H04 – There will be no difference in averages of final grades of students given the Online Learner Readiness Questionnaire, based on number of previous online courses taken.

The researcher analyzed participant data from the OLRQ instrument to calculate variance between final grades of participants in each of the three categories for number of previous online courses taken (zero, 1 to 5, and more than 5). Unfortunately, sample sizes for some of these demographics were too small in some cases; the “zero” experiment group demographic was n=1, with “1 to 5” being n=7 and “more than 5” being n=5. Although a one-way ANOVA test was originally planned to be used, the “zero” category was determined to be too small to analyze, so it was dropped. This left two independent groups for the “number of previous online courses taken” demographic; therefore, a *t*-test was used. The researcher ran an *F*-test to test for equality of variances; $F = 1.84$ which is not equal to 1.00, determining that the variances were unequal. Therefore, an unequal

variance two-tailed *t*-test was used. The "1 to 5" mean = 87.86 and the "more than 5" mean = 88.80. The *t*-test showed that the mean final scores of the "1 to 5" group (M = 87.86, SD = 7.71) were not significantly different from the scores of the "more than 5" group (M = 88.80, SD = 10.47). Figure 2 shows each data point plotted on a line graph, with each dash displaying the mean of each group.

Figure 2

Comparison of "1 to 5" and "More than 5" Group Scores and Means



A confidence interval of 95% was used (lower = -14.442, upper = 12.557), with a margin of error = 13.499. This analysis indicated that there was no difference between the mean scores of those who had taken between 1 and 5 previous online courses and those who had taken more than 5 previous online courses. Although this data excluded meaningful input from the "zero" demographic group, the researcher failed to reject the null hypothesis, based on the aggregated data.

Research Question 1 Findings

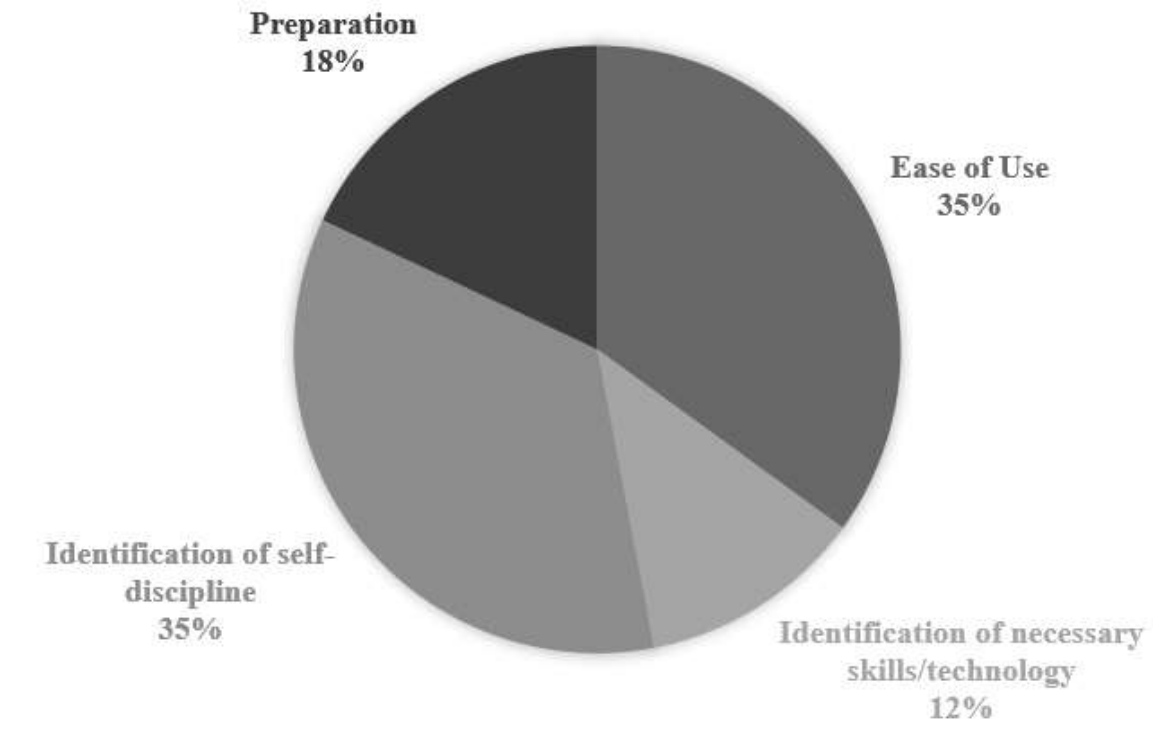
RQ1 - How did surveyed students perceive the OLRQ on their online learning?

The researcher analyzed participant data from the end-of-course qualitative questionnaire given to participants in the experiment group of each round of data collection. Participants were asked three open-ended questions relating to the OLRQ and online learning readiness. Answers to these questions were codified, based on key words, phrases, and ideas. Analyzation of the qualitative survey answers were coded into three categories: OLRQ, Self, and Change. A brief explanation of these categories will follow. The first of these, OLRQ, referred to keywords, phrases, and ideas in which the participant focused feedback directly on the OLRQ instrument, specifically how the OLRQ affected their online course learning. The second, Self, referred to insights that the OLRQ was able to invoke in the participant internally regarding their ability to undertake online asynchronous learning. The third, Change, referred to suggestions that participants made regarding other areas that the OLRQ should target, as well as other areas that should be focused on for online learner readiness outside of the OLRQ instrument. The OLRQ category had a total of TU = 17, with the total number of TU = 35; therefore, responses from participants regarding the OLRQ totaled 49%. This was the majority category, indicating that participants had a large number of perceptions aimed specifically at the OLRQ. TUs in the OLRQ category were further divided into four subcategories: Ease of use, Identification of necessary skills/technology, Identification of self-discipline, and Preparation. These subcategories reflected the lexical meaning behind each of the keywords, phrases, and ideas that participants expressed in their survey responses. The total TU was 17. The Ease-of-use category had a TU of 6; therefore,

responses from participants regarding ease of use of the OLRQ totaled 35%. The Identification of necessary skills/technology category had a TU of 2; therefore, responses from participants regarding the OLRQ identifying necessary skills and technology totaled 12%. The Identification of self-discipline category had a TU of 6; therefore, responses from participants regarding the OLRQ identifying self-discipline techniques totaled 35%. The Preparation category had a TU of 3; therefore, responses from participants regarding the OLRQ helping to prepare them for online learning totaled 18%. Figure 3 displays this data in a pie chart and includes percentages for each category.

Figure 3

Subcategory Occurrences of OLRQ Perceptions



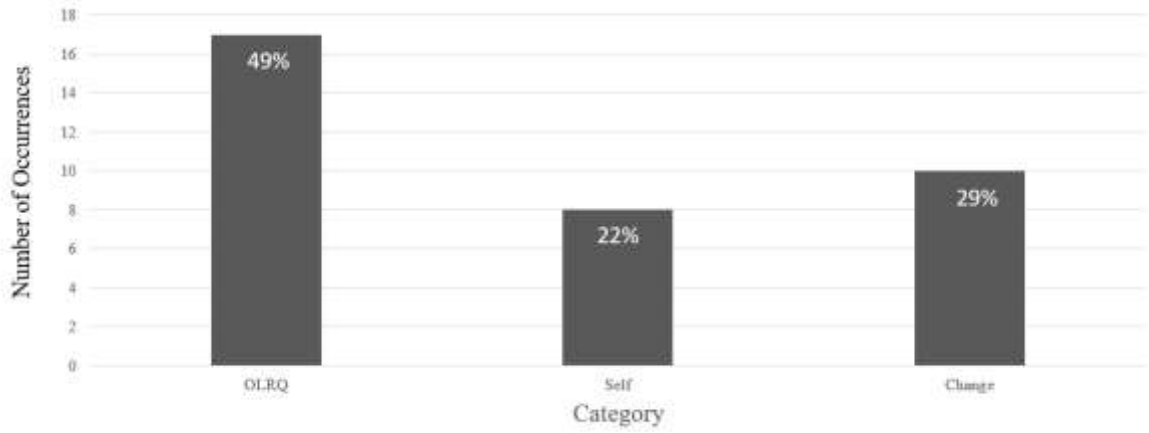
Research Question 2 Findings

RQ2 – What patterns or themes emerged, based on student responses to the end-of-course survey?

The researcher analyzed participant data from the end-of-course qualitative questionnaire given to participants in the experiment group of each round of data collection. Participants were asked three open-ended questions relating to the OLRQ and online learning readiness. Answers to these questions were codified, based on key words, phrases, and ideas. Analysis of the qualitative survey answers was coded into three categories: OLRQ, Self, and Change. The first of these, OLRQ, referred to keywords, phrases, and ideas in which the participant focused feedback directly on the OLRQ instrument, specifically how the OLRQ affected their online course learning. The second, Self, referred to insights that the OLRQ was able to invoke in the participant internally regarding the ability to undertake online asynchronous learning. The third, Change, referred to suggestions that participants made regarding other areas that the OLRQ should target, as well as other areas that should be focused on for online learner readiness outside of the OLRQ instrument. The total TU was 35. The OLRQ category had a TU of 17; therefore, responses from participants regarding the OLRQ totaled 49%. The Self category had a TU of 8; therefore, responses from participants regarding the Self totaled 22%. The Change category had a TU of 10; therefore, responses from participants regarding Change totaled 29%. Figure 4 displays this data in a bar graph and includes percentages for each category.

Figure 4

Category Occurrences in Qualitative Data from End-of-Course Survey

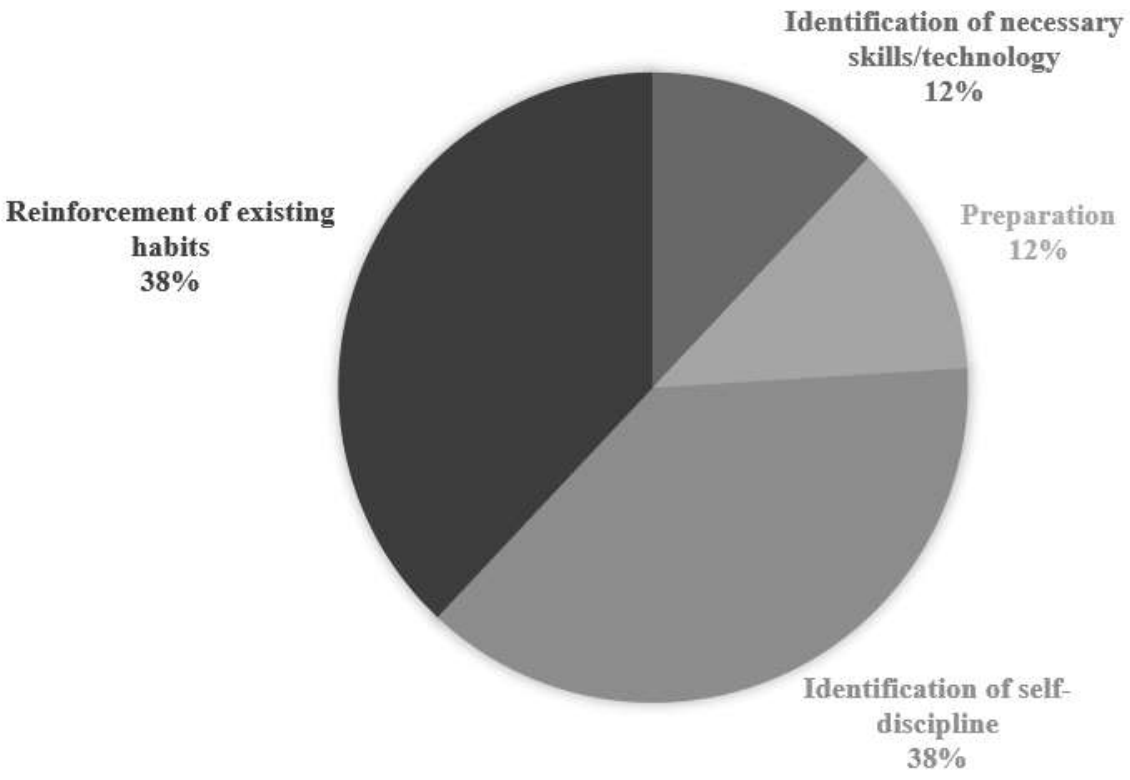


TUs in the OLRQ category are displayed in Figure 3 under Research Question 1. TUs in the Self category were further divided into four subcategories: Reinforcement of existing habits, Identification of necessary skills/technology, Identification of self-discipline, and Preparation. These subcategories reflected the lexical meaning behind each of the keywords, phrases, and ideas that participants expressed in their survey responses. The total TU was 8. The Reinforcement of existing habits category had a TU of 3; therefore, responses from participants regarding the OLRQ reinforcing existing habits totaled 37%. The Identification of necessary skills/technology category had a TU of 1; therefore, responses from participants regarding the OLRQ identifying necessary skills and technology totaled 13%. The Identification of self-discipline category had a TU of 3; therefore, responses from participants regarding the OLRQ identifying self-discipline techniques totaled 37%. The Preparation category had a TU of 1; therefore, responses from participants regarding the OLRQ helping to prepare them for online

learning totaled 13%. Figure 5 displays this data in a pie chart and includes percentages for each category.

Figure 5

Subcategory Occurrences of Self Perceptions

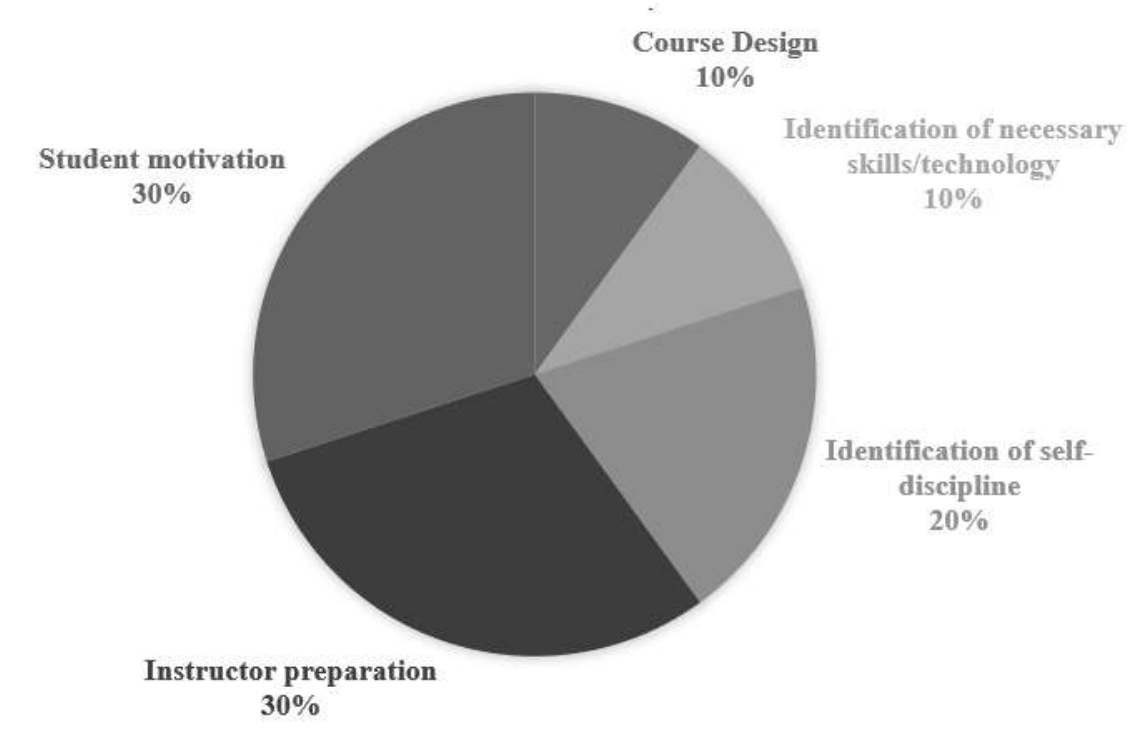


TUs in the Change category were further divided into five subcategories: Course design, Identification of necessary skills/technology, Identification of self-discipline, Student motivation, and Instructor preparation. These subcategories reflected the lexical meaning behind each of the keywords, phrases, and ideas that participants expressed in their survey responses. The total TU was 10. The Course design category had a TU of 1; therefore, responses from participants regarding the OLRQ reinforcing existing habits totaled 10%. The Identification of necessary skills/technology category had a TU of 1;

therefore, responses from participants regarding the OLRQ identifying necessary skills and technology totaled 10%. The Identification of self-discipline category had a TU of 2; therefore, responses from participants regarding the OLRQ identifying self-discipline techniques totaled 20%. The Student-Motivation category had a TU of 3; therefore, responses from participants regarding the OLRQ helping to prepare them for online learning totaled 30%. The Instructor-Preparation category had a TU of 3; therefore, responses from participants regarding the OLRQ helping to prepare them for online learning totaled 30%. Figure 6 displays this data in a pie chart and includes percentages for each category.

Figure 6

Subcategory Occurrences of Change Perceptions



Some subcategories occurred in more than one main category; for example, Identification of self-discipline occurred in all three main categories of OLRQ, Self, and Change. Therefore, all subcategories were combined into one data sheet and aggregated to identify trends in which subcategories were most prevalent among participant responses. Table 1 and Figure 7 display each subcategory, the number of TUs contained in each, and the percentage each subcategory made up of the total.

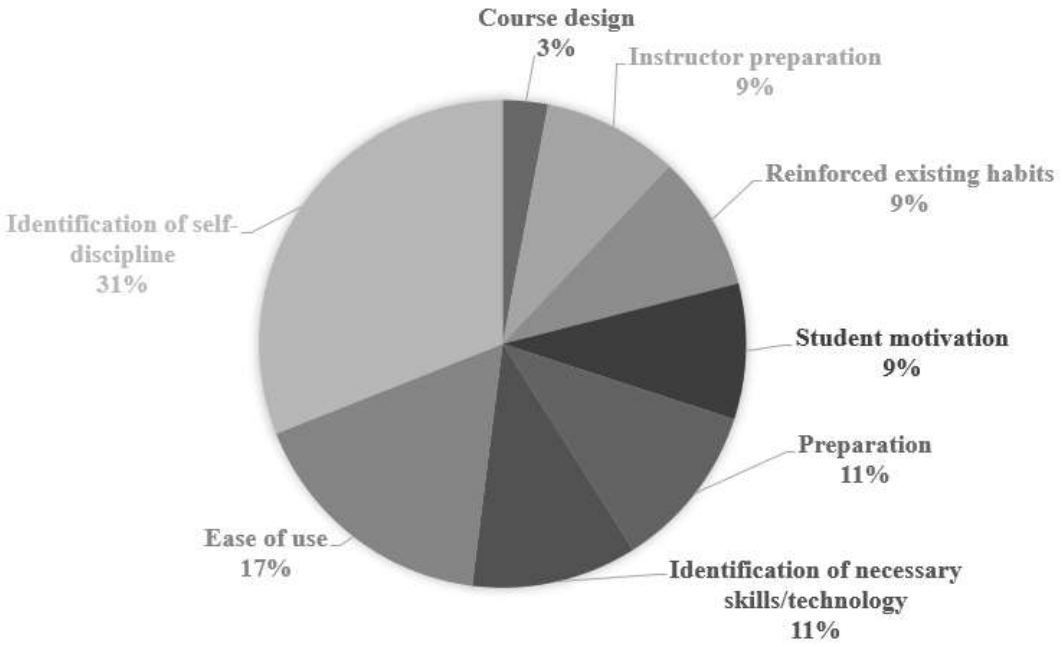
Table 1

Subcategory Breakdown by Occurrence

Subcategory	TU (Text Units)	Percentage of Total
Course Design	1	3%
Ease of use	6	17%
Identification of necessary skills/technology	4	11%
Identification of self-discipline	11	31%
Instructor preparation	3	9%
Preparation	4	11%
Reinforced existing habits	3	9%
Student motivation	3	9%
TOTAL	35	100%

Figure 7

Subcategory Pie Chart Breakdown by Occurrence



Summary

Findings presented in this chapter were informative to understanding what impact, if any, the OLRQ had on academic performance of participant students in the MSI course sections. No significant statistical difference was found between the mean scores of the experiment and control groups, indicating that the OLRQ had little, if any, effect on participants. Both the gender and college-class level demographics were unable to be statistically analyzed, due to a lack of a meaningful sample size in the groups. The demographic, "number of previous online courses taken" was able to be partially analyzed for two of the three demographic groups contained in the category, although no significant difference was found here either. Qualitative data gathered from participants suggested that the OLRQ influenced participants in several areas, the main one being

identification of self-discipline, with a diverse array of areas being coded from results of the qualitative survey.

Chapter Five: Discussion

Introduction

Chapter Four reported the results of both the quantitative and qualitative aspects of the study. The total pool of possible participants was 73 students; 30 students responded to communications requesting to participate in the study, making the response rate roughly 41%. The researcher developed four hypotheses on whether the Online Learner Readiness Questionnaire (OLRQ) made a difference in the mean final course grades of participants. The researcher analyzed these hypotheses both in a straight experiment/control group, as well as in the context of different demographic groups, to include gender, college-class level, and number of previous online courses taken. The quantitative data were inconclusive in both the gender and college-class level demographics due, to lack of representation of some groups. However, the data did allow for further analysis of the experiment/control groups, as well as partially for the number of previous online courses taken. In the experiment/control hypothesis, the researcher failed to reject the null hypothesis, indicating that there was no difference between the mean scores of participants in the experiment group who took the OLRQ and participants in the control group who did not.

The qualitative results were gathered from answers to an end-of-course qualitative survey that was given to participants in the experiment group. The total pool of possible participants for the qualitative survey was 13, as it was given to every participant in the experiment group; of these 13, five participants responded to communications requesting them to take the qualitative end-of-course survey, making the response rate roughly 38%. This survey asked open-ended questions regarding participants' perceptions of the

OLRQ, its effect on their online learning, and other things they would like to see addressed for online learning readiness. These results were used to answer two research questions; these questions sought to know what students' perceptions were of the OLRQ and how it impacted their online learning, as well as what trends emerged, based on student responses to the end-of-course qualitative survey.

Hypothesis 1

H01 presented a relatively straightforward statistical comparison, centered on measuring if the mean scores of the experiment group were higher than mean scores of the control group. It should be reiterated here that participants in the experiment group were given the primary OLRQ instrument, which included the instrument-generated feedback that was meant to be the main guidance in their online learning self-efficacy. Participants in the control group, however, were given the alternative OLRQ instrument, which differed in that it did not include any feedback and instead displayed a uniform message when submitted. The results indicated barely over 1% difference in mean scores; the experiment group's average was 89.15% and the control average was 88.12%, for a difference of 1.03%. Considering the margin of error of 6.709 and a confidence interval that included 0, this meant no notable difference in mean scores of each group, indicating that the OLRQ instrument did not have a recognizable effect on academic performance overall. It is possible that the result may have been different with a larger sample size. However, uniformity of content was a main goal of this study in order to ensure that participants had a comparable content experience to each other. Although instructors and length of class did differ, the content was kept uniform; this uniformity would most likely have become diluted the longer the study was run, as more class sections would increase

the number of different instructors who would slowly introduce their own individual approaches. This was the main justification for keeping the length of the study relatively short and, by association, the sample size small.

Hypothesis 2

H02 was the first of the three hypotheses that focused on comparing mean final grades within demographic groups in the experiment group. H02 sought to examine the difference between gender demographics; this included male, female, and non-binary/third gender groups. According to the Oklahoma City University Registrar records (acquired directly from the Registrar of the school), the total gender make-up of the four sections of the MSI course was 52 females and 21 males, equating to 71% female and 29% male. Non-binary/third gender was not an officially tracked academic metric, so it was unclear what the gender make-up was for that group. The gender make-up of the entire population of all included sections of the Methods of Scientific Inquiry, or MSI, course was unknown at the time of data collection. This ended up presenting a problem with the sample of this demographic. The overall gender breakdown of participants was 25 females, 3 males, and 2 non-binary/third gender. This equated to 83% female, 10% male, and 7% non-binary/third gender. This issue was further exacerbated by the fact that, of the three males, only two were in the experiment pool; the non-binary/third gender pool of two was split, with one in the experiment and one in the control group. This disparity made a statistical analysis of mean scores per gender in the experiment group impossible, as there was simply not a large enough sample from which to conduct the statistical *t*-test. H02 was, therefore, unable to be statistically analyzed. However, the disparity in sample size was most likely going to be an inherent issue, due to the large

difference in gender make-up of the population. The disparity was even more prevalent when compared to the population as a whole; 48% of the total female population chose to participate in the study, but only 14% of males did. Even though the raw population numbers were considerably unequal in favor of females, the participation percentage is still even more disparate. This raises interesting questions as to why, in spite of the inherently disparate population numbers, so many more females chose to participate than males. This issue is discussed in more detail later in this chapter.

Hypothesis 3

H03 was the second of the three hypotheses that focused on comparing mean final grades within demographic groups in the experiment group. H03 sought to examine the difference between the demographic of college-class level, such as freshmen, sophomores, juniors, and seniors. The original intention of this hypothesis was to examine whether any differences could be seen in mean final grades of higher-class levels versus lower ones in relation to the OLRQ. Unfortunately, there was an issue with random sampling that skewed the groups unevenly between the experiment and control groups. The demographic breakdown of participants per class level was: four freshmen, eight sophomores, five juniors, and 13 seniors, equating to 13% freshmen, 27% sophomores, 17% juniors, and 43% seniors. Although there is a slight disparity with a higher number of seniors than other groups, the dispersion would not have been unusable, had it been evenly distributed between experiment and control groups. However, the way that the total numbers of each demographic fell between experiment and control groups was extremely uneven; the experiment group had only one participant in both the sophomore and junior demographic groups, and a staggering nine in the senior group. In

contrast, the control group had four in the senior and junior groups and six in the sophomore group. Both experiment and control had two of the four freshman participants. The disparity in sample sizes of three of the four demographics in the experiment group made a statistical analysis of mean scores per college-class level impossible, as there was simply not a large enough sample from which to conduct the one-way ANOVA. H03 was, therefore, unable to be statistically analyzed. Even though the disparity between groups in the college-class level demographic was not as extreme as in the gender demographic, there was still a clear skew towards a notably higher number of senior participants than any other group; this was surprising, as the MSI course is an entry-level science online class, leading one to assume that it would be populated by higher numbers of underclassmen. Similar to the issue of higher female participation, there may be something to explore in terms of higher senior participation; this is looked at later in the chapter.

Hypothesis 4

H04 was the final of the three hypotheses that focused on comparing mean final grades within demographic groups in the experiment group. H04 sought to examine the difference between the number of previous online courses taken; these groups were 0 (known as zero), 1 to 5 (known as 1-5), and more than 5 (known as 5<). Similar to H02 and H03, there was a disparity in number of participants in the different demographic groups. The zero group only received a total of three participants across both the experiment and control groups (1 and 2, respectively). However, the 1-5 and 5< demographics received a reasonable number of participants each; these groups were skewed heavily in the control group, but relatively even in the experiment group (1-5

contained 7 participants, and 5< contained 5 participants). Therefore, it was possible to partially analyze this hypothesis using two of the three demographic groups (1-5 and 5<). The results indicated less than a 1% difference in mean scores; the 1-5 group's average was 87.86% and the 5< average was 88.80%, for a difference of 0.94%. Considering the margin of error of 13.499, and a confidence interval that included 0, this meant no notable difference in mean scores of each group, indicating that there was no difference in mean scores, based on the number of previous online courses taken. A larger sample size for the zero group may have bolstered or weakened this conclusion, although the zero group was unique in that it only included participants who had never taken an online asynchronous course prior to the MSI course. A higher average in this area may have indicated that the OLRQ made a difference only to students who had never taken an online course prior, a speculation that will be elaborated on later in this chapter.

Research Question 1

RQ1 examined student perceptions of the OLRQ, specifically how it affected their online learning. Responses were analyzed and keywords, ideas, and phrases were coded by category. These concepts did not refer exclusively to the OLRQ, although of the three main categories that responses were coded into, the OLRQ had the most references with 49%. These coded references to the OLRQ were subdivided into four more categories. The most popular perceptions were tied at 35% each; these were ease of use and identification of self-discipline. The ease-of-use category included notions that referred to it being easy to understand and engage with, short and insightful, and similar/standard to questionnaires given in other classes. This indicated that one of the major strengths of the OLRQ was that it was easy for students to engage with and that this played a role in their

discovery of their online learner readiness level. Identification of self-discipline was referenced at 35% as well. These responses centered largely around participants realizing the amount of dedication they would need to give to specific aspects of online asynchronous courses, such as watching lecture videos, completing assignments, reading/further research, and the amount of time the course would require for success.

Interestingly, the responses that fell into the preparation category were only 18% of the total references to the OLRQ. Preparation and readiness are synonymous, leading the researcher to speculate that one of the main outcomes of an instrument designed to measure learner readiness would be a perception of preparation among participants as a result of the instrument. In addition, responses that referenced preparation were relatively generic compared to those in the two most popular categories (ease of use and identification of self-discipline); rather than naming a diverse set of ways in which the instrument helped them prepare, participants simply stated that it helped them prepare and gauge readiness for online learning/courses. This implied that, although the OLRQ was designed to measure learner readiness, it was not the most prevalent outcome of the instrument to participants.

Finally, the least referenced category was identification of necessary skills/technology at only 12%. This indicated that participants viewed the OLRQ instrument as having the least impact on their identification of necessary skills and technologies. This category as the lowest referenced is interesting, considering the OLRQ instrument has 10 questions dedicated entirely to technological self-efficacy, indicating that it is a large portion of the content of the instrument. However, like the preparation category, which was only referred to in a generic sense; participants remarked that the

OLRQ helped bring awareness to tools needed by students, as well as skills they may be lacking without naming any of the specific tools that were mentioned in the instrument questions. It was possible that this could have meant technological readiness fell into the shadow of the more prevalent identification of self-discipline feedback that many participants referenced. However, it was also possible that many participants had a firm grasp on technology going into the course, and simply did not pay as much attention to feedback from the OLRQ that referenced technological self-efficacy.

Research Question 2

RQ2 examined the themes and patterns that emerged overall, based on student responses to the qualitative end-of-course survey. This question was deliberately broader than RQ1 in an effort to identify larger trends in participant perceptions outside of those simply aimed at the OLRQ instrument that this study was based around. RQ1 looked at only a subset of the overall coded qualitative data; this subset was designated as occurrences of references to the OLRQ instrument and was the most prevalent occurrence at 49%. However, there were two other subsets, coined as Self and Change, with references occurring at 22% and 29%, respectively. It should be reiterated that the OLRQ category included coded items that referred to a direct, measurable impact made by the OLRQ on the participant; the Self category referred to ways in which the participant reflected on their personal inventory. The Change category included all responses from participants that suggested changes/additions, both to the OLRQ and online asynchronous courses.

The Self subset found four categories of occurrences, with two tied for a majority at 38% each and two tied for a minority at 12% each. The majority occurrences were

identification of self-discipline and reinforcement of existing habits, while the minority occurrences were preparation and identification of necessary skills/technology. The identification of self-discipline occurrence helped participants understand how personality and academic habits could affect online course performance; it also helped them internally assess and reflect on the amount of time that they, the student, would need to study. The reinforcement of existing habits indicated that participants felt the OLRQ reinforced existing, identified habits of theirs and confirmed that these were crucial for success in an online asynchronous course. The minority occurrences were less impactful; identification of necessary skills/technology indicated that the participant had proper resources to take the course and preparation indicated that they were prepared and organized for the course.

The Change subset was the most diverse, with five separately identified categories of occurrences. The majority occurrences were student motivation and instructor preparation at 30% each, followed by identification of self-discipline at 20%, and finally followed by both identification of necessary skills/technology and course design at 10% each. This subset was interesting because, in a way, it was the most freeform. The majority occurrence of student motivation indicated that participants felt online course preparation should include both the significance of the course and real-life reasoning for how the course applies, as well as motivation for investing time and energy into the course. In essence, participants desired to have the main ethos of an online course imparted to them at the start in such a way that it would motivate them and help them to understand the importance of the course. The majority occurrence of instructor preparation indicated that participants desired for instructors to include more initial

content to help students understand the course; this included teacher videos and overviews explaining the course, as well as expectations for an online asynchronous course. The latter of these was interesting as it pointed to a possible call for uniform university expectations for students participating in online asynchronous learning. The minority occurrences of identification of self-discipline and identification of necessary skills/technology were recurring from previous subsets; identification of self-discipline responses called for an emphasis on how important self-discipline was for online asynchronous learning, as well as not procrastinating in online coursework. Identification of necessary skills/technology called for the OLRQ to include questions about proctoring software, as it was felt that this would better help online learner readiness if the participant was prepared, or at least aware, that proctoring software existed and/or may be used in the online course. Finally, the last minority occurrence was on course design, and called for a visual course timeline to be included in a singular spot for students to view.

Implications

The main finding of the study was that the OLRQ instrument had no effect on increased academic performance, as mean scores between the experiment and control groups did not show a statistically significant difference. Although the sample size for this study was relatively small, H01 was able to be statistically tested and no significant difference was found in the average final scores of participants who took the OLRQ and those who did not. This indicated either that the instrument did not have a measurable effect on students, or that there were other factors that played a part in the mean final grades of each group rendering them relatively equal. Additionally, there was no

significant difference in mean final grades of participants who had taken one to five previous online courses, and participants who had taken more than five previous online courses. This suggested that implementing online learning readiness initiatives may have had little to no effect on students who were already familiar with online coursework. The lack of significant representation of the group that had taken zero previous online courses in H03 was unfortunate, as it would have been useful data to measure whether the OLRQ had an impact on the final grades of those who had not taken previous online courses. Nevertheless, the implication of an instrument like the OLRQ was that it helped prospective online asynchronous students understand the challenges of the online classroom.

However, based on feedback from the qualitative end-of-course survey, even students who had taken one or several previous online courses were able to gain useful insight from the OLRQ. This implied that best practice habits as an online asynchronous student were not inherent knowledge; the propensity for poor habits existed and may have taken hold without students realizing that there were better ones. One finding that was evidence of this was in the qualitative results, specifically, the prevalence of identification of self-discipline. To elaborate, there were eight total categories of perceptions that students had towards the OLRQ and online asynchronous learning readiness overall: identification of self-discipline, ease of use, identification of necessary skills/technology, preparation, student motivation, reinforcement of existing habits, instructor preparation, and course design. Of these, identification of self-discipline had the highest prevalence overall in participant responses at 31%, a relatively large percentage when considering that there were seven others. This suggested that students

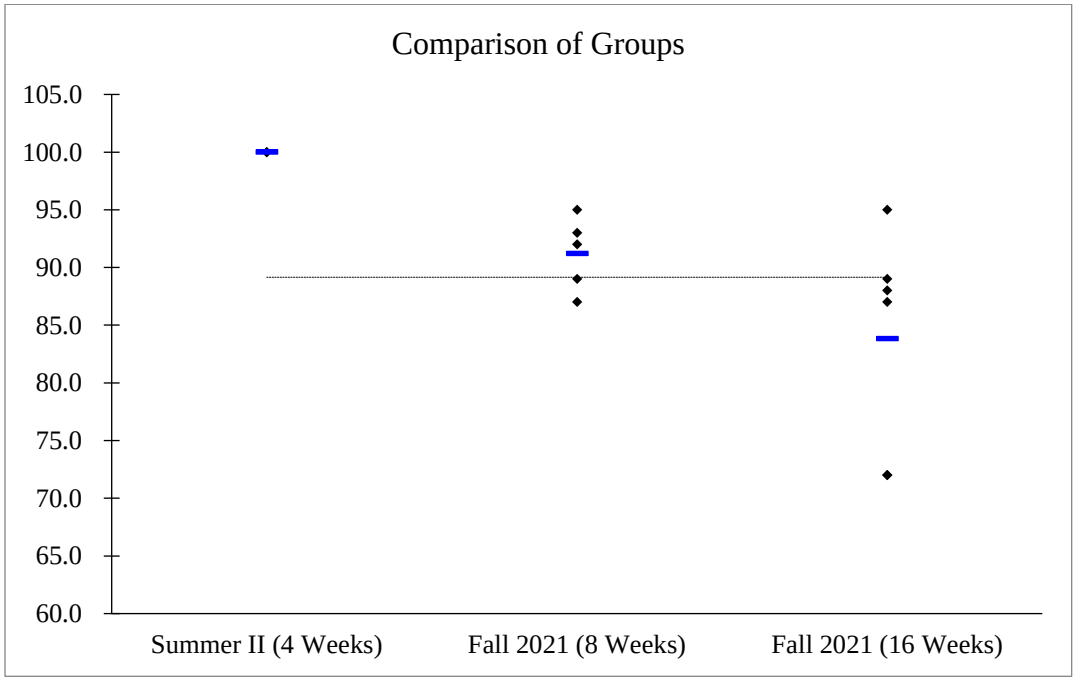
were most impacted by the OLRQ feedback on self-discipline habits; it also suggested that this was the component of both the questions and the feedback that stuck out the most to them and was most memorable, as well. Therefore, the researcher can conclude that even participants who had taken one or several previous online courses were, at the very least, affected by the OLRQ's suggestions and guidance regarding identification of best practices in self-discipline for online asynchronous learning.

One of the main implications of this study for administrators and educators was the importance of identification of self-discipline by current and prospective online students. The qualitative survey results indicated that self-discipline habits, as they pertained to online learning, were among the biggest takeaways from the OLRQ by participants. It therefore stands to reason that efforts should continue to be made and improved upon by educators to impart a strong sense of self-discipline and self-direction in online asynchronous students on the grounds that it was crucial for their success. Clearly, even non-first-time online students found the suggestions from the OLRQ on self-discipline best practices helpful and insightful; this implied that, had there not been an external imparting of information on this topic, they may never have been made aware of what those best practices were. Intervention by educators in identifying best practices in self-discipline for online learners is a step that may need to be normalized for all incoming and current online students. Song and Kim (2021) discovered that faculty use of scaffolding helped students to better self-regulate their online learning. In essence, this indicated that some level of direction from faculty or from instruments like the OLRQ could help students to both be aware of the self-discipline and self-direction needed for online learning, as well as implement it to a degree necessary for success.

Course length was not a demographic group laid out as a main hypothesis or aim of the study; however, based on the notion that it appeared as an interesting target of opportunity with at least a useable sample size, the researcher ran a one-way ANOVA test. There were three different course lengths for the MSI course between June 2021 and December 2021: a four-week, an eight-week, and two 16-week sections. Course length was written into the study as a possible threat to reliability, however, the results of a statistical variance test on mean scores of participants from courses of different lengths yielded interesting results. Figure 8 shows the results of the one-way ANOVA test over only the experiment group final grades, aggregated based on length of course. Figure 9 shows the same comparison, but including all final grades in the mean of both the experiment and control groups.

Figure 8

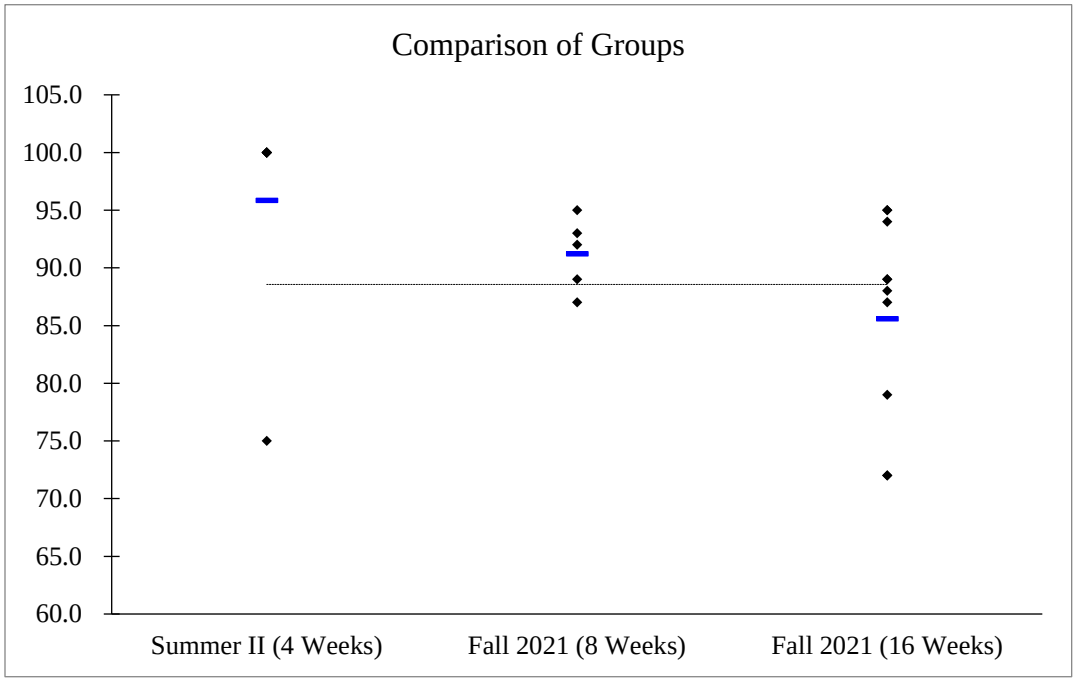
Comparison of Experiment Group 4-week, 8-week, and 16-week Group Scores and Means



Mean	*n*	*Std. Dev*	
100.0	2	0.00	Summer II (4 Weeks)
91.2	5	3.19	Fall 2021 (8 Weeks)
83.8	6	9.58	Fall 2021 (16 Weeks)
89.2	13	8.78	Total

Figure 9

Comparison of Experiment & Control Group 4-week, 8-week, and 16-week Group Scores and Means



Mean	*n*	*Std. Dev*	
95.8	6	10.21	Summer II (4 Weeks)
91.2	5	3.19	Fall 2021 (8 Weeks)
85.6	19	7.94	Fall 2021 (16 Weeks)
88.6	30	8.74	Total

The data showed that the average final grade of participants decreased the longer the length of the course was. It was possible that this statistical decrease could have been explained by other factors, such as difference in instructor or grading style. However, it

was a find that was notable, primarily because it seems to go against the preconceived notion that longer course length equates to better academic performance. The difference in mean score among each group was relatively constant between both the experiment group and the experiment/control groups combined; this indicated that the OLRQ had no significant effect on the mean scores of these groups.

Recommendations for Future Studies

While collecting and analyzing data for this study, some notable areas ripe for future research emerged. The majority of these were borne out of a lack of usable sample sizes for two of the four quantitative hypotheses of this study. Therefore, future research can and should be conducted measuring online learner readiness as it pertains to gender and college-class level. Individual studies could be conducted on both, as there are multiple sub-directions that such studies could take. An online learner readiness study, based on gender could explore a more diverse array of gender identities, rather than reducing the number to male, female, and third gender. There could be an expansion to include orientation, as well in an effort to measure what effect the OLRQ and online learning readiness in general, has on groups in the LGTBQ community.

College-class level as a standalone demographic for measuring online learner readiness would be a worthwhile study. College-class level differs from the number of previous online courses taken in that the number of courses taken does not always equate to one’s college-class level; more courses taken does not necessarily make one a senior and having taken zero online courses does not necessarily make one a freshman and, so on. Therefore, designing a study around how the OLRQ affects different college-class levels could yield practical results that may help supplement online learning for students

in those class levels. Additionally, qualitative data could be gathered from each class level that asks what each of their perceptions are on online learning readiness, how prepared they feel, and what is most important to them when it comes to online learning success. There would be useful results in measuring the different priorities of each class level, such as what freshmen find important versus what seniors think is most critical. This same approach could also be applied to groups created based on the number of previous online courses taken; those with no online learning experience may have a very different perspective than those who have taken several. Those with much experience as online learners may also be able to share helpful insights in the form of qualitative interview responses for those new to online learning, a worthwhile study in and of itself.

Perhaps one of the most promising future research efforts, based on this study would be on the measurement of course length in relation to online learner readiness and academic performance. A preliminary look at this comparison, based on data gathered in this study suggests there may be higher academic performance in shorter courses versus longer ones of the same type. An empirical study that could explore this possibility, especially, if found, a more solid foundation of evidence of this would be extremely useful for online asynchronous course efforts going forward. A study of that type would spawn studies of its own in several new directions, measuring how the current online asynchronous learning landscape has shaped learners to where they may not necessarily require longer course lengths anymore. Such results could have huge ramifications for administrators, especially those in charge of designing online asynchronous degree programs. What's more, said results could call for an entire rewrite of adult degree

programs and requirements, possibly even making courses more accessible and palatable to those considering going back to school online.

Discussion

One of the first blueprints for this study centered around utilizing the OLRQ to measure whether students who had never taken an online asynchronous course had higher academic performance after receiving the feedback that the instrument had to offer them. It quickly became clear that finding a sample size of only these types of students while also keeping the course content uniform would have been very difficult at Oklahoma City University. Therefore, the demographic group was expanded to include students who had taken varying numbers of online courses. The initial thinking was that an online learning readiness instrument, such as the OLRQ would be the most useful to students who had never taken an online asynchronous course prior to the MSI course. However, the results of this study indicated that the OLRQ had a positive impact on helping even veterans of online learning identify the best strategies for success in online coursework; a surprise to be sure, but a welcome one.

Another major discovery on the part of the researcher was the diversity of perceptions that participants had when it came to how the OLRQ and online learning readiness pertained to them. Diversity of perceptions when it comes to self-direction in online learner readiness have been measured in other studies; Joosten and Cusatis (2020) found, for example, that students with disabilities were a group with a significantly different perception of their organizational skills and self-direction/self-discipline when it came to online learner readiness than study participants from other groups (Joosten & Cusatis, 2020). Participants in this study brought a wide array of perceptions and

reflections to the table, shedding light on what was most prevalent but also certain minor areas that the researcher had not considered. One of these was the inclusion of readiness questions and feedback over proctoring software. Although this perception only had one occurrence in the qualitative survey, it was notable, because proctoring software has become such a prevalent tool since the pandemic; one would assume that students were aware of its function and inclusion in many online courses or that the instructor would have put out information to students regarding its use.

Participant perception specifically regarding the inclusion of readiness for use of proctoring software was an important and insightful concept to include, and one that should absolutely be a part of online learning readiness instruments. Participants also made several references to resources they would like to have that they believe would supplement their readiness to undertake online asynchronous learning; these included things, such as a visual timeline for what they could expect over the course of the entire class, video overviews of the course created by the instructor, and information on how the course would connect to real-world scenarios and careers. The call for these resources was not necessarily related to the OLRQ but did shed light on online learning readiness direction that could be pursued by educators to make the online asynchronous experience more practical for students. Joosten and Cusatis (2019) found that learner support was a major contributor to student satisfaction and that it was crucial for students to be provided with an orientation to the course, as well as information on how to manage their interactions within the course (Joosten & Cusatis, 2019). In essence, an ideal level of online learning readiness goes beyond simply measuring and finding deficiencies on the

individual learner level; it must also include built-in structural support for all students that can be referenced throughout the course.

The results of the study have deep implications for an aspiring educational leader. The quantitative statistical findings did not point to the OLRQ making any notable difference in academic performance for online learners; arguments can be made for conducting a study with a better, more robust sample that may yield different results. However, the qualitative piece of this mixed-method study found that the OLRQ did leave an impression upon participants in many ways, the largest being in the realm of identifying and understanding their own habits, strengths, and weaknesses in self-discipline for online coursework. This concept is crucial to the researcher's educational leadership in that it is clearly an important skill and habit for online students to understand and seek to hone as much as possible; this point may very well not be known or fully grasped by students and so it is paramount that, as an educational leader, the researcher seek to guide both students and faculty in making this a priority.

Conclusion

This study was able to utilize the Online Learner Readiness Questionnaire as its main instrument for measuring online learner readiness and whether giving feedback made a statistical difference in academic performance. Although no significant statistical difference was found, the instrument was found to have an insightful impact on participants in that it helped to inform participants on the best habits for online learning, as well as foster self-reflection on how existing habits could be improved. This opens the door for future research on this instrument and online learning readiness in general. The world of distance learning has a long and colorful history; the internet evolved distance

learning into an extremely complex and sophisticated form of education that is still changing and improving today. This study showed that while technology is one of the main drivers of innovation in the world of online learning, it is the soft skills of self-discipline and self-direction that remain the most impactful and crucial to the online students of the current age. The field of online learning is constantly changing and innovations in teaching, learning, and technology continue to expand it. Exploration of the technology that powers online learning and the skills to make a successful online asynchronous student are the research aims of today; however, the researcher believes that implementation of these technologies and skills on a grand scale in the world of online education should be the goals of tomorrow.

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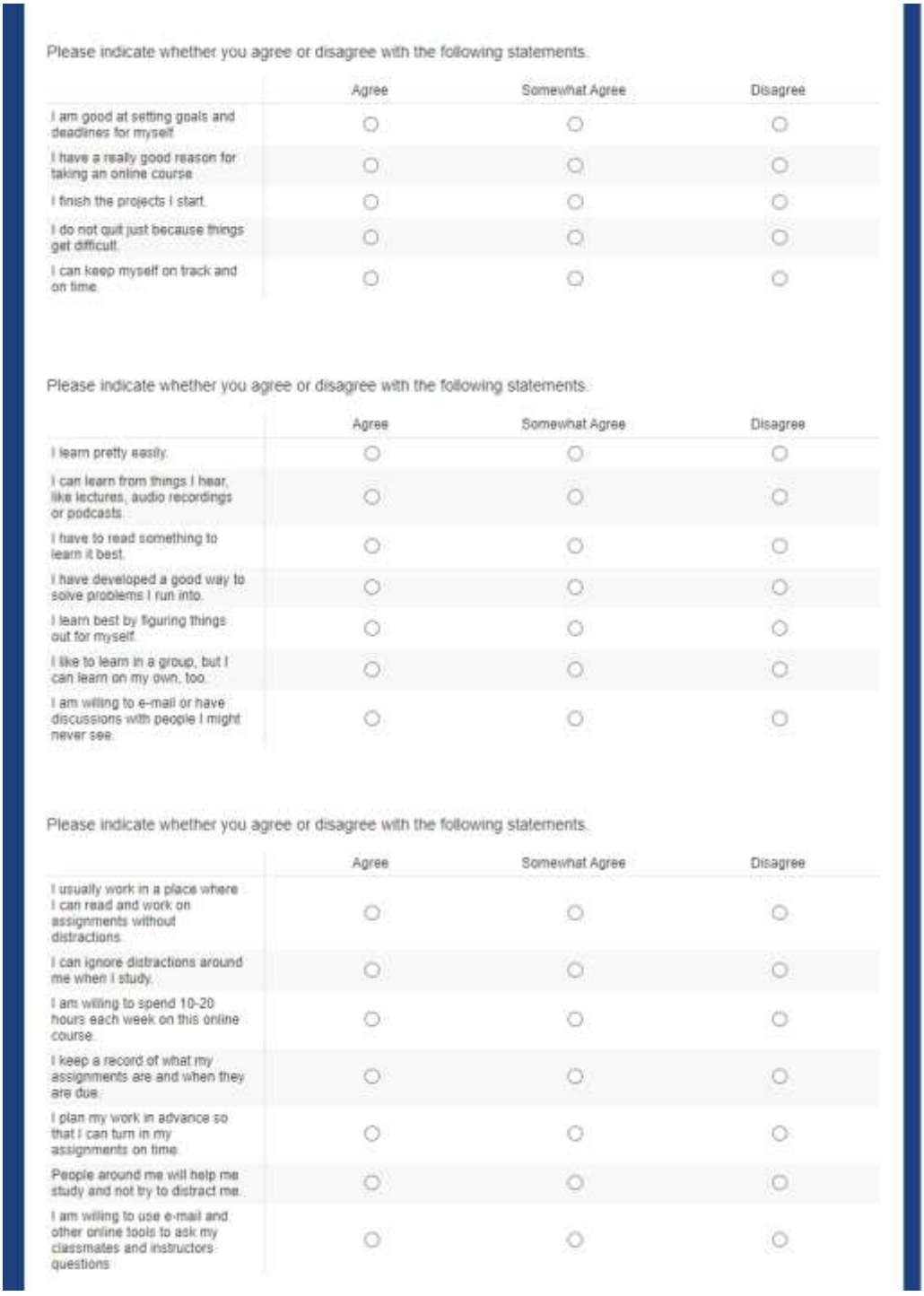
Appendix A

OLRQ question sections 1-3



Please indicate whether you agree or disagree with the following statements.

	Agree	Somewhat Agree	Disagree
I am good at setting goals and deadlines for myself.	○	○	○
I have a really good reason for taking an online course.	○	○	○
I finish the projects I start.	○	○	○
I do not quit just because things get difficult.	○	○	○
I can keep myself on track and on time.	○	○	○

Please indicate whether you agree or disagree with the following statements.

	Agree	Somewhat Agree	Disagree
I learn pretty easily.	○	○	○
I can learn from things I hear, like lectures, audio recordings or podcasts.	○	○	○
I have to read something to learn it best.	○	○	○
I have developed a good way to solve problems I run into.	○	○	○
I learn best by figuring things out for myself.	○	○	○
I like to learn in a group, but I can learn on my own, too.	○	○	○
I am willing to e-mail or have discussions with people I might never see.	○	○	○

Please indicate whether you agree or disagree with the following statements.

	Agree	Somewhat Agree	Disagree
I usually work in a place where I can read and work on assignments without distractions.	○	○	○
I can ignore distractions around me when I study.	○	○	○
I am willing to spend 10-20 hours each week on this online course.	○	○	○
I keep a record of what my assignments are and when they are due.	○	○	○
I plan my work in advance so that I can turn in my assignments on time.	○	○	○
People around me will help me study and not try to distract me.	○	○	○
I am willing to use e-mail and other online tools to ask my classmates and instructors questions.	○	○	○

Appendix B

OLRQ question sections 4 and 5

Please indicate whether you agree or disagree with the following statements.

	Agree	Somewhat Agree	Disagree
I am pretty good at using the computer.	○	○	○
I am comfortable surfing the Internet.	○	○	○
I am comfortable with things like doing searches, setting bookmarks, and downloading files.	○	○	○

Please indicate whether you agree or disagree with the following statements.

	Agree	Somewhat Agree	Disagree
My computer runs reliably on Windows or on Mac OS X.	○	○	○
I have access to a printer.	○	○	○
I am connected to the Internet with a fairly fast, reliable connection such as DSL or cable modem.	○	○	○
I have access to a computer with virus protection software on it.	○	○	○
I have headphones or speakers and a microphone to use if a class has a videoconference.	○	○	○
My browser will play several common multimedia (video and audio) formats.	○	○	○

Please note: all information, answers, and data from this survey will be kept confidential. Results of this survey will not affect admissions or academic decisions. The purpose of this survey is solely to reflect on your preparedness for success with online learning.

Please indicate whether you agree or disagree with the following statements.

	Agree	Somewhat Agree	Disagree
I am pretty good at using the computer.	○	○	○
I am comfortable surfing the Internet.	○	○	○
I am comfortable with things like doing searches, setting bookmarks, and downloading files.	○	○	○
I am comfortable with things like installing software and changing configuration settings on my computer.	○	○	○
I know someone who can help me if I have computer problems.	○	○	○

Please indicate whether you agree or disagree with the following statements.

	Agree	Somewhat Agree	Disagree
My computer runs reliably on Windows or on Mac OS X.	○	○	○
I have access to a printer.	○	○	○
I am connected to the Internet with a fairly fast, reliable connection such as DSL or cable modem.	○	○	○
I have access to a computer with virus protection software on it.	○	○	○
I have headphones or speakers and a microphone to use if a class has a videoconference.	○	○	○
My browser will play several common multimedia (video and audio) formats.	○	○	○

Please note: all information, answers, and data from this survey will be kept confidential. Results of this survey will not affect admissions or academic decisions. The purpose of this survey is solely to reflect on your preparedness for success with online learning.

Appendix C

OLRQ User-generated feedback

Your total score is: ${gr://SC_3rRUVSnm3DhJF89/Score}

0 - 10 --
Are you ready?
From your answers, it looks like your time management skills and study habits (such as keeping yourself on track, meeting deadlines and working independently) need to be improved before you can be successful in online learning. If you feel that you have trouble learning new information, are not comfortable with written communications and participation in online discussions, or are not used to solving problems on your own, you may need to reconsider your decision to take an online course, as it usually provides less support from the instructor, than may be necessary for you.
An online course also requires at least 10 hours a week, which you may not be ready to spend at this time. Regarding your technical readiness, you don't appear to have many of the necessary technical tools to take an online course and don't seem to be very comfortable surfing and searching online resources. The complete list of hardware and software required for online learning may vary slightly by course, such as the list of computer requirements for D2L.
Overall, it looks like at this point you might be more successful in a course that meets face-to-face, where you can have more support for your learning. You might try an online course when you have gained more experience with computer and study skills and time management. If you are determined to enroll in an online course, review to the D2L Training in the New Student Orientation (NSO) course mentioned above and try to take this survey again. If you need technical assistance, please go to https://help.okcu.edu/.
Hopefully this survey has helped you assess whether or not you want to enroll in an online course at this time. If you still have questions or concerns about online courses, please go visit with your adviser. They want you to help you be successful.

11 - 25 --
Are you ready?
It looks like you might work better when external organization is imposed on you. While this may work just fine in a face-to-face class, an online class requires more independence in setting and following work goals and deadlines. In an online course you will have to pace yourself and figure out things on your own or with sometimes limited assistance from the instructor. As far as time management, you may want to develop a strategy for keeping yourself on track, such as keeping a written record of your tasks and allocating certain hours to work on each task.
To become a successful online learner, you may also want to improve your basic learning skills, such as reading, listening, writing, and problem solving. For some help, you can access the D2L Training in the New Student Orientation (NSO) course or talk with your advisor. Based on your answers about your technical readiness, it seems that you are not very comfortable using the computer for learning. The ability to keep your computer up-to date, search the Internet and download files is very important for successful online learning. To improve your basic computer and Internet skills, try reading a book on the topic. You also need to make sure you have all necessary hardware and software. For a complete list of hardware and software required for online learning, refer to the individual course and its minimum requirements.
Overall, it looks like you need to improve either your technology skills or your learning skills before you try an online course. Go to the D2L Training in the New Student Orientation (NSO) course mentioned above and try to take this survey again. If your results still do not improve, you may want to postpone online learning until you have gained more experience with studying and time management. If you need technical assistance, please go to https://help.okcu.edu/.
Hopefully this survey has helped you assess whether or not you want to enroll in an online course. If you still have questions or concerns about online courses, please go visit with your adviser. They want you to help you be successful.

Appendix D

OLRQ User-generated feedback (continued.)

26 - 40 --
Are you ready?
You seem to be fairly well-organized and learn fairly easily. That's good, but you have to remember that learning from an online course usually requires more time and effort, because you will often have to pace yourself and figure out things on your own or with limited support from the instructor.
If you want to improve your organizational skills, you may consider allocating certain hours to work on each individual task to stay to track, to work on it the first thing each morning, and to keep a written record of your tasks and assignments. These strategies will help you not fall behind in the class. Most online courses consist mainly of written text, but a lot of them now also include audio recordings or podcasts.
You will also have to communicate in writing with the instructor and your classmates. You may need to improve your basic learning skills, such as reading, listening, writing, and problem solving. For some help, you can access the D2L Training in the New Student Orientation (NSO) course or talk with your advisor.
Since you have reported that you are fairly good at using the computer and the Internet, you should have no problem interacting with the online course environment. However, you may lack some of the necessary technical tools. Make sure that your computer meets the online course requirements for the course you are considering by looking at the course syllabus or contacting the instructor. Make sure you have help from someone who knows computers pretty well. If you need technical assistance, please go to https://help.okcu.edu/.
Overall, you seem to need to work on some of your learning and time management skills before trying an online course. If you follow the recommendations above, you should be able to be fairly successful in an online course. Hopefully this survey has helped you assess whether or not you want to enroll in an online course. If you still have questions or concerns about online courses, please talk with your adviser.

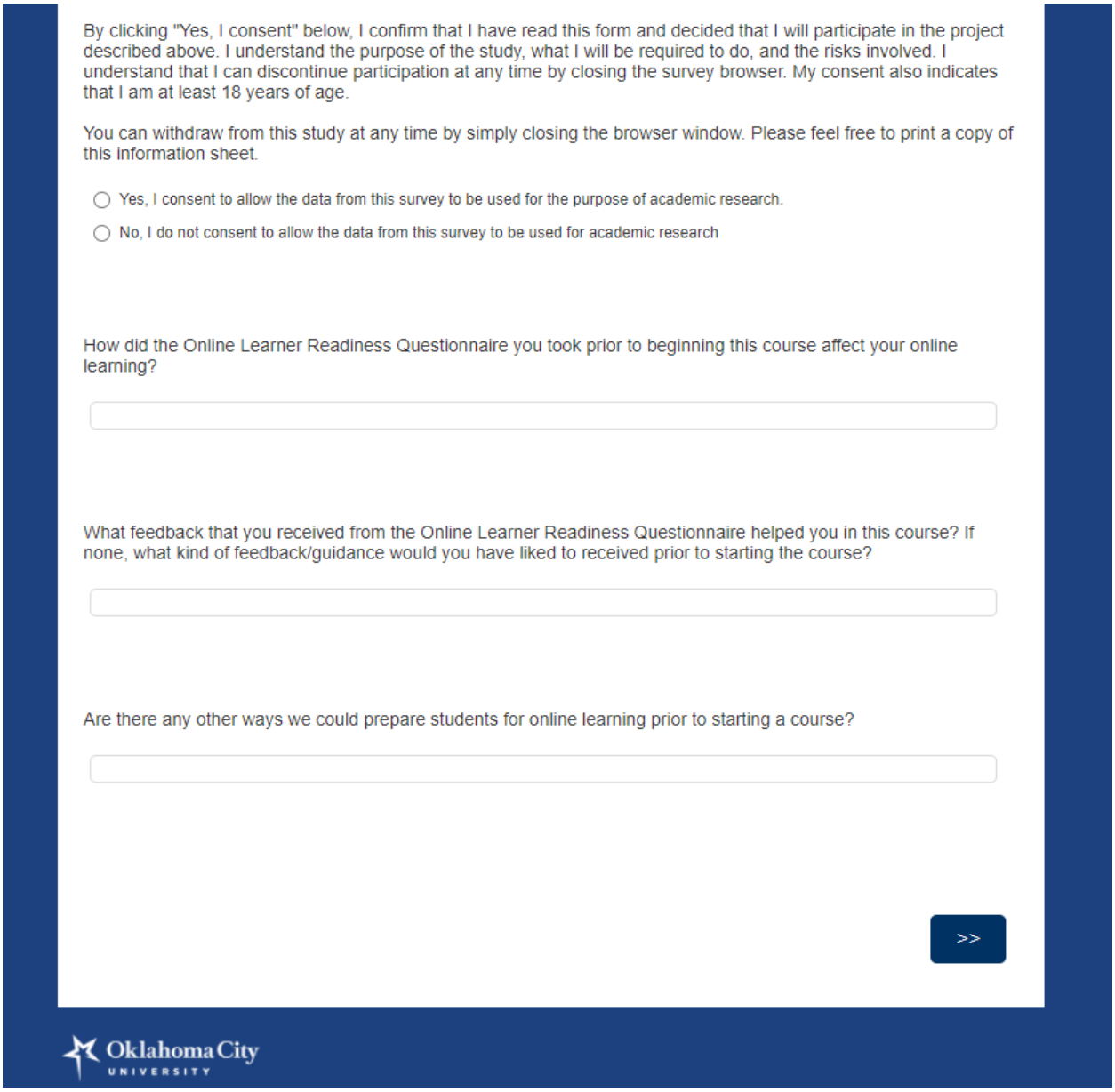
41 - 50 --
So, are you ready to learn online?
You seem to be well-organized. Good organization and time management skills are very important for online learning, as you will have to work independently much of the time. You are prepared to pace yourself, figure out things on your own and communicate with people in writing. You generally seem to realize that taking an online course is more time consuming and requires more study discipline than a face-to-face class.
If you feel that there are some areas where you may still need improvement and would like to learn how to be even more effective in your learning, access the D2L Training in the New Student Orientation (NSO) course or talk with your advisor. If you need technical assistance, please go to https://help.okcu.edu/.
Hopefully this survey has helped you assess whether or not you want to enroll in an online course. If so, then Good Luck! Remember, you can talk with your advisor if you still have questions.

Appendix E

Generic response from alternative instrument

Appendix F

Qualitative instrument questions



By clicking "Yes, I consent" below, I confirm that I have read this form and decided that I will participate in the project described above. I understand the purpose of the study, what I will be required to do, and the risks involved. I understand that I can discontinue participation at any time by closing the survey browser. My consent also indicates that I am at least 18 years of age.

You can withdraw from this study at any time by simply closing the browser window. Please feel free to print a copy of this information sheet.

- ◯ Yes, I consent to allow the data from this survey to be used for the purpose of academic research.
- ◯ No, I do not consent to allow the data from this survey to be used for academic research

How did the Online Learner Readiness Questionnaire you took prior to beginning this course affect your online learning?

What feedback that you received from the Online Learner Readiness Questionnaire helped you in this course? If none, what kind of feedback/guidance would you have liked to received prior to starting the course?

Are there any other ways we could prepare students for online learning prior to starting a course?

>>

Oklahoma City UNIVERSITY

Vitae

Sky Toland

Sky Toland earned his Bachelor of Arts in International Relations and Criminal Justice in 2017 from Lindenwood University in St. Charles, Missouri. Sky also holds a Master's Degree in Criminal Justice Administration from Lindenwood, which he earned in 2018. While employed at Lindenwood University between 2017 and 2020, Sky worked in Student Affairs as an Area Coordinator in the Residential Life office. Sky developed and oversaw several departmental training materials and courses while employed at Lindenwood University, eventually parting ways for a new position at Oklahoma City University in Oklahoma City, Oklahoma. Sky has held the position of Educational Technologist at OKCU since October 2020, in the school's Center for Excellence in Teaching and Learning. Sky has developed dozens of pieces of instructional content, including a full video e-course with supplemental training documents. He also designed and ran a 2021 faculty workshop entitled, "Creativity: Tools for Having Ideas and Bringing Them to Be," based on the book of the same name. Sky has completed working on his Doctorate of Education (Ed.D) in Instructional Leadership through Lindenwood University's School of Education. His emphasis is in Higher Education Administration. Sky's dissertation is titled, "A Mixed-Method Study on the Online Learner Readiness Questionnaire Instrument at a Midwest University." He hopes to utilize his doctorate and his research to further pursue a career in online education and learning.