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What Do The Numbers Really Mean? An Examination Of Learning Analytics Related To Online Courses And University Student Retention And Success

Austin Thomas Winger

WHAT DO THE NUMBERS REALLY MEAN?
AN EXAMINATION OF LEARNING ANALYTICS RELATED TO ONLINE COURSES AND UNIVERSITY STUDENT RETENTION AND SUCCESS

by

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Bachelor of Arts, University of North Dakota, 2011

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This dissertation, submitted by Austin Thomas Winger in partial fulfillment of the requirements for the Degree of Doctor of Philosophy from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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This dissertation meets the standards for appearance, conforms to the style and format requirements of the School of Graduate Studies of the University of North Dakota, and is hereby approved.

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Austin Thomas Winger
November 28, 2016

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ABSTRACT

University student retention and success are high priorities for colleges and universities. With the expansion of online learning, retention of students in online courses has become particularly important in modern higher education. The purpose of this study was to examine factors that affect university student retention and success, with particular consideration for students who have taken online courses during their undergraduate career. The guiding research question for this qualitative study was: "How do demographic, internal, and external factors affect the retention and success of undergraduate students who take online courses?" Learning analytics (predictive analytics in educational settings) attempt to predict student retention rates, yet many studies have indicated that deeper analyses are required for investigating internal factors that affect retention and success.

Phenomenography was the qualitative methodology used, in order to investigate the qualitative variances among students' perceptions of internal and external factors, while considering the broader culture of university students. The sample of participants included undergraduate students who had taken one or more online courses; 14 students completed interviews (10 current or graduated, 3 transferred, and 1 discontinuous enrollment) and 43 students completed open-ended surveys (4 dropped, 17 transferred, and 22 discontinuous enrollment). Thematic analysis was used to assess the qualitative data from the transcribed interviews and surveys, using the qualitative software, *Atlas.ti*.

Findings from this study supported the idea that demographic, internal, and external factors interact to affect university student retention and success (both in online and face-to-face

settings). Across the 46 students (3 interviews and 43 surveys) who took online courses and subsequently dropped out or transferred away from the university, none of them reported online courses as reasons for their departures. While all of the participants in this study described the advantages and disadvantages of online education, it was clear that students' unique life circumstances largely influenced their decisions to persist or leave the university (e.g., family obligations, work and financial issues, mental and physical health, social pressures, communication with instructors and other students, and course load).

Multiple implications for practice were offered for improving online learning and student retention and success, including: a) students conducting learning styles analyses before enrolling in online courses, b) students with mental health issues staying connected to support services, particularly during online courses, c) instructors thoughtfully and effectively implementing online interactivity tools, and d) instructors facilitating meaningful connections in online settings through all available methods (e.g., email, discussion boards, synchronous meetings).

In addition, several recommendations for future research were presented based on the findings of this study. The qualitative findings from this study and similar studies can be incorporated into quantitative survey instruments that attempt to gather information regarding student retention and success, allowing researchers to gather more detailed data from a broader sample more accurately. These qualitatively-enhanced surveys could be distributed to students; the findings might then be used in tandem with learning analytics data to better inform retention initiatives and policy decisions at colleges and universities. Ideally, institutions will be able to synthesize this information to more accurately recognize students at risk, contact them, and effectively implement early intervention techniques.

Keywords: University students, undergraduate students, online learning, retention, success, learning analytics, predictive analytics, demographic factors, internal factors, external factors, connections, communication, mental and physical health, wellness, instructional conditions, instructional design, technology, grades, professors, faculty members, student affairs personnel, policy decisions, retention initiatives, early intervention, administration, graduation rates

CHAPTER I

INTRODUCTION

For institutions of higher education, university student retention and success are top priorities (Braxton et al., 2013; Marsh, 2014; Siedman, 2012). Many states have moved to performance-based funding models for colleges and universities; thus, favorable retention and graduation rates are essential to the survival of these institutions (Hillman, Tandberg, & Fryar, 2015; Marsh, 2014; Patrick et al., 2015). The literature has suggested that student retention and success are influenced by a multitude of external and internal factors. Several studies have examined external factors that affect student retention and success, focusing primarily on instructional design (ID) elements such as instructional conditions (Gašević, Dawson, Rogers, & Gasevic, 2016), content delivery format (synchronous, asynchronous, or blended/hybrid) (Papamitsiou, & Economides, 2014; Reyes, 2015), cognitive load (Yen, Chen, Lai, & Chuang, 2015), and quantitative measures of student engagement (Strang, 2016).

Gašević et al. (2016) used learning analytics to examine external factors, and they suggested that future research should investigate internal factors (alongside external factors) in order to improve the research literature on university student retention and success. Internal factors that have been mentioned in the literature include mental and physical health (Byrd & McKinney, 2012; Dikel, 2014; Eagan et al, 2014; Iarovici, 2014; Mounsey, Vandehey, & Diekhoff, 2013; Winger & Olson, 2015), physiological and emotional development (Arnett, 2015a; Arnett, 2015b), motivation and self-efficacy (Garza, Bain, & Kupczynski, 2014; Morales,

2014; Stupnisky, Perry, Renaud, & Hladkyj, 2013), metacognition (McCormick, Dimmitt, & Sullivan, 2013; Zhao, Wardeska, McGuire, & Cook, 2014), and communication style (Caravello, Jiménez, Kahl, & Morote, 2015; Melton, Bigham, Bland, Bird, & Fairman, 2014; Winger, 2016).

This first chapter includes background information on university student retention and success, learning analytics, online learning, and the intersection of these topics in order to specifically assess retention and success of students taking online courses. After a brief overview of these topics, the problem (gap in the literature) is identified, and the significance and purpose of this study are explained. In addition, the research questions, operational definitions, study delimitations, and the organization of the study are all articulated.

Student Retention and Success

Student retention and success are vital to the longevity of colleges and universities; there are numerous stakeholders who are involved, including students, families, faculty, staff, administrators, and legislators/policy makers (Kena et al., 2015; Marsh, 2014; Siedman, 2012). Thus, it is important that effective teaching and learning strategies are implemented, in order to promote student retention and success in all settings (e.g., campus face-to-face, online, hybrid). In order to enhance best practices, researchers and practitioners must continually assess teaching methods and learning outcomes (Golding & Adam, 2016). The improvement of assessment methods in higher education is an important and ongoing conversation nationally and internationally (Banta & Palomba, 2015; Barkley & Major, 2016; Medland, 2016); in recent years, predictive analytics have been used increasingly as a form of assessment.

Learning Analytics

When used in business/industry settings, the term predictive analytics is often used; yet in educational settings, it is often termed learning analytics or educational data mining (Gašević et

al., 2016). In order to evaluate the effectiveness of teaching and learning practices, many colleges and universities are beginning to use learning analytics (Gašević et al., 2016; Jayaprakash, Moody, Lauria, Regan, & Baron, 2014). Learning analytics involve the use of 'big data' in order to make predictive statements about rates of student retention and success (Siemens & Gašević, 2012). Two types of data are often utilized in this process:

1. Trace data, or log data, garnered from students' interactions with information and communication technologies (ICTs) such as social media, or interactions within courses' learning management systems (LMS) (e.g., Blackboard, Moodle)
2. Data stored in student information systems (SIS) (e.g., grades, socio-economic status, parents' education, citizenship, other demographics)

On a national and international level, learning analytics are gaining popularity as a method to assess best practices in higher education and provide suggestions for improved teaching and learning methods in the 21st century (Gašević et al., 2016; Jayaprakash et al., 2014; Scheffel, Drachsler, Stoyanov, & Specht, 2014; Siemens, & Gašević, 2012).

Online Learning

With the rapid growth of online learning, the retention of students taking online courses has been an increasing concern in higher education (Allen & Seaman, 2013; Britto, & Rush, 2013; Cochran, Campbell, Baker, & Leeds, 2014; Crawley, & Fetzner, 2013; Keil & Brown, 2014; Dixson, 2015). Online education adds new aspects to the equation of creating successful teaching and learning experiences for students and instructors. Sound instructional design is vital to student learning and successful communication among students and instructors in all environments, yet particularly so in online and hybrid instructional settings. The diverse instructional conditions in these settings create new variables that influence student learning, in

addition to those factors present in all instructional settings (Gašević, Dawson, Rogers, & Gasevic, 2016; Sutton, 2014). Of these many variables, an important distinction within online learning is whether there will be synchronous, asynchronous, or blended/hybrid delivery of course content.

Synchronous courses utilize real-time interactions among students and instructors to facilitate discussions, lectures, group work, and other activities (e.g., face-to-face on campus class, web-conferencing to share video and audio for online/distance settings). Entirely asynchronous courses do not use any real-time interactions; instead, course materials are placed on a learning management system (LMS) or similar course website for students and instructors to access on their own time (e.g., participating in online discussion boards and wikis, without having common meeting times for the class members). Blended/hybrid learning incorporates both synchronous and asynchronous aspects within the same course (Yamagata-Lynch, 2014). For example, a blended course might include online discussion boards and wikis that class members work on independently, yet also schedule weekly meetings on campus and online (with web-conferencing software, such as Adobe Connect) in order for on-campus and distance students to have real-time interactions, discussions, and activities. Regardless of the learning environment and delivery format (face-to-face, online, or hybrid), quality instructional design (ID) must be used in order to create effective teaching and learning experiences (e.g., a poorly designed synchronous course will likely be less effective than a well-designed asynchronous course) (Thiede, 2012; Means, 2014; Vai & Sosulski, 2016).

Learning Analytics in Online Settings

For asynchronous or blended courses that involve online activities, it is much easier to track and assess students' learning, because every click and interaction on an LMS can be

recorded and analyzed (as opposed to tracking all verbal statements and signs of student engagement in a face-to-face or synchronous course). Due to the ease of gathering big data from online learning settings, large quantitative studies have investigated the effects of external factors, such as instructional conditions (Gašević et al., 2016; Papamitsiou & Economides, 2014) and cognitive load (Yen, Chen, Lai, & Chuang, 2015), on student learning in online environments. In this way, assessment of online education has been a primary focus of learning analytics in recent years (Papamitsiou & Economides, 2014).

Statement of the Problem

Although learning analytics research has expanded rapidly, the field is still relatively young; thus, universities and organizations are sometimes uncertain as to the exact meaning of quantitative results produced by analytics. University officials and other stakeholders hope to use learning analytics to make predictions about student retention and graduation rates, as well as to improve instructional choices and policy decisions (Gašević et al., 2016). While predictive regressions can offer insights into possible interventions and actions that universities can use to improve students' university experiences and potential for success, these purely quantitative findings must be interpreted with caution (Greller & Drachsler, 2012; Scheffel et al., 2014). Stakeholders can become enthusiastic about the power of big datasets and the ability to "predict" student retention and success based upon this information, yet these predictions are only as accurate as the algorithms that created them. Research across numerous fields has demonstrated that complex topics must be evaluated qualitatively and quantitatively in order to garner holistic and meaningful findings (Ali, Hatala, Gašević, & Jovanović, 2012; Creswell, 2013; Creswell, 2015; Maxwell, 2013).

Significance of the Study

With the continual growth of online learning in higher education, it is particularly important to determine the unique factors that influence the retention and success of students who take online courses (Allen & Seaman, 2013; Gaytan, 2013; Gaytan, 2015; Hachey, Wladis, & Conway, 2013; Russo-Gleicher, 2014). While Gašević et al. (2016) examined external factors that affected undergraduate retention and success in online and blended courses (e.g., instructional conditions), they strongly suggested that future research should carefully examine internal factors alongside external factors. Gašević et al. (2016) noted that qualitative or mixed methods research would likely be necessary in order to conduct a detailed investigation of the internal factors influencing student retention and success. Therefore, the current study will fill a gap in the literature by qualitatively examining internal factors related to retention and success of undergraduate students who have taken online courses, while also analyzing the ID content of the online courses that may externally impact student performance.

In addition, the "culture of university students" grows and shifts continually, with new generations of students from increasingly diverse backgrounds (e.g., culture, SES, work, family, technology use, communication style), and the university student population will continue to expand and shift in years to come (Clauss-Ehlers & Parham, 2014; Warikoo, 2015). In order to capture the phenomenological intricacies of student retention and success, as well as account for the broader culture of university students, the qualitative methodological approach of phenomenography was implemented for this study. This phenomenographic research design helped to make the study relevant, timely, and repeatable every four to five years, in order to capture the ever-changing conditions that influence student retention and success. Methodological details will be articulated further in Chapter III.

Purpose of the Study

The purpose of this study was to examine factors that affect undergraduate student retention and success, with particular consideration for students who have taken one or more online courses during their undergraduate career. In conjunction with the qualitative investigation of internal factors, the external factors impacting student performance were analyzed through an ID assessment of all available online courses (archived versions) in which the participants were enrolled. Qualitative interviews, open-ended surveys, and objective ID analyses were used in order to investigate these factors and determine how they might enhance quantitative data from learning analytics. Findings from this study will add to the literature on university student retention and success, specifically related to how learning analytics are being used to assess student success in online learning and how the findings from learning analytics may be improved and more accurately interpreted.

The specific focus of the current study was a Midwestern research university in the United States that recently partnered with a non-profit organization that conducts large-scale learning analytics for colleges and universities. Soon after this university partnered with the learning analytics organization, the entire university system in that state also joined the initiative; all institutions in the system are working with the organization to conduct analytics across multiple campuses. Together, the university system and the learning analytics organization will continue to analyze factors that influence student retention and success as thoroughly as possible through quantitative analyses. During the first round of findings produced for the research university, the learning analytics organization was able to assess trace data (over 70 data points) from each course learning management system (LMS), along with demographic variables from student information systems (SIS).

Through initial analyses, the learning analytics organization indicated that the following factors increased the risk of not retaining undergraduate students at the research university:

1. Taking a majority of courses online (yet still classified as on-campus students)
2. Being a nontraditional student (age 25 and older)
3. Having a continually low grade point average (GPA 2.0 or lower)
4. Taking Developmental Education Requirements as more than 50% of total courses taken

While age, GPA, and number of developmental courses taken are factors out of the university's control, the correlation of taking online courses with decreased retention rates has potential to be mitigated by the university; thus, it will be the primary focus of this research.

The research university and the rest of the state's university system intend to continue working with the learning analytics organization in order to improve student retention and success outcomes; however, stakeholders in the process understand and acknowledge that they will be unable to garner certain types of vital information from these quantitative methods alone. Therefore, this study will provide the university with detailed qualitative findings that illuminate retention and success factors for undergraduate students taking online courses. The themes and assertions derived from this study will assist the research university to better understand its own retention and success factors; the findings will also add to the larger body of research related to undergraduate student retention and success. In addition, suggestions and insights will be provided regarding how future research might improve and augment the quantitative data from learning analytics.

Research Question

The overarching research question that guided this qualitative study was: "How do demographic, internal, and external factors affect the retention and success of undergraduate students who take online courses?" During this study, these internal factors (e.g., motivation, metacognition, mental and physical health) were explored qualitatively, while reflecting and comparing them to the external factors (e.g., instructional conditions, course logins, content delivery format). The influences of internal and external factors on student retention and success were investigated, with consideration for the broader culture of university students.

Operational Definitions

Asynchronous: A term used to describe courses that do not involve any real-time interactions and often place instructional materials on a learning management system (LMS).

Blended/Hybrid: A term used to describe courses that include both synchronous and asynchronous elements in order to deliver instructional content (e.g., real-time class meetings with on-campus and distance students through web conferencing, in addition to independent assignments completed on the course LMS).

Emerging adulthood: A term coined by psychologist, Jeffrey Arnett, to describe individuals from 18-29 years old, an age span marked by identity exploration, instability, self-focus, feeling "in-between," and contemplation of life's possibilities (Arnett, 2015a).

Face-to-face course: An academic course in which students and the instructor meet synchronously in the same location. Class activities and discussions are carried out during scheduled class meetings, while a smaller portion of work might be posted on a learning management system (LMS) for students to access.

Information and communication technologies (ICTs): Phones, mobile devices, tablets, computers, as well as software and online tools such as social media/social networking sites (e.g., Facebook, Twitter, Instagram, Pinterest).

Instructional design (ID): The practices and methods involved in creating effective teaching and learning environments, applying theories from psychology, education, sociology, and other social sciences.

Instructional design and technology (IDT): Instructional design and technology is a field that combines theories from psychology, sociology, education, and other social sciences; it involves the study of how to improve teaching and learning in all settings by making effective instructional decisions. The overall field of IDT includes many applications in higher education, P-12 schools, and corporate/industry settings. Learning theories developed from fields such as psychology, education, and sociology are applied to various instructional settings. Technology is added to the title of the field, because it is often used to deliver computer-based instruction, web-based instruction, and other device-mediated learning environments.

Learning analytics (LA): The use of big data (e.g., trace data and data from student information systems) in order to make predictive statements about student academic success and retention rates (Siemens & Gašević, 2012). When applied to educational settings, predictive analytics is often termed "learning analytics" or "educational data mining."

Learning management system (LMS): Any software used to track, report, organize, and deliver educational materials through digital forms (e-learning), such as Blackboard, Moodle, or Google Apps for Education.

Online course: An academic course where all or the majority of interactions occur through an online learning management system (LMS), or similar online platform. Interactivity tools such as discussion boards, wikis, and blogs are often used to facilitate communication among students and the instructor. Occasionally, students may be able to meet synchronously with one another, or with the instructor, through web-conferencing software or through in-person meetings (if they are geographically nearby). However, the required course content is all delivered online, and the synchronous components are usually optional (differentiating online courses from blended/hybrid courses, where both asynchronous and synchronous aspects are required).

Phenomenography: Qualitative methodology that leverages the strengths of both phenomenology and ethnography, in order to capture the qualitative variances in how participants experience a given phenomenon, while still accounting for the broader culture of the population of participants.

Predictive analytics (PA): Obtaining information from sets of data in order to determine patterns and produce probabilities that certain outcomes and trends will occur in the future. This overarching term is used to describe the process in business, marketing, insurance, healthcare, as well as education and other fields (Siemens & Gašević, 2012).

Qualtrics: Software used to design and distribute online surveys.

Student information systems (SIS): Demographic information stored in records at an institution, such as grades, socio-economic status, parents' education, and citizenship.

Synchronous: A term used to describe courses that involve real-time interactions, through face-to-face meetings and/or web conferencing software that allows individuals in different geographic locations to communicate and collaborate in real time.

Trace data: Also referred to as log data, consists of data garnered from students' interactions with information and communication technologies (ICTs) such as social media, or interactions within courses' learning management systems (LMS) (e.g., Blackboard, Moodle).

University student: For the purposes of this study, the term "university student" will refer to undergraduate students at four-year universities (i.e., results are not to be conflated with the specific factors that affect community college students and other student populations).

Wellness: For this study, wellness will be defined as all factors associated with mental and physical health. The terms "wellness" and "mental and physical health" will be used interchangeably.

Study Delimitations

1. Interview participants were undergraduate students at a Midwestern research university who had taken one or more online courses, yet were considered on-campus students at some point between 2011 and 2016.
2. Professionals from three offices/departments at the university collaborated to act as gatekeepers for this study. Together, they generated a representative sample of undergraduate students from which to purposively sample interview participants.
3. The sample of interview participants included 14 students (with interviews being conducted until data saturation was achieved). Follow-up surveys (with three open-ended questions) were also sent out to extend the results, and 43 additional students completed those open-ended responses. In qualitative literature, at least 6-12 interview participants

are recommended for phenomenological or phenomenographic studies, in order to achieve optimal reliability and validity (Creswell, 2015; Wertz et al., 2011).

4. Other demographic variables considered during data collection and analysis included age, gender, student status, and work/employment status.

Organization of the Study

Chapter I included an overview of university student retention and success, learning analytics, online learning, and how those topics intersect. This background information served to contextualize the research topic, identify a gap in the literature, and justify the importance of the current study. This chapter also included the purpose of the study, the guiding research question, operational definitions, as well as study delimitations.

Chapter II provides a preliminary review of the literature related to the topics of university student retention and success (with particular focus on undergraduate students who have taken online courses), online learning, and learning analytics. This chapter sets the stage for this study, yet leaves room for the open, exploratory nature of qualitative research in order to discover emerging codes, categories, and themes.

Chapter III outlines the qualitative methodology (phenomenography) and why it was appropriate for answering the research question of this study. Details are stated regarding methods and procedures, participant selection, data collection and analysis, as well as strategies for ensuring qualitative reliability and validity.

Chapter IV is a presentation of the data with respect to the literature. Findings from the qualitative interviews are discussed in relation to relevant research in order to triangulate the emerging themes and ensure the qualitative reliability and validity of the data.

Chapter V represents my interpretation and discussion of the qualitative codes, categories, and themes that emerged from the data. Four assertions that were developed from the themes are also articulated. In addition, this chapter concludes with a summary of the study, conclusions and implications for practice, as well as recommendations for future research.

CHAPTER II

REVIEW OF THE LITERATURE

Chapter II includes a synthesis of the main topics in the research literature that are related to the goals of my study. This preliminary examination of the literature provides a conceptual basis for my study, yet still allows for an open exploration of the data during the qualitative research processes (the methodology for my study is detailed in Chapter III). The subsections of this chapter are organized to provide an overview of university student retention and success, learning analytics, online learning, as well as the intersection of these concepts (e.g., the ways that learning analytics are used to assess student performance in online settings).

University Student Retention and Success

The literature suggests that a multitude of factors might affect the retention and success of undergraduate students in all settings (face-to-face, online, and blended), including demographic, internal, and external factors, as noted by Gašević, Dawson, Rogers, and Gasevic (2016). The first part of this section will include demographic factors, such as age, work status, and family situation. Following that, there will be a review of various internal factors, such as wellness, work status, and communication style, as well as external factors, including course designs, delivery formats, and types of interactivity.

Demographic Factors

Age. Approximately one third of undergraduate students at higher education institutions in the United States are age 25 or older, and are considered nontraditional students. Retention

and graduation rates among nontraditional students continue to be a concern, and many researchers are studying the factors that influence these students' performance (James, 2013; Markle, 2015; Phillips, 2013; Wyatt, 2011). To investigate the lower retention rates of nontraditional students, Markle (2015) conducted a mixed methods study of 494 nontraditional undergraduates at a large public university. Findings from that study indicated that grade point average (GPA) and self-confidence positively influenced graduation rates, while inter-role conflict placed stress on nontraditional students (particularly female students).

Family situation. Inter-role conflict describes the stress that occurs when individuals carry competing life responsibilities (e.g., family, work, and school). Markle (2015) found that many women "view their educational goals as selfish and feel guilty about taking time away from their family" (p. 270). Men do not tend to internalize this type of guilt, instead feeling pressure to be a "good provider" for their families while working and completing a degree. Today, nearly one quarter of American college students have dependent children, and the college dropout rate for parents (53%) is significantly higher than for non-parents (31%). In spite of these obstacles, students who are also parents tend to have higher GPAs than students without children (Institute for Women's Policy Research, 2013).

Work status. Historically, traditional college students enrolled at a university immediately upon completion of high school and relied upon their families for financial support. Full-time college students generally did not seek extra employment in addition to school, as they were not expected to fund their college education. Now, the majority of students work part-time or full-time in addition to taking a full-time course load while they pursue their degree program (Iarovici, 2014). Working students report spending higher amounts of money as an upside of employment, yet they also report increased levels of anxiety, depression, and stress, as compared

to students who are not working while attending college (Mounsey, Vandehey, & Diekhoff, 2013).

Internal Factors

Wellness (mental and physical health). Throughout the health, psychology and education literature, there have been numerous studies on student wellness (mental and physical health). For example, the Cooperative Institutional Research Program (CIRP) collects data on first-year college/university students in its annual report, The American Freshman: National Norms (AFNN). The AFNN is the longest-running and largest survey of students in American colleges and universities. In 2010, the AFNN analyzed data from 201,818 freshman students across the United States; the students reported increased anxiety, depression, substance abuse, and other mental health disorders, as compared to past AFNN reports (Pryor, Hurtado, DeAngelo, Blake, & Tran, 2010). Alongside those findings, Gallagher (2012) conducted a national survey of student affairs personnel and found that 91% of counseling center directors reported higher incidences of students with serious psychological disorders and medication issues. By 2014, the AFNN survey (153,015 college/university freshman students surveyed) indicated that their average self-rated level of mental/emotional health was 50.7%, the lowest level documented since the first AFNN was conducted in 1966 (Eagan et al., 2014).

There has been speculation that the rise in mental health troubles may be correlated with decreased resiliency among the current generation of college/university students (Garza, Bain, & Kupczynski, 2014). Nonetheless, the larger body of literature contains contrary evidence, with students, health professionals, faculty, student affairs personnel, and administrators all reporting an array of factors contributing to the increase in complicated mental/behavioral health problems

on university campuses (Byrd, & McKinney, 2012; Dikel, 2014; Eagan et al., 2014; Gallagher, 2012; Iarovici, 2014; Nyer et al., 2013; Winger & Olson, 2015; Zhou et al., 2013).

Aligned with the findings from the 2014 AFNN, college and university counseling centers reported the highest recorded number of student visits and extended wait times, suggesting that there is still much progress to be made in order to enhance mental health outcomes on campus (Misner, 2014). The heightened prevalence and incidence of mental health issues likely has an array of contributing factors, including: demographic shifts in the college student population (e.g., family, work, culture), enhanced diagnostic processes, decreased stigma surrounding mental health (allowing individuals to more readily seek professional help), as well as interpersonal communication styles and technology use (Eagan et al., 2014; Gallagher, 2012; Kraft, 2011; Winger & Olson, 2015).

American culture and views of adulthood. In legal terms, individuals are considered "adults" at the age of 18, yet it is understood that university students do not instantly become adults as they cross that threshold. Psychologist Jeffrey Arnett has researched individuals between the ages of 18 and 29 years around the nation; he coined the term "emerging adulthood" to describe this age span. During this time, emerging adults exhibit instability, identity exploration, feeling "in-between," self-focus, and contemplation of life's possibilities (Arnett, 2001). Salmela-Aro, Kiuru, Nurmi, and Eerola (2014) found that emerging adults who followed delayed paths to starting careers exhibited decreased optimism, increased depressive symptoms, and more task avoidance both socially and professionally. Parental support and psychological health have also been linked to autonomy and relatedness/connectedness, fundamental qualities particularly when experiencing the life transitions in emerging adulthood (Inguglia, Ingoglia, Liga, Coco, & Cricchio, 2015). Needless to say, the current "culture of university students" is

far different than it was decades ago, and it will continue to grow and shift as individuals use new technologies and interact with one another in varying ways.

Communication style and technology use. Researchers have examined the productive and distractive use of technology in the college classroom (Burns & Lohenry, 2010; Caravello, Jiménez, Kahl, Brachio, & Morote, 2015; Case & Pape, 2013; Chen, 2013; Olson & Winger, 2013). Further, studies have started to explore how technology affects the way that students interact with others and how that affects their mental and physical health (Ferraro et al., 2012; Melton, Bigham, Bland, Bird, & Fairman, 2014). King, Delfabbro, and Griffiths (2012) discovered significant correlations between technology use and health, such as participants who reported excessive time on the Internet and digital technologies also had higher levels of anxiety and psychological distress.

In a 2015 study by Winger and Olson, faculty members and student affairs personnel reported numerous concerning behaviors among college students, including over-reliance on technology and lack of attention related to use of devices. Winger (2016) examined information and communication technology (ICT) use among university students and how it related to mental and physical health. Findings indicated significant correlations among preferred style of communication (in-person synchronous vs. device-mediated asynchronous), levels of state and trait anxiety, as well as symptoms of depression. Multiple regressions showed that students who preferred device-mediated, asynchronous communication reported more state and trait anxiety, as well as more depressive symptoms (Winger, 2016).

Confidence, Motivation, and Self-Efficacy. Many researchers have examined the correlations of various emotions and executive function on academic retention and success, including self-esteem/self-efficacy, motivation, metacognition, confidence, perceived academic

control (PAC), perceived level of presence, and perceived usefulness. Stupnisky, Perry, Renaud, and Hladkyj (2013) used structural equation modeling to compare the influences of perceived academic control (PAC) and self-esteem on student well-being and performance. Their findings suggested that students' PAC negatively predicted anxiety and boredom, while self-esteem had a much smaller negative correlation with anxiety. Additionally, students' self-esteem positively predicted reported levels of physical and mental health, as well as negatively predicted perceived levels of stress (Stupnisky et al., 2013). Flynn and MacLeod (2015) found through multiple regressions that self-esteem, academic success, and financial security (in order), explained a majority of the variance in undergraduate student happiness. In a study of 584 freshman undergraduate students, ability and motivation factors were both found to be predictors of retention (Alarcon & Edwards, 2013). Understandably, academic motivation and academic self-efficacy are strongly connected and predictive of one another (Bedel, 2016).

External Factors

Instructional Conditions. An important form of external influence on students' performance in an educational setting is the set of instructional conditions for the course (Gašević et al., 2016; Jayaprakash et al., 2014). As described by Gašević et al. (2016) and other researchers, instructional conditions can include elements such as delivery format (online, face-to-face, or hybrid), course design, types of interactivity, assignments, assessments, feedback, as well as other resources. The following subsections will provide an overview of selected instructional conditions that have been examined in the literature.

Delivery format. The main delivery formats in modern education include online, face-to-face, and hybrid/blended. Completely online courses (asynchronous) do not use any real-time interactions; instead, course materials are placed on a learning management system (LMS) for

students and instructors to access individually (e.g., online discussion boards, wikis, blogs). Face-to-face courses utilize synchronous, live interactions among students and instructors to facilitate discussions, lectures, group work, and ideally, teachable moments that occur organically. Blended/hybrid learning incorporates both synchronous and asynchronous aspects within the same course, perhaps having live class meetings (face-to-face and/or web-conferenced), as well as online assignments that are completed asynchronously (Yamagata-Lynch, 2014). Hratstinski (2008) explored the qualitative differences between asynchronous and synchronous learning environments, recommending that each approach offers strengths and weaknesses. In that study, synchronous learning was found to increase motivation and psychological arousal among students, offering more opportunities for personal participation (e.g., less complex messages, including task planning and social support). Conversely, asynchronous learning was shown to better foster cognitive participation, such as the sharing of complex messages on a discussion board that require more time for reflection (Hratstinski, 2008).

Interactivity and communication. Face-to-face learning environments and online learning environments provide fundamentally different types of interactivity and communication. Synchronous, face-to-face classes allow students and instructors to communicate in real time, and interact verbally, as well as nonverbally (e.g., body language). Online classes rely on discussion boards, email, and other forms of asynchronous communication, potentially allowing more time for reflection and sharing of complex written messages. Harrigan (2010) found that online interactivity (i.e., participation in online discussion boards) showed a notable positive impact on student writing performance. Effective communication among students and instructors has been demonstrated to be essential for student motivation, engagement,

achievement, and retention (Alarcon & Edwards, 2013; Jaggars, Edgecombe, Stacey, & Columbia University, 2013; Slanger, 2015). Students have reported appreciation for timely communication from instructors through email, recorded audio feedback, and/or any medium available in the given learning environment (Shaw, Kominko, & Terrion, 2015). Audio feedback (as compared to text feedback) has been investigated as a mode of student-instructor communication in asynchronous, online environments; multiple studies indicated that students reported greater retention of course material when audio feedback was provided on assignments (Knauf, 2016; Olesova, 2011; Stout, 2013).

Learning Analytics

Today, many educational institutions are using learning analytics in order to assess and improve instructional practices (Gašević et al., 2016; Jayaprakash, Moody, Lauria, Regan, & Baron, 2014). The learning analytics process uses trace data and demographic information from student information systems (SIS) to generate predictive statements regarding student retention and success (Siemens & Gašević, 2012). On a national and international level, learning analytics are gaining popularity as a method to evaluate teaching and learning methods, as well as determine best practices in higher education (Gašević et al., 2016; Jayaprakash et al., 2014; Scheffel, Drachsler, Stoyanov, & Specht, 2014; Siemens, & Gašević, 2012). Recent research has examined the advantages and disadvantages of learning analytics (particularly in online learning settings); a summary of the current literature is reviewed in the following sections.

Recent Research on Learning Analytics in Higher Education

Thus far, learning analytics research has displayed a significant lack of theoretical basis when examining LMS variables as predictors of student success (Lust, Juarez, Collazo, Elen, & Clarebout, 2012). Constructivist theories and many research studies have all suggested that

learning is inherently situated and context is essential when studying aspects of instructional design (Lave & Wenger, 1991; Winne & Hadwin, 1998; Zimmerman & Schunk, 2011). Although researchers are aware of the importance of situated learning and contextual factors, many studies have examined learning analytics without much consideration to different contexts for learning (e.g., specific courses, different sections of the same course). Gašević et al. (2016) suggested that only one study in the literature (Finnegan, Morris, and Lee, 2009) has considered the influence of contextual variables when using predictive analytics in education.

Learning analytics for online settings. In order to create a solid theoretical grounding for their study, Gašević et al. (2016) adopted the constructivist, metacognitive approach to self-regulated learning developed by Winne and Hadwin (Winne, 2006; Winne & Hadwin, 1998). This model states that external factors (e.g., instructional scaffolding, grading policy) and internal factors (e.g., previous experience, metacognition, motivation) impact learners' decisions. Specifically, Gašević et al. (2016) focused on one feature of Winne and Hadwin's model, instructional conditions, which is an important external factor that may affect academic success. Gašević et al. (2016) conducted a correlational study with a sample of 4,134 undergraduate students across nine courses (online and blended formats) at a public research university in Australia. Four research questions were used in their study:

1. What is the level of similarity in student characteristics and LMS usage across different courses in a blended mode of study?
2. What is the portability of a general model (e.g., as suggested in the Open Academic Analytics Initiative, OAAI by Jayaprakash et al., 2014) – for predicting academic success across courses?

3. To what extent does the predictive power of individual variables derived from trace data differ in the prediction of academic success across courses?
4. How does the predictive power of variables derived from trace data compare to variables derived from information stored in institutional student information systems (e.g., age, gender, citizenship status, language skills) in the prediction of academic success in different courses? (Gašević et al., 2016, pp. 72-73).

Results indicated that students used different LMS tools across the nine courses; the extent to which students used those tools also differed significantly among courses and groups of students (Gašević et al., 2016). These findings suggested that models for predicting academic success and retention must consider instructional conditions and examine data at the individual course level, instead of a generalized model for students across various fields of study. Although certain courses may have similar technology use, they may still require separate prediction models because of differences among student cohorts, instructors, and course designs. Particular variables from the trace data were significant predictors of academic success in the general model (all students), yet they were not significant in the course specific models. Other trace data variables were not significant predictors in the general model; however, when narrowed down to the course level, these variables became significant predictors of academic success. These findings supported the authors' contention that generalized models for predicting academic success may likely over- or under-estimate the effects of individual variables (Gašević et al., 2016).

Implications for teaching and learning. Several implications for practice can be drawn from the Gašević et al. (2016) study, including the use of more course-specific, granular models for predicting student success, which can allow instructors to more accurately interpret factors

that promote success, as well as to enhance teaching methods. Additionally, by using course-specific models to predict student academic success, instructors are able to efficiently implement each LMS tool to best fit within the larger instructional design of a given course. Although course-specific models are likely to be more time-intensive and costly to develop, they will be significantly more accurate than generalized models for predicting academic success. Models for predicting academic success may be improved by: a) identifying basic capabilities of software applications rather than focusing on the variable identification level, thus, creating simplified models through which instructors can generate key factors to promote student success based on past courses, and b) using course-specific models that view academics as active producers of teaching and learning, rather than passive consumers as they are viewed through generalized prediction models of student success and retention (Gašević et al., 2016). Finally, higher education institutions must use caution when outsourcing to external agencies for predictive analytics services, as the analyses that these agencies use may be too "far removed from the specific learning context and learner to provide an organization with any actionable recommendations" (Siemens, Dawson, & Lynch, 2014, p. 7).

Future research in learning analytics. Regarding implications for research in learning analytics, the information from Gašević et al. (2016) suggested course-specific models of academic success prediction must be created so that they consider instructional conditions and avoid the misinterpretation of effect sizes that are likely in generalized models. Their study expanded the results of Finnegan et al.'s (2009) study, signifying that disciplinary differences and varied use of technology within specific courses influence the variances in models for predicting academic success. In addition, their findings confirmed Lust et al.'s (2012) systematic literature survey about the importance of solid theoretical frameworks in studies that examine the

influences of technology on education and learning. The study by Gašević et al. (2016) highlighted the need to consider instructional conditions in order to improve the validity of research on learning analytics; the authors emphasized that future studies should investigate the effects of both internal factors (e.g., wellness, metacognition, motivation) and external factors (e.g., instructional conditions) on the teaching and learning process.

CHAPTER III

METHODS AND PROCEDURES

The purpose of this study was to identify and assess how demographic, external and internal factors affect the retention and success of undergraduate students who have taken online courses. While several studies have examined the demographic and external factors related to university student retention and success through quantitative measures, there have been far fewer qualitative investigations of internal factors that influence retention and success (Gašević et al., 2016). Additionally, there has been a gap in the literature regarding the mediating effects of internal and external factors on one another, particularly related to the retention of students who take online courses. Gašević et al. (2016) made multiple suggestions for future research that should be implemented in order to improve the findings from learning analytics with regard to university student retention and success. Qualitative methods are required in order to thoroughly examine the internal factors affecting student retention and success mentioned in the literature, such as motivation and self-efficacy (Garza, Bain, & Kupczynski, 2014; Morales, 2014; Stupnisky, Perry, Renaud, & Hladkyj, 2013), metacognition (Cochran, Campbell, Baker, & Leeds, 2014; Gašević et al., 2016), and wellness (Joo, Lim, & Kim, 2011; Winger & Olson, 2015; Winger, 2016). Therefore, this study was conducted in order to address the identified gap in the literature and improve the body of research on student retention and success.

Chapter III includes an overview of the methodological approach (qualitative phenomenography), the process for selection of participants, as well as details regarding the

semi-structured interviews and open-ended surveys. Additionally, the data collection and analysis processes are explained, with attention to the specific techniques used to ensure qualitative reliability and validity throughout the study.

Design of the Study

This qualitative study adopted the methodological lens of phenomenography in order to explore and examine the internal factors that affect the retention and success of undergraduate students who take online courses, as well as how these internal factors interact with external factors. Phenomenography includes the ontological assumptions of subjectivism, as it explores the ways that individuals construct meaning and new knowledge regarding their environment (Creswell, 2013; Creswell, 2015; Wertz et al., 2011). This methodology combines aspects of phenomenology and ethnography, leveraging strengths of both approaches.

Phenomenology would use bracketing to study a given phenomenon; in this case, the phenomenon of how undergraduate students perceive the influences of internal factors on their academic retention and success. An ethnographic study would focus more on the culture of modern university students and perhaps involve participant observation and/or interviews in order to ascertain factors that influence academic success and retention. Striving for powerful aspects of both phenomenology and ethnography, this study utilized the methodology of phenomenography. The study involved a detailed examination of the qualitative variances in how undergraduates perceived the effects of internal and external factors on their academic retention and success, while still considering the broader culture of university students (Alsop & Tompsett, 2006; Marton, 1986; Ornek, 2008; Tan & Prosser, 2004).

Selection of Participants

Professionals from three offices/departments at the Midwestern research university acted as gatekeepers to assist in generating a representative sample of participants for this study. First, personnel in the Office of Institutional Research (OIR) generated a list of undergraduate students who: a) are considered "on-campus" students, yet had taken one or more online courses during their undergraduate career, and b) started their first semester at the university between Fall 2011 and Fall 2015. Based on these criteria, the OIR produced a sample of students, including both of the following groups:

1. Retained students (i.e., still enrolled at the university or successfully completed a degree)
2. Dropped/transferred students (i.e., withdrew from the university after taking at least one online course and had not completed a degree at this university)

First contact for interviews. In April 2016, the OIR sent out an email to all students on this list (total of 1,747 students), inviting them to participate in my study and explaining the details and incentives (i.e., drawing for one of two $75 gift cards). Students who wished to participate in my study were asked to respond to the OIR by email; the interested students were forwarded to a research specialist at the university. A total of 26 students indicated that they wanted to participate, and 15 of those students were selected for interviews (based on demographic characteristics, in order to achieve a representative qualitative sample). From the 15 students contacted, 10 students participated in interviews (in-person) and one student responded to the interview questions in writing. Unfortunately, yet unsurprisingly, all of these participants were either students who were still currently enrolled at the university or students who had graduated from the university recently. Prior research and conversations with the OIR

indicated that it might be difficult to reach students who exited the university before completing a degree (Turner, 2014; Willging & Johnson, 2009); therefore, another university office was willing to make phone calls to a selected group of students who had exited the university.

Second contact for interviews. In July 2016, a university employee at the aforementioned office made a total of 75 phone calls to students who had: a) started as first-time, full-time freshman at the university during the academic year 2015-2016, b) taken one or more online courses during that time, and c) subsequently left the university before completing a degree. Only students who started in the most recent academic year were contacted because their contact information would be the most updated, increasing the probability of successfully reaching them. Out of the 75 calls, five former students said that they were interested in completing interviews, and their contact information was then sent to me confidentially. I contacted each of the prospective participants to discuss possible times for live interviews through web-conferencing software, as none of them lived in the university's city. I was able to speak with four of the five students on the phone, and during July and early August, three of those students completed interviews.

Missing participant. Interestingly, the first student (19 years old) with whom I spoke sounded excited about participating and scheduled an interview in early July. She had been a freshman at the university, taken two online courses, and subsequently transferred to a different university for her sophomore year. Two hours before the scheduled interview, this participant sent me a text message indicating that she could not complete the interview and needed to reschedule. We determined a new interview time the following week that worked better for her schedule, and I re-sent her the topic outline and consent form to ensure that she had the interview materials. The day before the rescheduled interview, she sent me a text message expressing

another unexpected event that would prevent her from completing the interview. Of course, I understood life circumstances arise, and I offered her the opportunity to respond to the interview questions in writing on her own time if that would be easier (as one student who graduated had opted for that method and provided me with deep and thoughtful responses). For these two participants, I created detailed versions of the interview questions that they could respond to in writing (with sub-questions that attempted to parallel the probing questions from live interviews). The 19-year old student appreciated that option and said that she would send me her signed consent form and written responses by the following Sunday. On the following Tuesday, I checked in with her and she said that her week was very busy, yet she would definitely send me her responses by the end of the next week. After four more weeks of back and forth communication through email and text messages, she never did send her written responses. I began my thematic analysis of the interview data in late August and regrettably did not have feedback from this student to include in my findings.

The reason for mentioning this participant is to highlight the phenomenon of "research karma." Many researchers are familiar with the fact that participants are more likely to volunteer for a research project when they are also conducting their own research. This process manifests in the undergraduate student population when a higher number of older, experienced students sign up and complete interviews, surveys, or other research requests. Conversely, younger individuals, such as the aforementioned 19-year old undergraduate student, might not sign up or not complete research procedures because they are less familiar with the purposes and benefits associated with quality research. With younger undergraduate students who might not yet see the value of research, it is important to leverage all ethical communication methods in order to

promote their participation. In addition, appropriate forms of incentive (e.g., chances to win a gift card) are often effective for galvanizing individuals toward participation.

Applying retention risk scores from learning analytics (LA). Next, the research specialist applied "retention risk scores" that attempted to predict the probability of retention and success (produced by the learning analytics organization) to the list of participants (students who completed interviews). The research specialist sent me the retention risk scores of the 14 interview participants in rank order, with 14 representing the most likely to be retained and 1 being the least likely to be retained.

Third contact for surveys. Understanding that many participants would not be able to commit to an hour-long interview, the OIR sent an email to all students who took online courses between 2011 – 2015 and subsequently left the university (e.g., dropped or transferred). During July 2016, the OIR sent this second phase of email invitations to 1,373 former students, asking interested participants to complete a brief online survey (using an anonymous link to a Qualtrics survey). The online survey contained three open-ended questions and functioned as a condensed, written alternative to an interview.

Gatekeeping process for all forms of contact. This gatekeeping process maintained the confidentiality of participant information and prevented unnecessary researcher bias during the interviews. In addition, an instructional design and technology (IDT) specialist at the university provided me with archival data regarding the online courses in which the interview participants had been enrolled. The IDT specialist emailed all of the instructors for each of the courses that the 14 students had taken. Four instructors responded granting permission for me to view de-identified, archived versions of their online courses. Unfortunately, these courses did not cover all of the students' online courses; yet it is understandable, as a number of the instructors might

no longer work at the university, or they are no longer teaching those courses and did not wish to respond to the email request. Nonetheless, the accessible archived course data allowed me to objectively assess the instructional design (ID) elements of the online courses (external factors), alongside my qualitative analysis of the students' perceived experiences of the internal and external factors that influenced their retention and success, as recommended by Gašević et al. (2016). Additionally, all interview participants provided vivid descriptions of nearly all of the instructional conditions of each online course they had experienced. This process will be further explained in the data analysis section.

Guiding Research Question and Qualitative Methods

As stated in Chapter I, the overarching research question for the study was: "How do demographic, internal, and external factors affect the retention and success of undergraduate students who take online courses?" This main research question guided the development of open-ended, semi-structured interview questions. Semi-structured interviews were the primary method used in order to answer this research question through a phenomenographic approach. In the literature, detailed interviews are recommended in order to gather the qualitative variances in how individuals perceive a given phenomenon, while still accounting for the culture of the particular group of individuals (Marton, 1986; Ornek, 2008). As a follow-up to the interviews, short surveys with open-ended questions were emailed to students who dropped or transferred away from the university, in order to reach that group of students.

Semi-structured interviews

The semi-structured interview format included primary guiding questions, as well as follow-up questions to probe further into topics. These open-ended questions provided organization for the interviews, yet allowed for the flexibility and flow that is inherent and

desired during qualitative interviews (Roulston, 2010; Rubin & Rubin, 2011). In-person interviews were preferred and used for ten of the interviews. Three participants who could not complete in-person interviews completed distance interviews through Adobe Connect (web conferencing software) in order to replicate the in-person interviewing environment as much as possible (e.g., ability to perceive non-verbal cues through facial or body movements on video conferencing, in addition to the verbal statements from the participants). As noted previously, one participant was unable to schedule a synchronous interview (neither in-person, nor online); instead this person wrote detailed responses to the interview questions and sent them back to me through email. Two to three days before each scheduled interview, I emailed each participant an outline of what we would be discussing in order for them to start thinking about the topics. This tactic served to prepare the participants for substantial discussion, yet not reveal the sub-questions that I used to probe for more detailed and extemporaneous responses during the interviews.

The following outline includes the open-ended questions that were used to guide interviews with participants. Numbered bullet points represent the main guiding questions, while the sub-bullets (a, b, c…) represent flexible follow-up questions that were used to probe for more specific discussion of a topic:

1. Imagine a typical day for you, including academic/schoolwork, employment, social time, and all other activities. Please describe what your days look like and approximately how much time you spend on each activity…
    a. How much time per day/per week on academics?
    b. How much time per day/per week on work/employment?

c. How much time per day/per week on social activities? What kinds of activities do you enjoy?

d. As you look at how much time you spend on each activity during a typical day, which ones do you feel that you prioritize?

e. Are there any activities that you wish to spend more time on? If yes, why?

f. Any activities that you wish you spent less time on? If yes, why?

g. What is your time like using technology?

    i. Do you use social media? Which sites? (e.g., Facebook, Twitter)

        1. How many times do you check in on social media per day? Approximately how much time do you spend on social media?

    ii. Do you use other technology? (e.g., online games with friends)

    iii. If you spend time online socially, how do you feel that affects your social life and the time that you spend with friends and family in person?

2. Please describe how you feel when you are working on academic projects (for example—writing papers, completing group projects, studying for exams).

    a. Please discuss the type of academic work that makes you feel most confident…

    b. Please discuss the type of academic work that makes you feel least confident…

    c. Please describe your focus/attention while working on different projects (this can include your learning environment, where you study and work best, what tactics you use to study, taking breaks, etc.)

    d. What motivates you to accomplish academic work?

    e. When you receive a high grade, what is your immediate response?

    f. When you receive a grade lower than expected, what is your immediate response?

g. Please describe any other emotions, or other physical or mental responses to academic work (if you have not already shared).

h. Have you taken any online courses before college? (e.g., AP classes in high school)

3. Please describe your overall experience in the online course or multiple online courses that you have taken (for example – communication with instructor and other students, course activities, types of assignments and assessments, workload, time management).

   a. Which online course(s) did you take?

   b. Why did you choose to take this course/these courses online?

   c. Were there any synchronous meetings for the course? In-person with instructor and/or other students? Via online web-conferencing (e.g., Adobe Connect)?

   d. What types of assignments, activities, exams, discussion boards were in the course?

   e. What aspects of the online course do you feel contributed to your academic success?

   f. What aspects of the online course do you feel were barriers that made the course more difficult for you?

   g. Did you feel in control of your own learning in the course? How so?

   h. What was communication with instructor like? Did you feel a meaningful connection with the instructor?

   i. What was communication with other students like? Did you feel meaningful connections with other students in the class?

j. Considering overall academic work, what other emotions, physical or mental responses do you have to online work?

k. What, if any, differences do you notice between your experiences in your online courses as compared to your on-campus courses?

l. How do you feel about the professional relationships that you build with instructors and students in an online course vs. an on-campus course?

4. Why did you choose to pursue a degree at the university?

    a. What has helped you continue your academic work at the university?

        i. Please describe any and all factors that you believe promote your academic retention and success at the university (e.g., study habits, connections with faculty and staff, connections with other students, health and wellness factors)

    b. What do you feel has hindered your academic retention and success at the university?

    c. What suggestions would you give the university in order to make students' experiences better?

    d. What recommendations would you offer the university in order to improve online education?

5. *(*Only for students who dropped or transferred away from the university)* – What helped you come to the decision to transfer away or exit the university?

    a. What factors influenced your decision to leave the university?

Open-Ended Survey Questions

Following the qualitative interviews, I wished to gain more feedback from students who had exited the university after taking online courses, as only three students from this population were able to complete interviews. Thus, in July 2016, the OIR sent an email invitation to all students who took online courses between 2011 – 2015 and subsequently left the university (i.e., dropped or transferred), asking interested participants to complete a brief online survey (using an anonymous link to a Qualtrics survey).

The first four items on the survey were multiple choice questions, used to gather demographic information about: the number of online courses each participant took while at the university; the next actions taken after leaving the university; current student status (e.g., sophomore, junior, not currently a student, or graduated/completed a degree); and current employment situation (e.g., part-time student and working full-time, full-time student and working part-time, or not a student and working full-time). Striving for detailed qualitative responses, yet also brevity of the survey in order to minimize respondents' time commitment, I formulated the following three open-ended questions for the online survey:

1. Please describe your experiences with online courses at the university.
    a. For example:
        i. Advantages and disadvantages of online courses compared to on-campus/face-to-face courses
        ii. What was communication like with the instructors and other students in the courses?
        iii. Describe any meaningful connections/relationships that you made in online courses as compared to on-campus/face-to-face courses

2. If you left the university before completing a degree and/or transferred to another college/university, please describe the main reasons that influenced your decision.
3. What suggestions would you give the university for improving online education?
    a. For example:
        i. Course design and activities
        ii. Types of interactivity used in online courses
        iii. Building a sense of community in online courses
        iv. Feeling connected to the university

The open-ended survey was available to participants from July until September 2016, and respondents continued to filter in throughout that entire time span.

Analysis of Data

Interviews continued until qualitative data saturation was reached; 14 participants completed the interview questions, with ten in-person interviews, three distance interviews, and one written response. The literature suggests at least 6-12 interviews in order to obtain qualitatively reliable and valid results (Creswell, 2015; Wertz et al., 2011). Understanding that many participants would not be able to commit to an hour-long interview, the brief online survey provided an expedited way to gather extra qualitative data and extend the results to a larger group of students. Over the course of two months, 43 surveys were completed and submitted to me through the online Qualtrics software. In total, my qualitative sample size was rather large, with 14 interview participants and 43 survey respondents.

Qualitative data analysis was an ongoing and iterative process throughout this study, always striving to improve and refine interview questions in order to gain the "richest, thickest" data from subsequent interviews. First, audio data recorded from the interviews was transcribed

into written form. Once the interviews were transcribed, I emailed each participant's transcript back to him/her in order to conduct a member check on the information shared during each interview. All 14 participants indicated that the transcripts were accurate and no changes were necessary. Along with peer debriefing, these member checks enhanced the qualitative validity and reliability of the results. Thematic analysis was used (in alignment with the epistemological and ontological assumptions of phenomenography) to organize the qualitative data from the interviews and open-ended survey responses. I used the qualitative software, *Atlas.ti*, which enhanced my ability to organize, code, and analyze the data. Quotes and significant statements were identified and organized into codes, categories, themes and assertions (Creswell, 2013; Maxwell, 2013; Wertz et al., 2011).

Next, the IDT specialist at the university sent me archived versions of the four available online courses that interview participants had taken. I examined all available aspects of each online course, such as course syllabi, course website design, types of interactivity, assignments and assessments, and other relevant instructional design (ID) elements. As I investigated the ID elements of these courses, I reflected on the findings from previous research on external factors related to retention and success (Cochran et al., 2014; Gašević et al., 2016; Sutton, 2014). This evaluative process allowed me to compare the external factors (gathered from ID elements in the archival online courses) with the internal factors (determined from students' perceptions expressed in interviews and surveys). By doing so, this study addressed the recommendations for further research on internal and external factors that influence student retention and success, as described by Gašević et al. (2016).

Qualitative Reliability and Validity

Appropriate procedures were implemented throughout this study in order to ensure the highest possible level of qualitative reliability and validity. Following the ethical guidelines detailed by the university's Institutional Review Board (IRB) was a vital part of building rapport and trust with interviewees and survey respondents (e.g., clear description of study, explanation of risks and benefits, identification of the right to withdraw participation at any time, confidentiality of all identifying information, explanation of the procedures and implications of participating in the study). In the IRB consent form, I asked interview participants to initial next to each statement with which they agreed, including: consent to be audio-recorded during the interview, consent for quotes to be used, consent for the university to release a retention risk score (rank) to me as the researcher, and consent for the university to share with me the online courses (section number, online LMS data) that each participant completed. Aligned with IRB standards, credibility, authenticity, and trustworthiness were established to ensure a positive experience for participants, as well as to enhance qualitative reliability and validity (Creswell, 2013; Roulston, 2010).

During the entire research process, I remained cognizant of any biases that I brought to this study by critically reflecting on how they might influence the qualitative findings, and clearly articulating my biases if they were present. Member checks and peer debriefing were used as qualitative methods to enhance the validity of the results beyond my own interpretations. As I transcribed each interview, I emailed each transcript back to its respective participant, asking them to verify its accuracy. No transcript changes were requested by any of the 14 interview participants. Once member checks were completed, I asked one of my colleagues to review the qualitative data (interview transcripts) to conduct peer debriefing. My colleague was

not previously involved in my research process; thus, she was able to objectively assess the data. The qualitative themes that she and I developed from the data were aligned and reinforced one another, providing reassurance that my thematic analysis was accurate. All of these techniques were implemented in order to strengthen the qualitative validity and reliability of the findings from my study (Creswell, 2015; Roulston, 2010; Rubin & Rubin, 2011).

CHAPTER IV

PRESENTATION OF THE DATA WITH RESPECT TO THE LITERATURE

The purpose of my study was to investigate demographic, internal, and external factors that affect undergraduate student retention and success, with particular consideration for students who have been enrolled in online courses. Qualitative interviews, open-ended surveys, and instructional design analyses were used in order to examine these factors; findings from this study will be used to augment and enhance quantitative data from learning analytics related to university student retention and success.

To begin Chapter IV, I have provided details from each of the 14 qualitative interviews, in the form of individual narratives for each participant. The narratives describe the lived experiences of the participants related to their academic retention and success, while still considering the broader scope of how university students communicate and behave in modern society. This phenomenographic approach allowed me to capture the essence of the phenomena (factors affecting retention and success), while also describing the culture of university students (Alsop & Tompsett, 2006; Marton, 1986; Tan & Prosser, 2004). For participants whose online courses were made available to me, I also conducted instructional design analyses on the courses and compared my findings to the perceptions of the students.

Next, I synthesized data from the 14 interviews with the 43 open-ended survey responses; using qualitative thematic analysis, I developed codes, categories, and themes. Following the individual narratives, the codes, categories, and themes are outlined in Table 1. Additionally, the

themes are discussed in relation to the literature on university student retention and success, learning analytics, and online learning. To conclude Chapter IV, the results of my study are summarized, in order to setup the assertions that are stated at the beginning of Chapter V.

Individual Narratives from Qualitative Interviews

This section includes individual narratives that portray the lived experiences of each interview participant, including quotes and significant statements. Pseudonyms were assigned to each of the 14 interview participants, in order to maintain anonymity. For the purposes of this study, the participants will be referred to by the following names: Roxanne, Paulina, Raquel, Brock, Zoey, Jasper, Yolanda, Whitney, Penny, Riley, Spencer, Logan, Preston, and Mackenzie. For each narrative, I will depict the flow of topics that each participant described during his/her interview, including demographic information, daily routine and responsibilities, academic work, experiences with online courses, and insights regarding university student retention and success. Many participants voluntarily mentioned the grades that they received in various online courses; where applicable, the grades will be noted during the narratives for comparison and analysis.

As mentioned in Chapter III, the research specialist provided retention risk scores, in rank order (1-14), for each of the participants, with 14 indicating the most likely to be retained, and 1 indicating the least likely to be retained (based on learning analytics conducted by the non-profit organization). It is important to note that none of these students had "low" retention risk scores that indicated high probabilities for leaving the university. Consistent with the previously noted "research karma" effect, students who were willing to interview were mostly individuals who performed well academically. Nonetheless, the retention risk rank order allowed for comparisons among the 14 interview participants. For each student, the retention score rank number will be listed, as well as the actual status of the student (retained, discontinuous

enrollment/retained, retained/graduated, dropped, or transferred). Additionally, for each student's online courses that I was granted access to on the LMS, I conducted an instructional design analysis on the course and compared it to the student's description and reported experiences in the course.

Roxanne

Demographic information. Roxanne was 22 years old, and she had just graduated with her degree in chemical engineering (retention score rank = 14; retained/graduated student). During her undergraduate career, she maintained a 3.9 cumulative GPA, carried a typical credit load of 16 each semester, and had taken four online courses at the university. Of the 14 interview participants, she was ranked as the student with the highest probability of being retained at the university (according to the learning analytics data).

Daily routine and responsibilities. As a chemical engineering major, Roxanne described the daily routine of her first seven semesters as fairly similar. She would have lecture classes in the morning and lab classes in the afternoon, interspersed with research assistant work at the chemistry lab. Roxanne would take a few hours in the evenings to eat and watch Netflix, followed by homework until one or two o'clock in the morning. During her final semester, most of her time was occupied by the senior design course that engineering majors complete at the conclusion of the degree program. She described her schedule in that final semester, saying,

> I'd wake, up, I'd go into the computer lab where I'd work with my group at eight or nine in the morning, and we'd usually work until one or two at night. Those were weekdays. On the weekends we'd usually only work until like seven or eight in the evening, and then homework would happen here and there, so it was just an "always in that lab" sort of thing. It was over 100 hours a week. I know, I did the math. It was terrible. Yeah, I

> mean that was horrible, but we knew it would be horrible. It's like a rite of passage and it's over.

Roxanne prioritized studying for upcoming exams over all other assignments and other obligations; with free time, she made social events a priority over sleep. She said that she "didn't prioritize going to class at all," yet all of the lectures for engineering courses were recorded, so "missing class wasn't an end-all, be-all."

Roxanne noted that she had more free time to socialize with friends on weekends, yet the final semester with the senior design course largely edged out her social time. When we spoke about social media, she said, "I have a Facebook account. I log in about once every six months." She also mentioned that she often misplaced her phone and would be unreachable for a day or two; Roxanne's friends understood that she might not respond to text messages consistently. Considering her minimal use of information and communication technologies (ICTs) and social media, Roxanne did not feel that technology had affected the way she interacts with family and friends.

Academic work. Roxanne delved into the types of academic work that she preferred throughout her undergraduate career, emphasizing,

> Academically, I don't really have test anxiety, I don't really have anxiety when it comes to giving speeches, but writing papers I get really anxious. I don't know why, I think I'm an average writer, but I really get worked up over papers. They take me way longer than they should.

She reiterated that she felt most confident working on individual projects, yet least confident writing papers. Roxanne enjoyed classes related to her chemical engineering major, expressing that, "engineering is kind of like a game; I enjoy trying to overcome nature and see if I can bend

it to my will." She cited her passion for chemical engineering, maintaining scholarships, and preparing for graduate school as her main motivators to her academic performance. As Roxanne spoke about her passion for various subjects, she clearly expressed a high level of confidence, motivation, and self-efficacy (Flynn & MacLeod, 2015; Stupnisky et al., 2013).

Roxanne explained her focus on academic projects, saying, "I don't do assignments for a little bit of time, I'll just pick one and I'll attack it until it's done." She described herself as a "noise addict," noting that she always has a TV or radio on all of the time, even when she is sleeping. "I'm never watching it, I'm never listening to it, but even when I'm writing a paper or working on homework—if the noise goes off, it's unsettling to me," she elaborated.

First online course. The first online course that Roxanne took was a math course in differential equations; she chose the online section because it worked better with her schedule that semester. This course was completely asynchronous and self-paced, and she described it by saying,

> This class was really unstructured and I loved it. Basically what happened is the professor said, "Go buy this book." We got the book and he said, "Okay, the midterm exam is on the first half of the book. It's on this date. The final exam is on the whole book, and it's on this date." That was it. I thought it was fantastic because I went through, I learned at my pace. Math is one of those things though, it's really easy to do that with. Math builds, you can knock out a chapter whenever you want. Like I said, I do stuff in spurts.

Occasionally, the math instructor would send email announcements and suggest practice problems, yet Roxanne indicated that the course almost entirely self-directed, which she enjoyed. The instructor posted a map that displayed where all the class members were geographically located; Roxanne occasionally met with one of the other on-campus students to discuss math

concepts. As an intrinsically-motivated student, Roxane enjoyed her experience in the online differential equations course, and earned an "A" in the course.

Second online course. Roxanne's second online course was an electrical engineering course on circuits analysis, which she took online because she was enrolled in a face-to-face chemistry course that had a time conflict with the face-to-face section of circuits analysis. She described the communication among students and the instructor as different in this course (compared to other online courses), noting,

> Yeah, almost my entire class was in the in-class version of that, so I knew most of the students in the on-campus section of circuits. Then, the other thing was the professor who taught that class, I knew her and she knew who I was before the class even started. She's one who I actually did approach a couple times personally, just because there was a personal relationship there. This one, it was an online class, but it kind of wasn't – I wasn't so isolated. Also, there was a lab component. Yeah, so I made the lab in person. The instructor also required me to take the exams on-campus, so I missed my chemistry course on those days, and my chemistry instructor was fine with that.

Roxanne appreciated her prior connection with the circuits analysis instructor, and she said, "I didn't feel any more left out because I was not at her on-campus lectures. I felt just as much in the class as anyone else." The circuits instructor kept the pace of her course controlled much more than the math instructor, yet Roxanne still felt in control of her own learning in circuits analysis and appreciated the flexibility of the online section of the course (Bawa, 2016). She also earned an "A" in the circuits analysis course.

Third online course. Roxanne completed her third online course, material science, as a mechanical engineering elective, and she took the course purely out of interest for the content.

Material science was offered both face-to-face and online, with content being shared between the two sections (similar to the circuits course). In addition, the face-to-face material science course overlapped partially with one of Roxanne's required chemistry labs, forcing her to enroll in the online section of material science. Nonetheless, there were several days throughout the semester where Roxanne's schedule allowed her to attend the face-to-face class session for material science, and she emphasized,

> This was one where the professor actually did tell me if I wanted to come to class physically that I could. Most of the time I would have just not gone because again, I really hate lecturing classes, but this was a flipped class. It was really, it was probably one of my favorite classes I've ever taken in all of college. I actually did go a handful of times. I couldn't always make it just because stuff was getting busier, but when I could make it I did go. This professor was probably the only professor I've ever had in school who really ran a flipped class really well. I introduced myself at the beginning of the semester, and he recognized me whenever he saw me in the hallways afterward. Because I was able to meet with him in-person, I would say there was a meaningful-ish connection. He was a fantastic instructor.

Roxanne continued to elaborate on how effectively the material science instructor handled the flipped classroom, as well as how well he communicated with all students (face-to-face and online) (Long, Cummins, & Waugh, 2016; Moffett, 2015). The online section of the course included practice assignments, quizzes, exams, and recorded class discussions; Roxanne noted that the recordings of the face-to-face section had potential to be useful, yet the microphone did not pick up students' voices well, so online students could only hear the instructor when they listened to the recordings. Roxanne earned an "A" in the material science course.

Fourth online course. Roxanne's fourth online course at the university was a chemical engineering course related to separations (e.g., distilling and evaporating various chemicals). She started taking the face-to-face version of the course her junior year, then dropped it and retook it online during her senior year, explaining,

> Honestly, I dropped it the first time because I wasn't doing very well. For most of the class members, their average score was below a 50% at the time that I dropped it. That year was the professor's first year teaching at the university. Then I thought, "Ehh, I'm not doing this, I'm going to take this later." I did, this final semester and, I mean, there were times I kind of wish I would have stuck with it, I don't know. For the first few weeks of the online course, the material was all familiar to me, because I'd learned it the previous year and after that it was new material. Honestly, it was still pretty miserable the second time around. This was a bad class. It wasn't handled very well. There were a number of us who dropped and then re-took it.

Roxanne continued to expound the experience of online courses across the various types of engineering at the university, emphasizing

> Again, it's really common for engineering classes to be some are distance and some are online because it's common for people to go away and work for a company for a semester. The chemical engineering separations instructor thought, "I want this to be as fair as possible. I want there to be no difference between on campus and online," so the due dates were the same for all students. We had these weekly quizzes and he said, "Well, I don't want the on campus people to have an advantage if I give it to them during the week, because online students might be working at a company during the week." Then he thought the other way around, "If campus people are here working on a lab or

> something over the weekend, then online students have those advantages." He gave us these quizzes every week that wouldn't become available until Friday at 3pm, and they were due Saturday by 12 noon. It was just the most annoying thing. Stuff like that was always happening, where he was trying to make the course fair, but in the end, it just made everyone mad.

Compared to her other three online courses, Roxanne clearly described the separations course as less effective and more frustrating. Online students were required to individually schedule when they would take each exam in the separations course, yet the instructor noted that he wanted on-campus students (who were enrolled in the online section of the course) to take the exams with the students in the face-to-face section. Roxanne was taking the online separations course during her final semester, alongside the senior design course (100 hours or more per week), and she accidentally scheduled her final separations exam a day earlier than she intended. She vividly described the miscommunication and misunderstanding that occurred, saying,

> I scheduled the final exam and I took it by myself. Well, I forgot because I hadn't been with the on-campus class all semester. I ended up taking the final the day before the rest of the face-to-face students. I didn't take it the day after or the day of, I took it the day before, and I got this angry email from the instructor. He was really, really upset with me because he thought I was trying to do something crooked. I mean, I don't know how I would be cheating. Maybe he was worried that I would share information about the exam with someone else, but that turned out to be just a really, really horrible experience because he was very, very upset with me. I remember that I went to my advisor and I said, "You just need to know this is happening. It was a mistake, and I don't want it to stop me from graduation, if he wants to try and invalidate my file." My advisor said,

"You'll graduate, you'll be fine." After a few angry emails from the instructor, it eventually worked out. I kind of suspect that another professor from the department stepped in and told him to back off, because all of sudden, his message changed and he wrote, “Okay, fine. I will accept your exam.” I did get a “B” in the separations class. This was one where I got a B. I had an A before that incident, so I think it still affected me somehow. That was frustrating because it was an honest mistake on my part. Just a bad experience overall.

Roxanne summarized her online learning experiences by saying,

> I actually liked online courses. I think I did well with them because of my independent learning style, and also because I still had the safety net of being on campus. Also, the online courses I chose were more peripheral, not my core classes, and I think online worked well for those. I think that taking my main, core classes online would have been more difficult.

At the same time, she felt that she likely missed a few opportunities to meet new classmates because she was not in the face-to-face sections, sitting next to students in other majors (e.g., electrical engineering, mechanical engineering, physics) (Joo, Lim, & Kim, 2011).

Student retention and success. Roxanne started by contrasting her experiences with face-to-face and online courses, noting the advantages and disadvantages of both settings. She believed that the higher level of accountability in face-to-face courses is helpful to student retention, and elaborated, saying,

> Even though I mentioned that I don't go to classes a lot – I'd still wake up, get dressed and go to the engineering building and if anything, I might still be just working in the lab next to the classroom where class is happening. There is something to be said for being

> physically there, talking with anyone about the material. I think there's a higher level of accountability if you are around your classmates. I think that you feel worse about performing poorly in courses if you realize that other students are more up to speed with what's going on than you are. I do think that, I've been borderline (e.g., between A and B grades) maybe a handful of times, and because professors have known who I am, it has helped. They knew my name, and I went to their office for help. I think there's something to be said for that a little bit. It's a different mindset if you're lying in your bed typing something on the computer and calling in class, versus if you're actually doing something on campus, even if you're doing the exact same thing. It's a different mindset if you're physically there, if you're actually talking with someone about it.

Roxanne continued to discuss factors that influence student retention and success, particularly with online students, postulating,

> There's probably, I could see someone with maybe, who struggles with an emotional issue, anxiety or depression, taking an online course for that reason, so that they don't have to interact with people. Then, they're probably not going to have an easy time asking for help from a professor, from a classmate. I could see that being a factor affecting student retention.

Also, she discussed her journey through a bachelor's degree, emphasizing that her parents always spoke about Roxanne going to college as a fact, and she "never questioned the idea of completing a degree." Coupled with support from her family, Roxanne strongly emphasized the importance of meeting her best friend during her first semester at the university. She highlighted their close friendship, saying, "We leaned on each other a lot, and helped each other understand concepts. If it weren't for each other, both of our grades would have been way lower."

Roxanne's best friend was a first generation university student, and even became close with Roxanne's parents, often calling them for personal and professional advice. Roxanne cited the "open-door policy" of most chemical engineering faculty members as very helpful and reassuring in that "she could always find someone and they were always approachable." To conclude, Roxanne emphasized that support from family, friends, and faculty members was essential to her retention and success at the university (Cochran et al., 2014).

Paulina

Demographic information. Paulina was a 20-year old junior, undergraduate student entering her third year at the university (retention score rank = 13; retained student). She was double majoring in Psychology and Honors, and she had completed almost 90 credits thus far (nearing senior status). Paulina had maintained a 3.8 cumulative GPA, carried a typical credit load of 19 each semester, and had taken five online courses at the university.

Daily routine and responsibilities. Paulina described her typical weekday that included early morning physical training, three to five classes, two hours of homework, and occasionally some social time. She worked as a psychology tutor during the school week and at her part-time job on the weekends, usually totaling 14-20 hours of work per week. Paulina usually spends any additional time organizing events or volunteering as part of the reserve officers' training corps (ROTC) at the university.

When we spoke about time online and social media, Paulina indicated, "I have a Facebook, but I try to stay off of it as much as possible. I maybe do 10-15 minutes a day just to check in on things." She explained that Facebook does allow her to stay in contact with distant friends. Paulina also noted that her use of technology does not overlap with her social time, and

that she spends most of her time online watching shows on Netflix or Youtube, just to unwind from academic work.

Academic work. Paulina expressed her enjoyment of writing papers, saying, "I am generally pretty proud of my writing. I like churning out papers and showing people my thought process." Conversely, she noted that she is not fond of group projects, as the workload is rarely shared evenly. Paulina also described herself as a kinesthetic learner, often writing notes multiple times in order to embed and encode information, as well as having light background music to improve her focus and attention (Gordon-Hickey & Lemley, 2012).

Paulina elaborated on her motivation to excel in academics by saying,

> I guess I have big goals. I would like to eventually get a doctorate, so that motivates me. Also, I have always liked the way A's look on report cards. I feel like I always have to do my best, so it bums me out when I haven't done my best, so my intrinsic motivation just pushes me forward. My family and friends are also supportive of my educational goals.

She further described her personality as a "blend of perfectionism and procrastination," whereby she rarely ever felt that course material was too difficult and realized that anytime she earned a lower grade, it was solely because of procrastination. Overall, Paulina's comments portrayed her as a diligent, motivated, and confident individual (Flynn & MacLeod, 2015).

First and second online courses. Paulina completed her first two online courses, sequential sections of introductory French, during a summer semester. Language credits were required for her major, yet the face-to-face French courses conflicted with her choir class during the academic year; thus, she took French online in the summer. She indicated that both French courses were asynchronous, were taught by the same instructor, and included similar coursework (including reading assignments, practice exercises, take-home quizzes, listening activities, and

translation essays). Paulina noted that the instructor was always friendly and quick to respond by email, saying that she "felt more of a connection to this instructor compared to other online courses." She said that there were no interactivity tools (e.g., discussion boards) and there was no communication with other students in the French courses. Paulina felt that the lack of face-to-face conversations was large disadvantage for an online language course, yet she was fortunate to have her father (who is fluent in French) with whom to practice spoken French. Paulina earned an "A" in each of the French courses.

Third online course. The third online course that Paulina completed was on interpersonal communication, a requirement for her military science minor that did not fit into her schedule of face-to-face courses. She described the assignments in this asynchronous course, including journal entries, group discussion boards, and textbook readings. Paulina said that the textbook was "fantastic and very progressive," and the journaling assignments helped her to connect the concepts to topics in her own life. In contrast, she felt that the discussion boards were largely unproductive, and most students would just make obligatory comments such as, "I agree! Good job! This is great!" Nonetheless, the instructor provided helpful feedback on the group discussion board topics, and he responded efficiently to any questions through email. Additionally, Paulina noted one peculiar aspect of the journaling assignments,

> There wasn't a lot of feedback on the journals, which was kind of strange, because in the journals you always talked about something that had happened in your life, some personal experience. So it was kind of weird putting that out there, and then not getting any feedback from the instructor, because he always offered good feedback on the discussion boards. I don't know if maybe he just felt uncomfortable commenting on people's life experiences.

Overall, Paulina felt that the course was "okay, but lacked connection with the instructor and fellow students." She earned an "A" in the interpersonal communications course.

Fourth online course. Paulina's fourth online course was psychology research methods, which she took in the summer because she had heard the full semester version was "too long and drawn out." Immediately, Paulina noted that the shorter summer version of the course was well-paced, and she hypothesized, "If I would have taken an entire semester of it, I probably would have hit my head against the wall." She described the course requirements, including weekly readings, recorded lectures with PowerPoint slides, research practice assignments (e.g., statistics software, literature review techniques), and a mock research paper. The final mock research paper provided students with preset research topics, yet allowed them to detail how they would plan a study, recruit participants, analyze data, and write up results. Paulina found the practice assignments with statistics software (e.g., SPSS), as well as the mock research paper to be very beneficial to her learning. She reported that the instructor or her teaching assistant would usually reply to emails, and that communication throughout the course was "okay." Despite enjoying the final research paper, Paulina summarized her experiences by saying that "this course was just average." Paulina performed well on the research paper and other assignments; however, she missed one lab assignment, dropping her grade to a "B" for the psychology research methods course.

Fifth online course. The fifth online course that Paulina completed was a one-credit independent study course that prepared her to be a teaching assistant (TA) in the psychology department. Her advisor (instructor of the course) explained that the course was intended to be taken during the same semester that Paulina would be working as a TA, yet the scheduling did not work, so she was allowed to take it a semester early. The course effectively functioned as a

structured set of advisement meetings, where Paulina would meet with her advisor and discuss topics related to being a teaching assistant. Paulina noted that there were assignments and quizzes that asked her to reflect on her experiences in the classroom; she felt strange making up answers because she was not yet a teaching assistant (since she was taking the course early). Similar to the research methods course, she missed one of the assignments in this independent study course, lowering her grade to a "B."

Student retention and success. Describing her own journey through higher education, Paulina compared the advantages and disadvantages of online and face-to-face learning, noting,

> In online courses, you know you don't talk with the other students, you don't get a feel for how they are doing. If I was struggling with something or if I was doing really well with something, I couldn't really tell if that was the norm or if I was an outlier in my online courses. On campus, I also make an effort to get to know all my professors during the school year. I am generally a pretty vocal person in class, like if a professor poses a question, I answer them pretty often. It is kind of weird not having that connection with the professor online. I guess I just like to make a positive impression with the professor.

Paulina described her career goals of becoming a commissioned officer in the medical branch of the Army. Her scholarships from the ROTC, along with her ambition and passion for psychology, motivated her to pursue her bachelor's degree (and possibly advanced degree afterward). Paulina also described the important of the support from her family and friends, as well as guidance from her advisor and other faculty members. She also described the disconnected feeling that sometimes accompanied her online learning, saying,

> When taking online courses, I feel like students are not as connected to the university. You know, you don't meet people, you don't meet your professors. You are just kind of

> learning information, which for some people I'm sure is great, but I'm definitely not one of those people. If I hadn't met all the wonderful people I've met on campus, I would definitely feel disillusioned. I have generalized anxiety disorder, so it definitely kind of feels like I am on an island, and I have this book and these quizzes. If something goes wrong, I can send an email to my professor, but it just feels very isolated.

Paulina also believed that online courses worked for motivated, older students who "already have a grasp on college." She emphasized that online courses were not interchangeable with face-to-face courses, and in her experience, online courses are more suitable for lower level courses (electives or general education requirements). Overall, she felt that student retention and success would be enhanced by taking upper-level, advanced courses face-to-face, rather than online.

Raquel

Demographic information. Raquel was 21 years old, and she had just graduated with her degree in elementary education (retention score rank = 12; retained/graduated student). During her undergraduate career, she maintained a 3.8 cumulative GPA, carried a typical credit load of 19 each semester, and had taken two online courses at the university. Raquel provided detailed written responses to the interview questions, as we were unable to complete a synchronous interview because of multiple scheduling conflicts.

Daily routine and responsibilities. As an undergraduate student, Raquel carried a busy academic load, including her final semester when she completed her student teaching in the public schools. Following graduation, she has started working full-time in a school district and enjoys her career. Throughout school, Raquel was busy during most weekdays, yet she tried to reserve a little time on weekends to socialize with friends and family. Her favorite activities included going to the lake, exploring parks, and walking around the downtown area with friends.

For social media, Raquel said, "I have accounts with Facebook, Twitter, Tumblr, Snapchat, and Instagram. I use Facebook and Snapchat often, Instagram occasionally, and Twitter and Tumblr seldom." In addition, she said that she plays a few online games, stating, "Obviously, I play Pokémon Go." Raquel reported using social media mostly to keep in touch with distant friends and family members, and putting technology away when she was spending time with people in-person.

Academic work. Raquel emphasized that applied/hands-on projects have always been her strong suit, as a kinesthetic learner, highlighting, "If I get to build or make something that corresponds with the topic, that is phenomenal. That is the most efficient way for me to produce." She reported always listening to music while studying or working, with different genres of music for different projects (e.g., classical music for a sense of calm during difficult projects, upbeat pop music for building/crafting projects). Raquel emphasized her strong intrinsic motivation to do academic work, and said that she enjoys nearly all school-related activities. Her written responses displayed a high level of motivation and self-efficacy (Flynn & MacLeod, 2015; Stupnisky et al., 2013), and she also emphasized the importance of grades by saying,

> Ultimately when you receive grades, it can change your outlook completely. A spectacular grade can make your day or your whole week! A poor one can ruin it. Alternatively, a poor grade can also motivate you to do better. Good grades can be motivators, too!

Raquel's description of grades as extrinsic motivators was echoed by many of the interview participants, as well as reported in the literature (Berlin, Tavani, & Beasançon, 2016; Cochran et al., 2014).

First online course. Raquel's first online course was a Spanish composition course that was only offered online in the semester that she completed it. The course was asynchronous, yet Raquel knew the instructor from prior face-to-face courses and was able to meet with her a few times during the online course. Assignments included weekly readings, discussion boards, and two lengthy essay papers (midterm and final). Raquel said that the Spanish instructor was fairly good to respond to emails, yet there were some miscommunications because tone cannot be interpreted through written messages. Raquel noted those misunderstandings as slight barriers to her success in the course, as she earned a "B" in Spanish composition.

Second online course. The second online course that Raquel completed was a capstone course for her elementary education program, which was solely offered online. It was an asynchronous course that included weekly readings, reflection papers, discussion boards, and a final essay paper. Raquel enjoyed the convenience and flexibility of the online capstone course, mentioning the decreased time driving to campus (as compared to attending a face-to-face course). She described both of her online courses as largely self-paced learning, and described the education capstone course as "mostly a giant reflection on student teaching!" Raquel did not report her grades for either of her online courses.

Student retention and success. Raquel mentioned several factors that supported her retention and success, starting with the "wonderful professors and students in the education college!" She described the valuable connections that she made with professors and fellow students, noting that she remains in contact with many of them, even post-graduation. Raquel expressed deep gratitude for her amazing advisor in the education college, saying, "I don't think I could have survived without her!" She continued on to mention helpful resources on campus, including the counseling center, wellness center, student health services, and career services.

Raquel concluded with a thorough reflection related to being on-campus, as compared to taking online courses,

> I loved living in the dorms and being right in the middle of campus, seeing all the different buildings while taking different courses, interacting with all of the professors and other students. I think I would have personally had a less valuable education if I had been solely an online student. Interaction with others is a huge part of college. You learn so much about others and yourself during that time! Having to work (in person) with other students can improve your people skills and patience. These people can also become your friends, and knowing people who are going through the same stuff you are can be a stress reliever.

Brock

Demographic information. Brock was a 21-year old undergraduate senior who had finished his third year as a double major in marketing and supply chain management (retention score rank = 11; retained student). Brock maintained a 3.1 cumulative GPA and carried a typical credit load of 15-18 each semester. He had completed one online course, and he was currently enrolled in two more online courses at the time of our interview.

Daily routine and responsibilities. During a typical day, Brock spent four to six hours in class, two hours on homework, and three hours working at his part-time job. He indicated that he attended three to six professional events each year, between career fairs and business conferences; he said that he often exchanges business cards with others for networking, yet does not usually follow up and contact them. Aside from time on academics and work, Brock stated that he spends approximately three to four hours per day watching YouTube videos, playing online games, and/or socializing with friends. He shared that he has a Facebook account that he

rarely checks, and that he does not use any other types of social media. Brock did mention that he tends to spend more time playing video games with online friends than time with friends in-person because "they're usually busy with other stuff, but there's always a group of people online playing games."

Academic work. Brock expressed his thoughts about individual academic projects and group work by stating,

> For individual projects, I don't usually mind them but I usually start them pretty late, like maybe a week or two before they're due. Maybe we had a few months to do it, but I usually wait until closer to the deadline. Group projects, I hate them. I worked with groups before, and they're either really good or just really bad, like I end up doing all the work.

He also found that writing papers was tedious and time-consuming, and he was often just "trying to take up space" on the page. Brock generally studied for exams one or two days beforehand, indicating "that's when I will really study and cram for them." He expressed that he is more motivated to complete projects in his major area of marketing, while he is less able to concentrate on papers and large projects in other courses. Brock also spoke about his motivation for completing a degree, saying,

> What motivates me? I guess it's a mixture of I tell myself if I pass this then I'm going to pass the class, and that means I'm so close to being done with my degree overall. I guess it's the fact I don't want to fail and disappoint my parents. It's pretty depressing. I had to tell them I failed a class one time. They understood and everything, but I felt depressed.

Regarding grades, he claimed that he was happy when he received high grades, yet he was completely fine with "C" grades because they are still passing grades. Brock's attitude toward

grades contrasted with the majority of the interview participants who viewed high grades as extremely important (Berlin, Tavani, & Beasançon, 2016; Cochran et al., 2014).

First online course. The first online course that Brock had completed was a three-credit summer course in anthropology. He took the course online as a way to try out a new format and determine if he might enjoy online courses more than face-to-face courses. The anthropology course was completely asynchronous, consisting primarily of discussion boards and exams. Most of the communication between the instructor and students occurred on the discussion boards, and Brock felt a slight connection with the instructor because she responded to emails and discussion posts quickly. Brock earned a "B" in the anthropology course.

Second and third online courses. At the time of the interview, Brock was midway through two other online courses, one in human resources management and one in management ethics. He decided to take these courses online because he secured an internship for the summer, and these courses allowed more flexibility for his summer schedule. Both courses were completely asynchronous, and both involved quizzes, case studies, discussion boards, and exams. At that point in the summer semester, he described communication with the instructor and other students as minimal in both courses, highlighting the miscommunications he had had with the human resources management instructor,

> Communication with that instructor was painful because he would list the deadlines for assignments and exams, but he would not write AM or PM. For example, it would say that the exam would be available from 6 to 9. I emailed him and asked if he could add AM and PM to all of the time ranges. After that, I didn't want to ask multiple times because he still didn't put AM or PM most of the time. It was kind of frustrating.

Brock added that online courses usually seem to be easier in his experiences, yet the disconnect with communication can be discouraging at times.

Student retention and success. As Brock discussed student retention, he described motivation for pursuing a bachelor's degree, saying that he "could not imagine not getting one." His father had a career in the military; however, Brock did not wish to pursue a military career, and even if had wanted to, he stated, he would be disqualified because of a hearing impairment with which he was born. Therefore, Brock viewed a degree as his only viable option, since he did not feel ready to enter the workforce immediately after high school. Brock received funding for his education through his father's Government Issue (GI) bill, and he was motivated to complete his degree and not let the money "go to waste."

Brock had a coworker at his part-time job who was an upper-class marketing student; he had already taken many of the major area courses and was able to mentor Brock through some of the marketing coursework. This friend, along with fellow marketing majors and supply chain management majors, provided Brock with comradery and support that promoted his retention and success at the university. He also used the writing center and math tutoring lab a few times and found them helpful when he was struggling with certain courses. He concluded by comparing and contrasting various aspects of online and face-to-face courses, stating,

> The thing about online courses, is that students need to be really dedicated. It's just so easy to blow them off. When they're taking a lot of online courses, I think it's tough to find motivation and complete the work on time. Also, the less personal communication in online courses might leave some students discouraged. I know if I was feeling anxious and nervous, I would just want to huddle in a hole and hide – ignore the homework and

hope it goes away. I can see some of those students feeling frustrated and disconnected, and possibly dropping out of school.

Zoey

Demographic information. Zoey was a 23-year old graduate student who had graduated with her Bachelor of Science degree in Biology from the university in May 2015 (retention score rank = 10; retained/graduated student). She was now in graduate school at a different university, pursuing a Master's in Public Health. During her time as an undergraduate at the university, she maintained a 3.5 cumulative GPA; she took one online course in her undergraduate career, and now had taken three online courses in graduate school. She was the first woman in her family to obtain a bachelor's degree and the first person in her family to pursue a graduate degree.

Daily routine and responsibilities. While pursuing her undergraduate degree, Zoey usually attended class from 9:00am to 2:00pm each day, with a short break for lunch. After class, she worked on campus for four hours most evenings, followed by a few hours of homework. Zoey prioritized schoolwork above all other responsibilities, often completing her assignments on time or early for most classes. On the weekends, she tried to save a little time for socializing and having fun, so as not to burn out on academics and work all week.

When asked about her time using technology, she replied, "Between school and social media, I am kind of always online." Zoey described all of her time on the LMS for each course, as well as her time using social media. She said, "I am on Facebook and Twitter, to keep in the know of things. I spend free time looking at them. But definitely always on the internet, for sure." I asked Zoey approximately how many times she checks in on social media each day, and she replied,

> Oh gosh, oh my god, too many. Probably at least 40 times a day. I hope that doesn't sound outrageous. I think that's probably normal though. Like I am definitely not a social media freak or anything so… It's just a lot. That sounds really gross even saying it. In between classes, I am on my phone, or during class I am on my phone if it is boring or something like that. Or if I am walking to and from my car, I check Twitter or something.

We spoke about the culture of university students and how our society communicates in the 21st century. Zoey believed that social media and technology has not had a negative impact on her ability to interact with other people, stating,

> The way I communicate with my close friends is still on the phone, face to face, or via text. I am not using Twitter to do my main communication with people. So I wouldn't say that it detracts from my normal relationships with people.

Academic work. When I prompted Zoey about various types of academic work, she began by stating clearly,

> I *hate* writing papers. So I get very anxious when I am writing papers. I try to start writing early, because I can get the blank paper syndrome, where I just sit and stare at a page. I definitely try to be proactive about finishing papers; otherwise, I just have a mental breakdown.

She continued by noting that group projects are more stressful than individual work, because of the coordination involved and scheduling with multiple people. Zoey indicated that studying for exams is not too bad, yet she needs to take breaks every couple of hours in order to stay productive. She reported feeling more confident in courses within her major, as well as courses where she receives positive feedback through grades. Zoey's description aligned with the

findings of Stupnisky et al. (2013) that highlighted the importance of self-esteem and perceived academic control to student success and well-being.

First online course. To fulfill a general education requirement in the humanities, Zoey took a 200-level religion course that lasted three weeks during a summer semester. She was returning home that summer and would not be on campus; thus, she enrolled in the online course for the convenience and flexibility to complete it at a distance. Zoey noted that there was generally something due each day (e.g., assignments, readings), since the course was compressed into three weeks. Often, the students would view an online video or read an article, and the instructor would pose a few questions on the discussion board where the students would respond. Also, Zoey said that there were three exams (online, multiple choice), one on each Friday of the three-week course. She appreciated the feedback from the instructor, yet did not find value in posting and replying on the discussion board, as students often just agree with one another in order to reach the "discussion post quota." Zoey exclaimed,

> I am anti-discussion board. So, whatever questions you have to ask me, I am just not going to like the discussion board thing. I just don't think discussion boards aid anyone's learning. It is fine to get your ideas out there, but commenting back and forth with students, just doesn't do anything. It doesn't help me learn anything. The discussion board feels really fake, because you get to read everyone else's post before you do your own post. A lot of the time, somebody copies – or is already saying what you want to say for your post. That person has your same idea – the two of you share the same opinion, but you still have to formulate your own response to earn the grade and get the points. But you feel like you are not being creative enough, or the teacher won't give you full

credit, because you said something that the other student already said. That's how everybody, every student, every classmate that I talk to feels about discussion boards.

Zoey noted discussion boards as the main disadvantage of the online course, with the rest of the assignments and activities seeming beneficial to her learning.

In addition, Zoey described the communication with the instructor as "very responsive," as he would reply to emails quickly and update the class if he would be unavailable for a day or two over the weekend. She felt a reasonable connection to the instructor through written communication, yet still qualified the statement by saying, "Obviously, it is not like meeting the person face-to-face, but it's fine." Zoey stated that the only form of communication with other students was through the discussion boards. She explained that she became somewhat familiar with other students' thoughts and ideas; however, there were not meaningful connections with her classmates. Zoey did not volunteer her grade in her online course during the interview.

Student retention and success. Zoey described her journey through her undergraduate degree, and she declared that higher education is "absolutely necessary in this day and age to get a financially stable job." She recognized that her family and friends provided a valuable support group to her as she was completing her bachelor's degree, as well as during the beginning of her master's degree. Zoey's fellow students, her instructors, and her advisor also offered support and encouragement that promoted her retention and success at the university. She also mentioned career services and the wellness center as helpful resources on campus.

Related to retention and success of students who take online courses, Zoey acknowledged the importance of time management and motivation by saying,

> Yes, it has flexibility that you can do your assignments whenever you want, but you still need to complete them on time. I think it is good to get into a work ethic habit, get in a

> schedule, and I think that that can be very challenging for undergrad students, and a lot of people. For online classes, you actually have to login to your computer and do the work, and I definitely think that is a challenge, especially when life happens, and things get busy. Time management and motivation are essential.

She went on to emphasize the effects of anxiety, depression, ADHD, family crises, and financial troubles on student retention and success, indicating that she has various friends who have dealt with those issues. Zoey described the different levels of communication in online courses compared to face-to-face courses by stating,

> I think you would feel less 'in the loop' or less connected when you don't physically connect with other students or your professor. You definitely have to be proactive too if you're taking an online course and you are on campus. You could take the time to meet with your professor, but you would have to be very proactive – and I don't think many people care enough to do that. That would definitely hinder students' success too. If people like that in-person feel and connection, then taking an online course would not be ideal for them. Also, their passion for their class – if they don't care as much, they won't do as well I think.

Overall, Zoey asserted that she prefers to take face-to-face courses when they fit into her schedule, in order to gain the social interaction and meaningful connections with instructors and other students. Nonetheless, she appreciated the flexibility and convenience of online courses because they free up her schedule for work or other obligations; she is confident in her ability to manage her time with online courses, work, and graduate school.

Jasper

Demographic information. Jasper was a 20-year old junior, air traffic control major who had completed two years at the university, and was entering his third year in the upcoming fall semester (retention score rank = 9; retained student). He maintained a 4.0 cumulative grade point average (GPA) throughout his undergraduate coursework, and his typical course load for a fall or spring semester was 17-19 credits. At the time of our interview, Jasper had completed one online course (Introduction to Music), and he shared his experiences with online learning and overall university life.

Daily routine and responsibilities. During a typical day, Jasper attended class for four to seven hours, and spent his remaining time on homework, extra-curricular events, and social activities. As an air traffic control major, he belonged to an aerospace student organization that held open labs where students could practice aviation and air traffic control procedures on Fridays. Jasper said, "Aerospace students can attend the open labs and they can better themselves. Everyone is always willing to help out." In this way, his involvement with student organizations supported his academic success and professional development. Aside from his academic work, Jasper spent social time with friends participating in outdoor activities, going out to eat, and watching shows (e.g., Netflix, Hulu). When asked about his use of social media, Jasper stated:

> Yeah, I guess I spend a lot of time on social, especially Facebook. It's something to pass time. A lot of times, if I do not have anything to do/not a lot of homework for the day, I will go on Facebook, or Snapchat, or look at pictures on Instagram or something like that. All of these social media sites and movies and stuff, I use them to help relax myself so I am not stressing myself all the time.

Jasper acknowledged that social media provides a great way to keep up with friends from high school who he does not see much anymore, as well as to find out about events happening in the area. With his close friends and family, he usually talks on the phone, texts, or spends time in person in order to communicate with them.

Academic work. In terms of academic study habits, Jasper explained that he generally prefers to study and work on projects in the morning when he is most alert. He preferred writing papers and individual projects, while he found group projects more stressful with all of the coordination among other students. "Nobody really likes group projects because, a lot of times, one or two people end up doing a majority of the work – then two people get to sluff off and then they all get the same grade," Jasper claimed. When Jasper received high grades, he felt a sense of accomplishment; when he received lower grades, it motivated him to improve in the future, noting that, "it kind of lights a fire underneath me." As he described his work ethic, it seemed apparent that Jasper had high confidence, motivation, and self-efficacy regarding his academic abilities (Flynn & MacLeod, 2015; Stupnisky et al., 2013).

First online course. Jasper took Introduction to Music online and began this portion of the interview by saying, "To be 100% honest, I didn't really like the online course." He explained that he took the music course online because the face-to-face section of the course did not fit into his schedule that semester; in addition, he had a musical background that he thought would make the course easier. Jasper noted that it was more expensive to enroll in an online course, as compared to a face-to-face course, which he did not realize at the outset. Not being in a physical classroom was undesirable for Jasper, as he had to set aside his own time during the week to complete assignments for the online course. He said that communicating with his online instructor was fairly easy, yet not as easy as face-to-face courses. To answer his questions,

Jasper emailed his instructor and waited one or two days for a response, or he attempted to find his answer through an online search engine (e.g., Google). Jasper indicated that he usually did not complete his assignments in the online course as quickly as for his face-to-face courses; therefore, he felt that the quality of work was decreased for his online assignments.

The online music course required students to attend musical events and write reflections on them. Jasper was able to meet his instructor at one of the musical events, and he enjoyed the opportunity to introduce himself to her in person. "You kind of get to know instructors online a little bit, but it is still quite different from if you were going to class with them a couple times a week," noted Jasper. Exams, weekly assignments, and textbook readings were also required tasks for the music course. Jasper expressed that feedback from the instructor was helpful and contributed to his success in the course. Conversely, reading from the book was less effective for Jasper because, as a visual learner, he preferred to have instructors demonstrate problem-solving strategies. He said that in face-to-face courses, he will read the textbook's strategy for solving a problem, and then the instructor will demonstrate a new way to solve the problem in class. "Wow, I wish I would have learned that earlier because it took me two seconds instead of five minutes to solve that problem," exclaimed Jasper. He did not share his grade in the music course during the interview.

Jasper spoke about his ability to communicate and connect with instructors, noting that, "it is definitely easier in a face-to-face class, just for the fact that you see them almost every day." Regarding professional relationships with instructors, Jasper said:

> Right now, I know all of my teachers pretty well. I guess when I see a teacher every once in a while, they will say "Hey Jasper, how's it going?" I mean, you do not get that with

the online classes. I haven't seen my online teacher since I met her that one night at the music concert.

He made a point of introducing himself to each of his face-to-face instructors after the first day of a course, in order to make an impression and connect with them.

Instructional design analysis of online music course. As I logged into the learning management system (LMS) for the online music course, I first saw the 12 announcements that the instructor had made throughout the semester. In these announcements, she welcomed the student to the course, announced upcoming assignments and concert events, provided extra resources, and offered reminders for the major exams. The syllabus was well-designed and succinct, with the music department's logo/banner integrated at the top of the document. Instructor contact information, required materials (e.g., textbook), course objectives, directions for assignment submissions, and course schedule were all clearly and concisely displayed in the syllabus. In the course LMS, the instructor also posted links to extra readings and helpful videos that supported further learning of musical concepts. As Jasper described, the weekly assignments and lessons were accessible to students in structured folders that covered the entire 15-week semester. From an instructional design perspective, this course was well setup, and messages from the instructor seemed friendly, descriptive, and easy-to-understand. Considering the asynchronous delivery format, this instructor seemed to create a strong online presence that made the course inviting to students (Bawa, 2016; Jaggars et al., 2013).

Student retention and success. In addition to positive connections with instructors and other students, Jasper found several campus resources that contributed to his success at the university. Although he only needed to use them a few times in his first two years, he appreciated the support of the writing center and math tutoring center, citing their benefits to

students at all stages. Jasper also gave high praise to career services, noting that "they will help you with your cover letter, resumé, and do mock interviews. That way, when you interview for a real job, you are ready to go and know what to expect." Jasper also exercised at the wellness center on campus, and attended a few swing dance sessions that he described as enjoyable, social, and active events. Considering his involvement with student organizations and his use of campus resources, Jasper acknowledged the important role that all of these activities served to enhance his retention and success at the university.

For online courses specifically, Jasper wished that there was a way to achieve the meaningful connections that he makes in his face-to-face courses. He suggested that online instructors allow students to talk or meet with them synchronously (through web-conferencing or face-to-face meetings) if at all possible. When Jasper was able to meet his online music instructor in person at a concert, he realized how disconnected he had felt when he could not attach a face to the name on his online LMS. Even that one face-to-face introduction helped him to feel a little more connected to the instructor in that entirely asynchronous online course.

Yolanda

Demographic information. Yolanda was a 22-year old undergraduate senior who had completed four years as an elementary education major, and was entering her final semester when she would be student teaching (retention score rank = 8; retained student). She maintained a 3.9 cumulative GPA, carried a typical credit load of 18 each semester, and had taken two online courses during her undergraduate career.

Daily routine and responsibilities. During her last semester of coursework, Yolanda typically had three to seven hours of education class time and/or field experience in the schools each day. Then, she would work at her part-time job off-campus for three to four hours in the

evening, followed by exercising at the wellness center for about 90 minutes. On the weekends, she would complete homework, prepare lesson plans for the upcoming week, and sometimes work for a few hours at her on-campus job that she has had since her freshman year. Additionally, she would babysit for various families on certain weekends. Although she did not have much free time, Yolanda was satisfied with her schedule and her responsibilities. She expressed her prioritization of academic achievement and work, indicating a high level of motivation and time management skills throughout all of her responses during the interview (Stupnisky et al., 2013; Zhao, Wardeska, McGuire, & Cook, 2014). When we discussed social media, Yolanda said that she had Facebook, Instagram, and Snapchat accounts that she used fairly often. She described her time on social media during the summer, as compared to the academic year, stating,

> Right now, during the summer, is off time so I'm on social media way more than I want to be. But during the spring in the school year, it was first thing I would look at when I woke up, after I got off from work, and also before bed. I would say I'm on it pretty frequently.

Being in a military family, Yolanda moved several times throughout her childhood, and had friends throughout the US. Similar to other students, she cited the benefits of connecting with her distant friends through social media (Foss, 2012; Thoms & Eryilmaz, 2014). Nonetheless, she said that she always tries to put her phone away when she has the opportunity to spend time with friends and family.

Academic work. Yolanda described her passion for education and most all types of academic work, laughing as she said, "I would describe myself pretty much as academically nerdy." She expressed enjoyment when writing papers, working on individual projects, and

creating lesson plans for teaching. Yolanda usually did not prefer group projects because of the uneven workload that often occurs; however, in her upper level education courses, all of the students worked well together and she appreciated the rapport and trust that they built with one another. Alongside her education courses, Yolanda felt confident in English and history-related courses, as well as her ability to complete research papers in any course. She expressed intrinsic motivation, along with perfectionistic tendencies regarding achieving high grades, saying,

> I am usually motivated to complete academic work just for the pure enjoyment of learning. Throughout high school, I was of the mentality that getting a "B" wasn't acceptable. So, in college, it's natural for me to feel that I need to get an "A" in a class, or at least a very high "B"… but it probably needs to be an "A."

Occasionally, when Yolanda did not receive a favorable grade, she would be frustrated, yet she often used that momentum to quickly improve her academic performance, displaying a high level of motivation and self-efficacy (Flynn & MacLeod, 2015; Morales, 2014; Stupnisky et al., 2013).

First online course. Yolanda took her first online course, an introduction to fine arts, during her freshman year because her advisor informed her that "students tended to get better grades in the online section of the course." The fine arts course was completely asynchronous and included weekly readings, short essay reflections (on concerts/musical events), multiple-choice quizzes, and a proctored final exam. All of the coursework was self-paced, and there was little to no communication among students and the instructor; the quizzes were graded automatically and the instructor provided minimal feedback on the essay assignments. Yolanda cited the lack of communication when she described her performance in the course,

> What got me was that at the end of the semester, I thought I had done all the folders. The materials were just set up online in weekly folder, and students would get them done at

their own pace. We never got grades along the way, so I was just trusting the fact that I had completed the correct folder from each week. Apparently I did not see one folder, so I missed the quiz and essays for that folder, and that is what dropped me a letter grade.

Yolanda was disappointed that she received a "B," when she expected an "easy A," and she was disheartened by the minimal feedback and communication during the course. She described her experience in the online fine arts course as "a very poor experience," with no interactivity tools to facilitate connections with other students and the instructor.

Second online course. In contrast to the fine arts course, Yolanda's second online course occurred during her senior year, when her advisor allowed her to take a graduate-level special education course, as part of her special education minor. Yolanda carried a heavy course load that semester, so the flexibility of the online course worked well, and allowed her to take this elective course in her interest area. This course represented the instructor's first online teaching experience; however, Yolanda noticed that this instructor spent much more time communicating with students than the instructor of her fine arts course had. She responded to student emails in a timely manner, and she also setup web-conferencing sessions where students could talk with her individually and as a group. Yolanda and several other students took advantage of the synchronous meetings, and she appreciated the opportunity to connect with the instructor and other students. The course included discussion boards, scholarly articles and supplemental readings, educational videos, case studies, and research papers. Yolanda described the course and learning environment, stating,

> I think what helped me a lot in that course is how much feedback I got from her [the instructor]. I really felt like if I was struggling schedule wise to get something done, I emailed her and was able to work that out. If I wasn't totally confident with what I was

> doing, I always had feedback. That was a huge strong point because the assignments were project and research-based, so feedback from her was very helpful. My confidence was boosted, knowing that I did have that support if I needed help.

Yolanda concluded by restating that the special education course was well-designed and the instructor effectively facilitated course activities and discussion online. She earned an "A" in the graduate-level course.

Student retention and success. Yolanda emphasized that connections with her advisor, professors, and other students, were instrumental to her retention and success at the university. Reflecting on her face-to-face and online learning experiences, she said,

> I would normally prefer face-to-face courses, but that last online course that I took, the graduate-level course in special education – it really showed that the communication piece and connection makes or breaks your experience. I've had face-to-face courses that were well below the experience that I had with that online one because that online course was so well-designed and full of communication. The success of online courses — it just depends on how much creativity the professor puts into the course, and how much they care about connecting with their students. You can tell when the professor has put a lot of time into designing the online course and cares about the content and the students, as opposed to a professor who maybe setup the course years ago and just reuses the format each time they offer the online course.

Yolanda highlighted accountability and time management as important characteristics that affect student success, particularly in online courses. She mentioned her younger brother, who was taking a few of his courses online at the university, and how the self-paced online environment exacerbated his procrastination and caused his grades to decline. She noted that "the flexibility

in online courses is good, but too much flexibility can snowball into a lack of effort for some students."

Yolanda expanded her description of student retention and success in online courses by articulating,

> I would say online courses feel like higher stress and anxiety, because if you are taking a class on-campus, it may be challenging and difficult. However, at least you're going to the class and you've got other peers around you who are going through the same thing. Also, it is easier to take two minutes to talk to your professor before or after class if you are struggling. In general, there's that connection with other human beings around you, whereas when you're taking an online class, you might be stuck in front of a computer screen for hours, studying or taking a quiz. You don't have that one-on-one, face-to-face access to your instructor or other students. If you don't know your classmates online, then you might feel like you're completely on your own in the course.

Yolanda closed her interview by reiterating the importance of support systems to her academic retention, citing her academic advisor, professors, friends, and student organizations as vital to her success in higher education.

Whitney

Demographic information. Whitney was a 22-year old undergraduate senior who was entering her final semester in her degree program (retention score rank = 7; retained student). She was an elementary education major who would start student teaching in the fall semester. Whitney maintained a 3.7 cumulative GPA, carried a typical credit load of 18 each semester, and had completed one online course at the time of our interview. She was a first-generation university student, with no one in her family previously obtaining a post-secondary education.

Daily routine and responsibilities. During a typical fall or spring semester, Whitney worked 10-12 hours per week at a work study job, as well as picking up kids from school each day as part of her nanny job. In addition to a full course load, she completed practicum hours in the public schools as an education major, with 60 hours in elementary schools and 30 hours in high schools during the past semester. Whitney spends additional time on extra-curricular events and activities, many hosted by her sorority on campus. She said, "That's kind of my lifestyle – busy. That's the one word to describe my life."

Whitney described her strong prioritization of academic work, saying "I definitely prioritize school. That is why I am here at this university—to get an education, to get a degree, and hopefully pursue something that I love, a career in teaching." Just below academics, she prioritized work and financial gains, citing her work study job, nanny job, as well as a summer job at her family's restaurant in her hometown. With her relatively small amount of free time, Whitney spoke about the Greek life events and social activities that her sorority organized.

When I asked Whitney the time she spent online or using technology in general, she quickly replied,

> I feel like I am *always* online, whether it's… I couldn't imagine life without technology [gasp, laugh]. It has become so engrained in my everyday database. You know, I wake up, I look through my Facebook news feed [laugh], before I even get out of bed. Then, I use technology in the schools, with iPads, smartboards, and everything else. Technology is definitely a huge part of my life.

She elaborated on her use of social media, indicating that her sorority plans events and communicates frequently through Facebook. In addition, she used social media to communicate

with friends in Canada because calls and text messages would incur extra charges on their mobile phone bills. Whitney described communication through social media by saying,

> Yeah, so – it is definitely a huge thing to communicate. It's always cool to look up one another, and see what everyone is doing from high school. Social media allows me to keep up with everything, without having to talk to them. But at the same time, it prevents people from talking to one another, because we already know what's going on in each other's lives. So, it's definitely interesting, but I love the technology, and I definitely rely on it. I embrace technology whenever I can. It's unavoidable, so we might as well embrace it.

Whitney restated that she feels that she does not spend as much time talking to friends in-person or on the phone, because she already knows the updates in their life through social media. She concluded by explaining, "I would say it does hinder me from picking up the phone and calling friends, because I already know how their events went. I saw the pictures, I saw everyone else's comments, and I move on [laugh]."

Academic work. When we spoke about academic work and which tasks made Whitney feel most confident, she indicated that she preferred individual projects. She elaborated,

> I would have to say I am definitely someone who would rather work on my own, but cooperation with others is totally something you're going to do for the rest of your life [small laugh]. So, we might as well get used to it now, but I do feel that I perform my best when I work on my own. I can fit the work into my schedule as well, which is nice. I am pretty busy, and I don't want to hinder others with my inability to schedule group work and be at their convenience.

Whitney's favorite academic work included any time that she was able to prepare a lesson plan and enter the classroom to teach and learn with the students. She always desired more field experience and practicum opportunities, emphasizing that "the moment that all teachers *crave* is the 'a-ha' moment when students understand the lesson." Whitney explained that seeing her students grow and learn is one of her most important motivators to attain her degree. Regarding grades and feedback, she felt a sense of accomplishment when she earned high grades, and felt a challenge to improve when she received low grades. All of her responses indicated a high level of confidence, motivation, and self-efficacy (Flynn & MacLeod, 2015).

First online course. Whitney completed one online course in health and physical education that was a three-credit summer course. She decided to take the course online because the on-campus section during the fall and spring conflicted with other courses, and the flexibility and convenience of the online summer course was preferable. The online course included weekly quizzes, as well as regular lesson plans that students had to write for each subtopic within health and physical education. Whitney's favorite part of the online course was the flexibility and the opportunity to work at her own pace; she was able to finish many of the lessons ahead of schedule, so that she could devote time to her summer jobs. The only aspect that she missed with the online course was the chance to complete field experience in health and physical education. Whitney said,

> I don't think I would be comfortable teaching a physical education course, because I have never actually taught one. I have written lesson plans, and I know what it's supposed to have and what it's supposed to look like, but actually following through on that… makes me anxious.

Whitney indicated that there was little to no communication with the instructor, nor with other students in the course, although she posited, "But then again, I feel like if I were to have an issue, or something in the class was not setup clearly, I would have been able to contact her through email." With the self-pacing of this online course and Whitney's efficient time management, she did not have much reason to contact the instructor.

Whitney reflected on her face-to-face courses as compared to her online course, and she described her experiences by saying,

> I definitely learned a lot more from those face-to-face, in-class experiences. Just because you can talk to the professor. You can do that online, but it's not the same, I guess. But I feel there's a lot more clarity in the classroom – you are able to bounce ideas back and forth off of other people. I have had discussion boards and things for classes in class, and I feel like there is so much more collaboration in the classroom than there is online.

Although the online interactivity tools did not provide her with meaningful connections to the instructor or students, Whitney appreciated the flexibility and convenience of online courses.

Instructional design analysis of health and physical education course. The instructor for this course had posted 19 announcements on the learning management system (LMS) during the semester. In these announcements, he notified students of required textbooks for the course, gave directions for submitting assignments, and reminded students about quizzes and due dates. As I navigated through the tabs in this course LMS, I noticed that several of them had been duplicated, including the *Announcements, Faculty Contact Information, Syllabus,* and *Assignments* tabs. This is not a major issue, although the *Syllabus* tab that was at the top of the LMS was empty, while the one toward the bottom actually contained the syllabus document. I am sure that students adjusted to this duplication, yet it once again takes up unnecessary screen

real estate within the LMS, and has potential to increase extraneous cognitive load for users (Yen, Chen, Lai, & Chuang, 2015).

The navigation tabs that contained substantive materials included: *Syllabus, Faculty Contact Information*, *Calendar of Assignments, Lessons, Assignments, Assignments Helpsheet, Health PowerPoints, Health Quizzes, Physical Education (PE) PowerPoints, PE Quizzes,* and *Weblinks.* These content tabs could have been reorganized and consolidated into obvious groups, such as *Schedule, Assignments & Lessons, Health Materials, Physical Education Materials,* and *Extra Resources.* From an IDT and user-interface perspective, this course LMS needed to be streamlined and retooled to reduce redundancy and enhance efficiency. The course syllabus displayed the standard type of information in three and half pages, with an adequate amount of detail and clarity. The instructor used *Comic Sans* font style for the syllabus, which has been perceived as a happy and casual font, yet not overly professional (Shaikh, Chaparro, & Fox, 2007). Although a happy and friendly learning environment is desirable, the syllabus (representing a contract between the instructor and students) in this health and physical education course may have benefited from a more professional font style. Overall, I believe that this instructor would have benefitted from collaborating with an instructional designer, allowing him to effectively and efficiently use the tools in the LMS to optimize the students' online learning environment (Paas, Renkl, & Sweller, 2003).

Student retention and success. As a first-generation university student, Whitney never felt that higher education was a question, planning from an early age to complete a degree in the field of education. She spoke highly of the campus atmosphere at the university, noting,

> This is a very good community of people. When you go around the university, there are people you know. There are people you don't know, but you will probably meet within

> your four years. And there are people you will never meet. I think that's just a good mix of people. There are always people to meet. I think building those relationships are a *huge factor* for me, feeling comfortable within the university.

Whitney also cited student support services that she had used, including the writing center and wellness center, declaring their benefits to student retention and success. In addition, she deeply appreciated the encouragement and guidance from her academic advisor, who mentored her through the elementary education program.

Related to retention of students in online courses, Whitney suggested that online students miss out on the face-to-face interactions, saying,

> Students don't get the same connection online. They don't meet the people. Yeah, it's flexible, but if I were doing online coursework, I wouldn't have classmates to bounce ideas back and forth. I wouldn't have the relationship that I do with the university, the professors, and all of the people in the campus community.

Whitney felt that her online course was less stressful because the self-paced, lighter workload fit well into her schedule. Nonetheless, she went on to describe stress and anxiety among university students by stating,

> Anxiety is definitely something that happens in college. You can't go through college and not have anxiety. You can't always have a carefree attitude, because if you don't care then you are not going to finish a degree. But I guess, if you are an online student, you won't have the ability to reach those resources. You wouldn't be able to use the wellness center; you wouldn't be able to use the counseling center – any of those services that the university offers. So it would take a toll if you did all online classes. I just think that online classes don't have the support.

Whitney went on to describe her younger sister who had just transferred from a four-year university to a community college. Her sister considered dropping to a half-time student and taking online courses, yet Whitney believed that her sister would not be as successful online. She encouraged her sister to stay in on-campus courses to maintain the connections and support from faculty member and other students.

Penny

Demographic information. Penny was a 19-year old undergraduate student who was finishing her second year at the university and had already attained junior status. She would be starting her third year in the upcoming fall semester (retention score rank = 6; retained student). She was a pre-health sciences major, carried a typical course load of 15 credits, and maintained a 3.7 cumulative GPA. At the time of the interview, Penny had completed three online courses.

Daily routine and responsibilities. Each weekday, Penny attended classes for four to six hours, starting at 8:00am, followed by five to six hours of work at her off-campus job (approximately 25 hours per week). Penny lived with three of her friends, and she tried to make time for social activities on weekends. She prioritized her academic work first, and her employment second because "that's what pays the bills [ha ha]," Penny exclaimed. Mornings were when Penny preferred to focus on her academic work, as that was her most focused part of the day. With her various responsibilities, she stated, "I have the typical amount of anxiety for a college student, I think. I am in a science major, so I am always worrying… about chemistry, biology, and all of that nonsense," with a small laugh afterward.

Academic work. Overall, Penny preferred independent work such as writing papers and studying for exams, as opposed to group work in classes. Similar to Jasper, she cited the difficulty organizing groups and managing each member's workload as complications for group

work. After she completes her bachelor's degree, Penny has plans to move on to graduate school in a science-related field. She expressed her motivation to excel in her coursework in order to maintain the GPA that she will need to enter graduate school. Whether Penny received positive or negative feedback, she used it as input to improve in the future, portraying an internal locus of control and strong self-efficacy throughout the interview (Flynn & MacLeod, 2015).

First online course. Penny had experienced three online courses across the subjects of integrated studies, medical terminology, and business. She took the first online course in the field of integrated studies because it was only offered online, and it was required for her degree program. Penny stated,

> I really liked the class. The professor was really good and timely with her feedback. She was really understanding of things that came up. If the whole class did not get something, she was able to go through it and explain what she wanted or whatever.

Penny indicated that the course included blog posts about different topics each week, as well as larger projects and presentations. Students were instructed to comment on one another's blog posts, as well as provide peer feedback on paper drafts. Penny appreciated that the online instructor was pretty quick to respond through email and comments on blog posts, and she felt a somewhat meaningful connection with the instructor. Through the blog posts and comments, she became familiar with a few of the other students in the course and also felt a stronger connection with them than in other online courses. Penny also attributed the better connections to the smaller class size of 18 students, less than most other online courses.

Instructional design analysis of integrated studies course. The instructor for this course had posted 32 announcements on the learning management system (LMS) during the semester. In these announcements (with attached images), she welcomed the students to the course,

notified students of upcoming assignments, provided extra resources, and posed questions to initiate discussion boards. The syllabus was well-designed and fairly succinct, with attached statements related to "participating and succeeding in an online writing course." These statements provided detailed insights to help students perform well in the course; if students read these resources, it should have enhanced their understanding of the course structure. Instructor contact information, required materials (e.g., textbook), course objectives, directions for assignment submissions, and course schedule were all clearly and concisely displayed in the syllabus. In the course LMS, there were 15 weekly folders, each with assignments, discussion boards, and supplemental resources for students to access. From an instructional design perspective, this course LMS contained a great deal of information, which could contribute to extraneous cognitive load for some students (Yen, Chen, Lai, & Chuang, 2015). Nonetheless, the consistent and detailed communication from this instructor likely would have mitigated any confusion that students might have had, creating a strong instructor presence in this online integrated studies course (Bawa, 2016; Jaggars et al., 2013).

Second online course. The second online course that Penny completed was on the topic of medical terminology and was only a 1-credit course. This course mainly consisted of memorizing terms and completing online exams. Penny summarized the course by saying,

> There was very little communication with the instructor in the Medical Terminology course. He pretty much just set everything up and we just did it. Self-paced, completed each thing by a deadline. I emailed the instructor and he never emailed me back.

Penny also indicated that there was no communication with other students in the class; everyone just worked individually.

Third online course. Penny's third online learning experience was a business administration course that she took because it fit better into her schedule that semester. The main project for the course was to create a business plan for a prospective company; at first, Penny thought, "I am never going to use this." All of the students worked on their business plans each week and posted comments on each other's wikis to provide peer feedback. The instructor also provided substantive feedback to the students and helped them refine their business plans. Penny explained that she eventually wants to open her own chiropractic clinic; therefore, she found out that this course was useful for her future career. "It was cool to step out of the biological sciences and social sciences, and see what the business world is like," she said.

Instructional design analysis of business administration course. The instructor for this course had posted 10 announcements on the learning management system (LMS) during the semester. In these announcements, she welcomed the student to the course, notified students of upcoming assignments, and provided students with her mobile phone number if they wished to talk with her. The syllabus was very basic, outlining the course objectives, required textbook and materials, instructor contact information, assignments, and grading policy. In addition to the *Syllabus* and *Faculty Contact Information* tabs, the course LMS included tabs for *Start Here, Calendar, Lessons, MyBizLab, Course Documents, Business Plan Wiki, Textbooks, Gradebook, and Resources.*

The *Start Here* tab consisted of a template that was intended to show students how the instructor highlighted and denoted various items throughout the LMS. Although it was thorough, this template had varying font sizes and styles, inconsistent margins and spacing, and overall poor aesthetic design. I can understand the instructor's purpose for this *Start Here* template, yet I would hypothesize that students found this page as confusing as it was clarifying.

The next tab, *Calendar*, contained a brief outline of the six major due dates throughout the semester. The majority of the course content was housed in the *Lessons* tab, with a lesson folder for each of the 15 weeks of the semester. Within each lesson folder, students would find: an introductory statement (1 page) about that week's topic; documents with more detailed notes on the topic; links to assignments and exercises; discussion boards and/or journals to post in; and a multiple-choice quiz to conclude that lesson. The instructor seemed to have a complete understanding of the LMS and various tools, yet these lesson folders were rather bloated and overwhelming at face value. From an instructional design perspective, I believe this course included a great deal of useful information and activities; however, it could have been aesthetically streamlined in order to enhance the user interface and decrease extraneous cognitive load (Yen, Chen, Lai, & Chuang, 2015).

After the *Lessons* tab, the instructor provided the *MyBizLab* portal where students could log in to Pearson's (textbook publisher) website and view supplemental materials associated with the textbook. Next, the *Course Documents* tab seemed to be a repetition of the *Lessons* tab, yet upon further investigation, it actually contained PowerPoint slides that were also created by Pearson publishing company. It seems that the material from *Course Documents*, *MyBizLab*, and *Textbooks* could have been consolidated into a tab entitled *Textbook Materials*, streamlining all of the content related to the Pearson textbook and related resources. The final two tabs, *Business Plan Wiki* and *Resources* both included tools for students to plan and gain insights on their final project of producing a business plan. Once again, these two tabs could have been collapsed into a tab called *Business Plan Final Project*, in order to reduce cognitive load and enhance efficient use of the screen real estate within the course LMS (Yen, Chen, Lai, & Chuang, 2015).

Student retention and success. Penny reported that effective study habits, along with a strong support system, helped her to succeed at the university. She said that her "advisor is really awesome, as well as a lot of other good professors in different departments around campus." When group work was implemented effectively in a scale-up classroom, Penny found that it facilitated communication and better connections with other students. Regarding the differences between online and face-to-face communication, she stated,

> I think that you can definitely build stronger relationships if you are in person, in the same classroom. You get to know that person after seeing them 2-3 times a week. You get to know how they react. It is kind of hard just to jump in and have a relationship with someone through email/online.

Penny emphasized throughout the interview that personal and professional relationships are better if you are able to meet the other person face-to-face.

During a couple semesters, Penny had particularly heavy credit loads, and her stress level was noticeably higher. In order to cope with the stress of school and work, she would exercise at the wellness center and attend classes there to unwind from a busy week. When speaking about retention and success in online courses, Penny suggested that online students might drop out due to the lack of connection with the instructor and other students. Additionally, she postulated that students tend to take general education courses online, rather than courses in their major/program; thus, they might be less motivated to finish required courses outside of their interest area.

Riley

Demographic information. Riley was a 22-year old undergraduate senior who had finished her psychology degree and was now adding on two more years to complete a nursing

degree (retention score rank = 5; retained student). She expressed an interest in becoming a psychiatric nurse practitioner with her background in psychology and nursing. Riley maintained a 3.5 cumulative GPA, carried a typical credit load of 16 each semester, and had completed four online courses, and was taking one more at the time of our interview.

Daily routine and responsibilities. Riley described her typical days that included 4-8 hours of academic work, as well as work hours at three different jobs. She worked varying hours at a hospital, a mental health center, and the university (assisting with research), which usually added up to 25-40 hours per week. Riley laughed as she added, "I also try to make sure that I keep up with things like eating and sleeping."

Academic work was clearly a top priority for Riley, with her employment as a close second priority. She indicated that she definitely puts "social time on the backburner," while maintaining a busy schedule and trying to avoid becoming sick from lack of sleep. Regarding social use of technology, Riley said that she tries to avoid it during homework because "technology is a huge distractor for me." At the same time, she explained that she likes to stay connected, checking in on Facebook, LinkedIn, and Instagram throughout each day. She estimated that she checks her social media accounts approximately ten times a day, for a total of an hour each day. Riley used Facebook mostly to communicate with distant friends, noting that "social media is a convenient way to stay in contact with those people who live really far away." With close friends and family members, she almost always communicated in person or by talking on the phone.

Academic work. Riley expressed that she enjoyed writing papers, as they help her learn course material more effectively. She found studying for exams time-consuming and unenjoyable because she requires a great deal of time and repetition in order to remember

material from a textbook or other resources. She also indicated a dislike for group projects and the struggle to schedule group meetings, stating,

> For me, having three jobs and school and everything, it's just very difficult to schedule time for group projects. I feel like I am a perfectionist kind of… so I feel like I am always doing all of the work, or perfecting everything. So I don't really like group projects, because I don't learn anything really from them. I become frustrated and stressed, because there's always the one person who doesn't pull their weight.

When asked about her confidence regarding academic work, Riley replied,

> I guess my confidence kind of comes from the grade I get. So it doesn't matter what the work I do is, if I get a good grade, then I feel confident about it. For instance, the class I am taking right now, it's about the history of psychology. I am really bad at history, so, like the grades aren't where I would want them to be, but I try really hard. So it's kind of discouraging to put all of my time into a class and then do less well than what I would want to do. So, I mean, that makes me more discouraged than if I was doing well and getting good grades.

While Riley displayed a high level of self-efficacy, motivation, and confidence (Flynn & MacLeod, 2015; Stupnisky et al., 2013), her statement exemplified the over-focus on grades that is relatively common among students in the American education system (Berlin, Tavani, & Beasançon, 2016). Riley was intrinsically motivated to gain new knowledge, yet she was also significantly motivated by receiving the external motivator of favorable grades (Morales, 2014). Overall, she was determined to finish her dual-bachelor's degrees in psychology and nursing, in order to prepare for her desired career. Her conversations and connections with the residents at the mental health center largely sparked her interest in becoming a psychiatric nurse practitioner.

First and second online courses. The first online courses that Riley completed were the two introductory courses on the Spanish language (taken sequentially). She took these courses online because they were required for her majors in psychology and nursing, yet the face-to-face sections of the Spanish courses conflicted with the timing for most of her nursing courses. The Spanish courses both involved reading assignments, discussion boards, proctored exams, one essay, and two speak tests (where students recorded themselves reading passages in Spanish, so that the instructor could critique their pronunciation and inflection). Riley enjoyed the interactive nature of the Spanish courses, indicating timely feedback and expedient email replies from the instructor. Aside from a few discussion boards, she did not communicate with other students and did not feel a connection to any classmates.

Third online course. Riley's third online course was in psychology statistics, which she also took for the flexible scheduling to accommodate her face-to-face courses in nursing. The online course included assignments with statistical software, recorded lectures, and five exams. She felt that the recorded lectures were fairly helpful, yet the statistical software assignments were too easy and not worthwhile. Riley reported that communication with the psychology instructor was less than with the Spanish instructor, and once again, there was no communication with other students.

Fourth online course. The fourth online course that Riley finished was a psychology course related to aging and the human life cycle. She indicated that this class solely involved recorded lectures, textbook readings, and exams. Although there was not much communication with other students, Riley did build a stronger connection with this psychology instructor, more than any other online instructor. She described her communication with this instructor by saying,

> It was really good actually! After I took the aging course in psychology—Dr. ABC (pseudonym) is probably the only online professor that I have a relationship with currently. After the aging course was through, we had discussed working on research together right after that course. So the communication with him was probably better because of that.

Riley said that even during the online course, Dr. ABC was highly responsive and attempted to build a professional relationship through email communication.

Fifth online course. At the time of our interview in July, Riley was taking her fifth online course about the history of psychology (six-week summer course). Once again, she took this course online because it allowed her to complete her required face-to-face nursing courses during the academic year. The course included a standardized exam that was used for the psychology department's analyses, one major research paper, and multiple exams. Riley exclaimed,

> It's actually probably one of the *worst* online classes I've taken. I feel bad saying that, but I really feel that way. We are cramming 15 weeks of material into a six-week summer course, and not cutting out any of the useless details. For example, I am fine with learning about Newton's Law of Gravity and how his ideas impact science and social science. But who cares what Newton did when he was a child?!? I mean, if it did not directly affect psychology or another field, then what does it matter? So why ask me questions on exam about his childhood?

Riley expressed frustration with the "nitpicky" level of detail in exam questions, and she felt discouraged when she spent many hours studying for the first exam and still did not receive her desired grade. She compared the structure and pacing of her other six-week online courses to

this six-week history of psychology course, saying that the instructor "squished in all of the same material from the face-to-face course, and still used the same picky details on exam questions." Normally, she felt fine about six-week online courses because the instructors streamlined the material and paced the delivery of content appropriately for a shorter timespan; however, the current history of psychology course had not distributed the workload efficiently. Also, regarding communication in all of her online courses (except the psychology of aging course where she met with the instructor in-person), Riley added,

> I don't think with any online course I feel that I have any connection with any of the professors, for the same reason, just because *it's not very personal*. It's convenient, but it's not personal.

Student retention and success. During her first two years as a psychology major, Riley felt a lack of support from faculty members, indicating that following high school, she was not prepared for the level of independence at the university. She took a few courses early on that seemed to be "weeding out" courses, where professors were "trying to get students to fail, instead of trying to help them succeed." After a few years, as Riley neared completion of the psychology major and decided to add the nursing major, she connected with professors who encouraged and supported her (e.g., Dr. ABC from the psychology of aging course). In addition to faculty support, she highlighted the importance of student organizations, emphasizing the importance of her involvement in various groups. Riley appreciated the events, networking, and support that was facilitated by participating in student organizations on campus.

As we spoke about retention and success related to online courses, Riley reflected on her experiences in face-to-face and online courses, positing,

> So I think the lack of support in online courses – I think that it is a very lonely way to learn. I guess that is the best way to say it. So I could see that, if I was only taking online courses, I don't think school would be as fun. I mean, I am the type of person who wants to finish what I started… but I could see how a lot of people would get discouraged in online courses and not want to finish their degree.

With her experience working with mental health, Riley also commented on the ways that stress and anxiety might affect students in online courses,

> I think about – students that have anxiety, depression, bipolar, or any mental health condition. I don't think that those students could motivate themselves to complete online courses – even less than face-to-face courses, because they are missing the real connections with other people. I think that it would be particularly hard for freshman students to start with an online course because they probably wouldn't take the time to email their professors and reach out for help or support.

Although Riley preferred face-to-face courses, she noted that she appreciated the flexibility of online courses because she felt more confident with self-paced learning as she matured. Now, while completing a second bachelor's degree, she found the option to take online courses necessary for her to take all of her required courses that face-to-face sections with time conflicts.

Spencer

Demographic information. Spencer, 19 years old, had just finished his first year at the university as a music major. During his first semester, he stayed in his hometown due to family issues, and took five general education courses online. For his second semester, Spencer lived on campus at the university and started taking music core courses; he ended the academic year with a 3.3 GPA. Unfortunately, two months after Spencer started his second semester on

campus, his program area in the music department was suspended due to budget cuts at the university. He did not want to stay for the next three years in a program that was being phased out; therefore, he transferred to another college and now plans to major in occupational therapy (retention score rank = 4; transferred student).

Daily routine and responsibilities. During the fall semester when Spencer took all online courses, he would receive instructions every Monday for all of the homework he needed to complete for that week. Often, he would cram the work into one or two days of the week, so that he could take a day or two off from academics during the week. On average, he spent five to six hours on academic work each day, as well as five-hour shifts at his job three or four times a week (approximately 20 hours per week). Spencer said that he did not have much free time to spend with friends, yet when he could manage social time, he would go out to eat or go to the movies with his friends and/or family. When he came to campus for his spring semester, all of his courses were face-to-face, which made his schedule more structured. He was also able to spend more time with friends that semester, since he was living on campus and was around his peers most of the time. In addition, Spencer described his use of social media by saying,

> Well, I have pretty much every social media like Twitter, Facebook, Instagram, that stuff. I don't really use it too much. Some of my family will contact me on Facebook, so I have to hop on there; but I don't know, I don't post a lot of stuff usually. It's just every now and then.

When discussing his social time online, Spencer also reported that he spends a fair amount of time playing online games. He plays online games with both friends that he knows in person, as well as friends that he has met solely online.

Academic work. Spencer indicated that he prioritized school work first and his part-time job second because he still needed to cover his expenses. He expressed a preference for writing papers and completing individual projects, as opposed to studying for exams. One of Spencer's face-to-face courses included a group project that was applied and experiential, which he enjoyed and benefitted from. Spencer thrived with hands-on learning activities, particularly when the subject is of interest, such as in his music courses. Math was a subject where he was less confident and worried more about not performing well on exams; he reported having test anxiety rather frequently. Overall, Spencer was motivated to do well in his classes, complete a degree, and obtain a stable career, displaying confidence and self-efficacy (Cochran et al., 2014; Flynn & MacLeod, 2015; Morales, 2014).

First online course. During his first semester, Spencer took five online courses for a total of 16 credits in the areas of visual art, biology, communication, English, and psychology. In the visual art course, there were weekly reading assignments and discussion boards where students were encouraged to comment on each other's posts. The online instructor was friendly, consistent, and provided helpful feedback, which contributed to Spencer's success in the art course. Spencer did not have much interaction with other students in the class aside from the discussion board posts and did not feel much of a connection. He earned an "A" grade in the visual art course.

Second online course. Spencer's second online course was in biology, with lecture and lab portions. The instructor recorded lectures for students to watch and take notes on. There were weekly reading assignments, as well as discussion board assignments and four major exams. Spencer thought that the biology course included effective self-pacing, and instructor feedback was very beneficial throughout the course. He felt more connected to the biology

instructor than to any other online instructor from whom he had taken a class. Spencer did not report any major barriers to his success in this course, received an "A" in the course, and described it as an enjoyable experience.

Third online course. For his third online course, Spencer participated in a communications class, which had four main assignments. There were also two exams and two papers; there were no discussion boards. Spencer recalled the communication in this online course by stating,

> He wouldn't communicate with anybody at all, which doesn't make any sense because he's a communication doctor. I emailed him a couple of times, probably three times, and he never replied to my emails. He didn't tell us anything. Yeah, it kind of sucked. That would probably be about it, pretty bad communication in that class.

Spencer noted the irony that a communications professor was rather ineffective at communicating with his students. Similarly, there was no real communication with other students in the online communications course, either. Spencer earned a "B" in the communication course.

Fourth online course. Spencer's fourth online course was an English composition course. The instructor asked students to read selected articles each week and write their own short papers in the style of the original article. There were no exams and just a few discussion boards in the course. Spencer described the instructor as friendly, understanding, and lenient. The instructor demonstrated strategies for writing different types of papers and provided students with timely feedback throughout the course. Spencer indicated that he felt fairly connected to the instructor and some of the other students in the English composition course. He earned an "A" in the composition course.

Fifth online course. The fifth online course of Spencer's fall semester was a psychology course. This course involved weekly discussion boards, reading assignments, and short reflection papers. Three or four major exams were given throughout the semester. Similar to the biology course, the psychology instructor posted recorded lectures and setup a self-paced learning environment. The instructor made her phone number available to the students, yet Spencer only ever needed to reach her by email. He reported a slight feeling of connectedness to the instructor and other students in the course. Spencer received a "C" in the psychology course.

Student retention and success. During Spencer's time on campus in his second semester, he found several of the faculty members and instructors to be very supportive. When the decision to cut his program in the music department was announced, Spencer quickly realized that administrators were not nearly as responsive and helpful as faculty members. His connections with his friends and classmates also supported his success at the university. Although he was successful in all of his courses, Spencer decided to transfer away from the university because his program area was being eliminated. In addition to these external factors (i.e., budget cuts, administrative decisions), Spencer emphasized the importance of stress and mental health (internal factors) on student retention and success. In his experience, stress and anxiety were increased while taking certain online courses due to the lack of structure and less accountability to complete assignments on time. Spencer highlighted communication as a key ingredient to success, and he felt more connected to students and instructors in his face-to-face courses than in his online courses.

Logan

Demographic information. Logan was a 19-year old undergraduate student who was majoring in computer science. After completing his freshman year at the university, he

considered transferring to a different institution closer to his hometown. Just before the start of the fall semester, Logan changed his mind and decided to enroll back at the university where he started (retention score rank = 3; discontinuous enrollment/retained student). Logan maintained a 2.9 cumulative GPA and carried a typical credit load of 15 each semester. He had completed two online courses at the university during his first year.

Daily routine and responsibilities. During his freshman academic year, Logan returned to his hometown almost every weekend in order to practice and perform with a musical ensemble that he had been part of for three years. With the large amount of time he had to spend driving, he tried to keep his course schedule relatively flexible (particularly on Fridays). Logan indicated that he had also quite a bit of social time with friends during the week, as his academic work was fairly light (occasionally skipping lectures if he needed to drive home early on a given weekend).

When we discussed priorities, Logan said, "I feel like I definitely prioritize social activities over school. That's just been a habit of mine." Logan was the only interview participant to report that academics were not his first priority. He went on to describe his use of social media, saying,

> I am on Facebook. That's about it for social media. I have a Twitter that I don't use. I went through a couple of months ago when I deleted every tweet that I ever made. It's not something I'm really super interested in maintaining. I'm mostly on Facebook because it's just so convenient. For the performance ensembles that I'm in, the group system for Facebook just works so well for communicating with people. It's so convenient to send out messages to the group, and everyone can check them on their phones and computers.

Although Logan expressed a degree of apathy for social media, he did note that he checks his Facebook page five to six times a day, in order to check group messages and see events

happening in friends' lives. He also reported spending a fair amount of time playing video games with friends, both in-person and online. Logan felt that online video games had decreased his face-to-face interactions during high school, yet at the university, he has spent an increasing amount of social time with friends face-to-face; living on campus facilitated that socialization.

Academic work. Logan started by describing his preference for group work, saying that "group projects are the probably the place where I feel most confident." His preference for group work contrasted with the majority of the other interview participants. Logan described the transition from high school to university learning, referring to his exam performance by saying, "I haven't really stepped up my study skills to match the increased difficulty in college." Nonetheless, he did report feeling more confident in his ability to write papers during his first year at the university, as compared to his confidence in high school. Understandably, Logan felt most confident in courses related to his computer science major, including math and technology.

Logan stated that his primary motivation for completing academic work was to finish his degree as quickly as possible, in order to start a career related to computer science. He described his response to high grades as "satisfaction that my work paid off and realization that my studying wasn't for nothing." When he does not earn the grade he expected, he expressed frustration and motivation to improve in the future (Stupnisky et al., 2013).

First online course. Logan took an online health course during high school to accommodate his class schedule, and was one of only two interview participants who had taken online courses before college. At the university, his first online course was on the same online section of the music course that Jasper completed, which he took because of his prior experience with performing in musical ensembles. He said that the online music instructor communicated well with the students and thoughtfully designed the course site on the learning management

system. Logan felt that the course materials, assignments, and exams were "simple and easy to understand." Overall, he enjoyed the course and felt that he learned new concepts in music, earning an "A" in this online music course.

Instructional design analysis of online music course. This online music course was the same section and semester that Jasper completed; therefore, the following analysis represents my second review of the same course site on the learning management system. The syllabus was well-designed and succinct, with the music department's logo/banner integrated at the top of the document. Instructor contact information, required materials (e.g., textbook), course objectives, directions for assignment submissions, and course schedule were all clearly and concisely displayed in the syllabus. In the course LMS, the instructor also posted links to extra readings and helpful videos that supported further learning of musical concepts. From an instructional design perspective, this course was well set up, and messages from the instructor seemed friendly, descriptive, and easy-to-understand. The music instructor seemed to create a strong online presence that made the course inviting to students, which both Logan and Jasper mentioned, yet Logan expressed more appreciation for the effective communication (Bawa, 2016; Jaggars et al., 2013).

Second online course. Logan chose his second online course, physics, because he had done well in his online music course, and he thought it would be nice to have the same flexibility of schedule in the physics course. This asynchronous course included textbook readings, weekly assignment, and proctored exams. Quickly, Logan noted that the physics course was far different, and he expressed remorse that he did not take a face-to-face section of the course by saying,

> I thought I could handle online courses pretty well, not having formal instruction, and just learning on my own—but for the physics class, you definitely need some instruction. I learned that one the hard way. I would say that a major downfall of online classes is that they are sort of "out of sight, out of mind." If you're not constantly checking the assignments and due dates, it is easy to fall behind, which is what happened to me in the online physics course.

Compared to the online music course, Logan said that the online physics course "felt much more detached." The instructor would respond to questions through emails, yet only with a minimal amount of detail. Often, Logan was confused by the terms that the physics instructor used, and it was difficult to interpret his messages. With the minimal communication and/or miscommunication associated with the physics course, Logan felt much less connected to the physics instructor, as compared to the music instructor (Parkes, Stein, & Reading, 2015). Logan received a "C" in the physics course.

Student retention and success. Following the discussion of communication, Logan emphasized that "the relationships you build with professors and other students are very important to success in a course." During his first year at the university, Logan found a few professors who mentored and supported him, particularly within his computer science program. He spoke about how much those connections and his overall socialization at the university had helped him through his academic work. In contrast to his social personality style, Logan described one of his friends who preferred online courses, explaining,

> I have one really good friend of mine who is just not good at social interaction. Online classes are just literally perfect for him because he gets to go to college, while still not

really having to deal with people. It can be a blessing and a curse, as I think he gains knowledge, but I don't know if it helps his social anxiety at all.

Logan restated the importance of support from family and friends to academic retention and success (Alarcon & Edwards, 2013; Cochran et al., 2014; Slanger, 2015), and postulated that when students do not complete a degree, it is often because "college just isn't right for them."

Preston

Demographic information. Preston was a 20-year old undergraduate student who was majoring in marketing and human resource management. He was entering his fourth year at the university, and he referred to himself as a "super junior" because he was still at junior status with his completed credits (retention score rank = 2; retained student). Preston maintained a 3.0 cumulative GPA and carried a typical credit load of 18 each semester. He had completed one online course, and he was currently enrolled in two more online courses at the time of our interview.

Daily routine and responsibilities. During a typical day, Preston would wake up early and either attend class or do homework, followed by work at one of his two jobs in the afternoon. He worked at an internship, as well as an office assistant job at one of the departments at the university, for a total of 25-30 hours per week. Preston said that he tries to prioritize academics, yet "I do notice myself prioritizing things in not the best way sometimes." Occasionally, he would only complete assignments for the courses he was most interested in, or choose social time with friends even though he had homework to complete.

As we discussed Preston's priorities and responsibilities, he often digressed into tangential stories related to his personality and his business acumen. He relayed statements from his supervisors at two different jobs in the following comments,

> I've been told even by my boss after my first week of work. She said, "You're going to go far." My coworkers at my other job told me that also, and I thought to myself, "Okay, I don't need to hear all this stuff." Another staff member at the university, she had told another one of her colleagues, "That kid is going to rule the world." Then, her colleague met me and said, "Oh this is the one you said is going to rule the world."

Preston's stories depicted his strong sense of self-efficacy and confidence (Garza, Bain, & Kupczynski, 2014; Stupnisky et al, 2013), and he described himself as "bold" in many situations involving friends, coworkers, classmates, and instructors. In his free time, he said that he enjoys spending time with friends and family, golfing, Frisbee golfing, playing basketball, biking, or almost any outdoor activity. Preston reported a minimal amount of social media use, and he said that it had a negligible impact on his personal and professional life.

Academic work. Preston expressed that he liked to write papers, although he was uncertain if the English courses he had taken in high school had prepared him to write academic papers. With creative writing papers, Preston's instructors have appreciated his writing style, yet with more formal pieces, he indicated,

> Some professors will tell me, "You write like you talk." I don't know if that's good or bad, but I like to write papers. I feel like I am realizing the effects of the lack of rigor in my high school English class.

As evidenced by his substantive conversation throughout the interview, Preston reaffirmed that he is "a people person," and he enjoys working in groups. When group members do not complete their share of the work, Preston reported quite a bit of frustration, yet said that he is usually able to choose classmates with whom he works well for projects. He also mentioned that he enjoys presentations and opportunities to speak to his classmates and coworkers. Conversely,

Preston said that he generally struggles with courses that involve extensive math and/or reading. Regarding his academic work in general, he noted, "I have terrible attention… ADD, and I take medication for it sometimes. It helps me stay alert and focused for studying and homework." Fleming and McMahon (2012) noted that many college students will use medication inconsistently to treat symptoms of attention-deficit disorder (ADD).

First online course. Preston's first online course was on the fundamentals of music, similar to Jasper, yet a slightly different course, with a different instructor. He took the music course online because it fit better into his semester schedule, and because he felt confident in the material from playing music in high school. A few weeks after Preston had enrolled in the course, the enrollment system notified him that the instructor had changed to someone who he knew very well. The music course was asynchronous, although the instructor offered live meetings for all students who wanted to meet on campus, usually one night per week. Two to five students, including Preston, would attend the live sessions where the instructor would lecture (similar to his recorded lectures online), and answer questions related to upcoming exams. The course also included textbook readings, discussion boards, and concert reflections where students were required to attend musical events and write short reflections on them. With the synchronous meetings and prior relationship with the instructor, Preston appreciated the great communication and feedback from the instructor, as well as connections with other students in the online music course (Gaytan, 2013; Harrigan, 2010; Hratsinki, 2008). He earned an "A" in the music course.

Second online course. The second course that Preston took online was a global history course that was recommended by his uncle, in order to fulfill a general education requirement. This asynchronous course included textbook readings, short essay reflections, and proctored

exams. Preston appreciated that the instructor graded the essays quickly and provided substantive feedback. He indicated that communication with the instructor was always effective, although there was little to no communication with other students in the course. Overall, Preston felt that this online course was well-designed and enjoyable, and he earned a "B" in this course.

Third online course. Preston's third online course was a United States history course that he took to fulfill another general education requirement during a summer semester. The US history course consisted of two lengthy papers, ten exams, and discussion boards. Preston said that this instructor was also a strong communicator and understanding of life circumstances that might arise for students. This course was also asynchronous, yet Preston was able to meet with the instructor on campus two times during the semester. He earned a "B" in the US history course; he enjoyed the course and recommended it to friends and classmates.

Fourth online course. After taking a face-to-face section of microeconomics and failing, Preston enrolled in the online section as his fourth online course. He described the instructor as "one of the best teachers on campus as far as I'm concerned." The online microeconomics course included textbook readings, short-answer assignments, and timed online quizzes. Preston also described this instructor as quick to provide feedback on assignments, as well as to respond to any questions from students. Once again, this was an asynchronous online course, yet Preston was able to meet with the instructor a few times because they were both on campus. He added that aside from the online music course, the rest of his online courses did not foster communication among students, saying,

> That is a sad part of online classes. I'm all for online classes because you get the opportunity to take your class almost at an accelerated rate, but in the same sense, you

don't get the people skills that face-to-face classes might give you. For example, I do not want my kid going to an online-only university.

With all of the online courses, Preston stated that he appreciated the self-paced learning style, despite his occasional procrastination with online assignments. He earned a "B" in the online microeconomics course.

Fifth online course. Preston took a continuous enrollment version of applied calculus as his fifth online course because he had dropped the face-to-face section of this math course previously. He had enrolled during the spring semester, yet he had nine months to complete the coursework that was laid out sequentially (continuous enrollment format). Thus far, Preston had worked with a math tutor and had also met with the applied calculus instructor two times, in order to improve his understanding of the course material. The course included textbook readings, practice assignments, and proctored exams. Preston reported that the instructor was prompt with grading and providing feedback on assignments, often adding them to the online gradebook (viewable by students in the learning management system) within 24 hours after students submitted them. At the time of the interview, Preston was carrying a "B" grade in the course.

Sixth online course. The sixth online course that Preston was also completing at the time of our interview was on the topic of social media marketing. During that summer semester, the course was only offered as an asynchronous online course, yet they planned to offer a subsequent section as a hybrid course with five synchronous class meetings to augment the online content. The social media marketing course included discussion boards, educational videos, online assignments, and papers. Preston knew this instructor from prior face-to-face courses, so they had already built rapport in their student-instructor relationship. He noted that

she provided detailed responses and feedback to students, yet would often take a long time to grade assignments, which was frustrating for students. Thus far, communication among students has been more active than is typical of other online courses, and Preston added, "it makes sense that a course about social media should have good communication among students, and with the instructor." Preston indicated that he has enjoyed the assignments and interactivity in the social media marketing online course (Harrigan, 2010; Thoms & Eryilmaz, 2014). Preston had an "A" in the course at the time of the interview, and he expected to maintain that grade.

Student retention and success. As Preston spoke about student retention and success, he began by comparing and contrasting face-to-face and online courses. He appreciated the self-paced learning style of online courses and felt that he had retained information better in certain online sections, as opposed to their face-to-face counterparts (Bawa, 2016; Hratskinki, 2008). Through his experiences, Preston believed that certain courses were better suited for the online format, saying,

> I think it's fine to have your generals and pre-business requisites online, no doubt— but once you get up to higher level courses within the major, you need to take it in a class. You need to gain the knowledge from the teacher or professor, and talk with the other students. I've taken a lot of online classes, but I don't think it's right to take 50% of my classes online.

Elaborating on student retention and success, Preston noted that some students enter online courses thinking they will be easy, and "they get a reality check." He emphasized the importance of time management for the self-paced learning environment online (Cochran et al., 2014), citing his own time management preferences as a major reason for continuing to take online courses.

When I asked Preston about his motivations for pursuing higher education and factors that improved his retention and success, he emphatically replied,

> I'm competitive. I want to win. Most importantly, I've said it a million times, especially in interviews and stuff like that. My main goal for getting an education and a stable job is that I want to pay for my parents' retirement, so that's a big thing. Our family is lower-middle class. My parents are both from small towns and they will likely have to work very late into life. I've always wanted to be an executive in business, and I want to support my parents' retirement.

Preston expressed that support from his family and friends had been vital to his retention and success at the university, as well as certain instructors that he connected with over the past few years. In addition, he deeply appreciated the resources provided by career services, student organizations, and the writing center; he credited them for helping to improve his academic performance and professional skillset.

Mackenzie

Demographic information. Mackenzie was a 19-year old undergraduate student who had completed one academic year at two different institutions (one private college and one public university). During her first year, she stated that she had unofficially changed her major five times, and she took a variety of courses. Mackenzie maintained a 3.8 GPA, took one online course while at the public university, and was enrolled back at the private college for the upcoming fall semester (retention score rank = 1; transferred student). Of the 14 interview participants, she was ranked as the student with the lowest probability of being retained at the university (according to the learning analytics data).

Daily routine and responsibilities. For her semester at the public university, Mackenzie would generally have class until 2:00pm each day, and then do homework until about 5:00pm. She also worked approximately 20 hours per week across two part-time jobs on campus. Mackenzie placed the highest priority on academics; her parents strongly valued education, even though neither of them completed college degrees. Regarding social media, Mackenzie described herself as an active user of Twitter and Facebook, saying,

> Twitter is mostly social for talking to my classmates. Facebook is more for news and keeping up with my older family members because they don't know how to use Twitter. They send 'twits' all the time and I say, "No, it's not a twit, it's a tweet."

She reported checking in on both Twitter and Facebook four to five times a day, yet she currently spends much more time playing Pokémon Go on her phone. Mackenzie knew when Pokémon Go was being released internationally, and then downloaded it immediately when it was released in the United States. She reminisced,

> My sister and I used to be almost obsessed with Pokémon. We had cards. My older sister had hundreds of cards, and she ended up giving them to my cousin who's nine right now. The kid obsesses for Pokémon. He has over 10,000 cards at his house.

Mackenzie acknowledged that some kids today become over-reliant on technology-mediated communication like texting, and then they do not develop appropriate interpersonal skills. She explained that she always tries to put her phone away when she is spending social time with friends and family, and she emphasized the importance of face-to-face interactions.

Academic work. Mackenzie described group projects as the type of academic work that gives her the most confidence, as long as everyone does their part. In contrast, when she works individually, she places a high degree of pressure on herself and blames herself if she does not do

well on a project or exam. Mackenzie explained her preference for group work by saying, "I always like to get a different set of eyes on the project, and I am a very social person, so I enjoy working with others." She described herself as a "controlling person" who likes to "do things right the first time," portraying perfectionistic characteristics (Berlin, Tavani, & Beasançon, 2016). When asked about her preferred learning style and learning environment, Mackenzie responded,

> I'm a very visual learner, so I tend to see things first before I do them because I'm also afraid of failure. I like to do things right the first time, because I'm also very controlling, too. Very controlling in what I can control, but if I can't control someone else, I go nuts. Anyway, what was the first part of that question?

She tended to do her homework in the common area of her residence hall or in her room with the television on for background noise while studying. Mackenzie described her study habits of working for an hour, taking a short break to eat or watch a show, and then returning to work on a different project. She indicated that she has attention deficit with hyperactivity disorder (ADHD), so taking breaks allows her to refocus and remain productive, aligned with findings from Fleming and McMahon (2012).

First online course. Mackenzie took one online course at the university in medical terminology, similar to the one that Penny completed. Before I could ask a more detailed question, Mackenzie began by saying,

> I'm going to go straight to the point here. I don't like online classes. Not because you don't get that interaction, the professor to the students, but it's because it is so easy for people to just Google search something, find it on Quizlet, and take the test online but

> cheat using Quizlet. I can't tell you how many kids in my class, they would be taking the test for medical terminology during one of our face-to-face courses.

She went on to further differentiate between online and face-to-face courses by stating,

> There's no academic integrity in online courses. With actual [face-to-face] classes when you have to take a class during the class time, the professor's there watching you. Whereas with an online course and online test (without a proctor) you can just cheat and there's no academic integrity. Not saying I did it, because I didn't do it, because I am a very honest person.

Mackenzie, similar to Penny, indicated that there was little to no communication with the medical terminology instructor, nor with the other students in the course (Jaggars et al., 2013). With the lack of connection, Mackenzie remarked, "Why am I paying the university money to take this course when I could just do the work and learn the material on my own and not even bother with the course?" Mackenzie earned an "A" in the medical terminology course.

Student retention and success. When discussing retention and success, Mackenzie first spoke about the differences between online and face-to-face courses, noting supports and barriers to succeeding in them. An advantage of an online course is the flexibility that allows students to work on their own time, while a face-to-face course has a set schedule that cannot be altered. She also noted that face-to-face courses are more effective for fostering group work than online courses, while online courses better facilitate individual work, allowing students to self-pace their own learning.

Mackenzie highlighted the much stronger connection to instructors and other students in face-to-face courses, as compared to their online counterparts. She indicated that it is also more difficult to access campus support services when taking mostly online courses. Mackenzie

described several internal factors affecting student retention and success, particularly mental health issues. She explained,

> During two summer months that I was only taking an online class, I felt like my depression worsened because I was missing that social aspect of the university. I was missing that social norm of going to school, going to class, going home, do your homework; instead I was just at home taking my online class.

Additionally, Mackenzie pointed out that external factors such as course design and course interactivity impact students' success, particularly in online courses. In Mackenzie's experience, effective feedback and communication from the instructor would "make or break a course, either online or face-to-face."

Collective Data from Open-Ended Survey Responses

Over the course of two months, 43 participants completed the open-ended survey questions that were sent out after the interviews, in order to gather more data from students who had dropped or transferred away from the university. All of these respondents had taken one or more online courses at the university and subsequently left the university (dropped out, transferred, or discontinuous enrollment). The following key represents the student status and employment status terms that participants reported in the survey (displayed in Table 1, p. 118).

Key for Table 1
Returned/student: Returned to the same university and still currently enrolled as a student (discontinuous enrollment)
Returned/graduated: Eventually returned to the same university and graduated (discontinuous enrollment)
Transferred/student: Transferred away to another university and still currently a student
Transferred/graduated: Transferred away to another university and graduated with a degree
Transferred/dropped: Transferred away to another university and dropped out before completing a degree
Dropped: Withdrew from the university and has not attended another college/university since that time

Table 1. *Student Status and Employment Status of Survey Respondents*

Participant	Number of online courses taken	Action after leaving university	Student status and/or work status
1	8 online courses	Returned/graduated	Work full-time
2	1 online course	Transferred/student	Student full-time/Work part-time
3	3 online courses	Transferred/student	Student full-time/Work part-time
4	10 online courses	Returned/graduated	Work full-time
5	8 online courses	Returned/graduated	Student full-time
6	6 online courses	Transferred/graduated	Student full-time
7	5 online courses	Returned/graduated	Work full-time
8	6 online courses	Returned/graduated	Unemployed
9	1 online course	Transferred/student	Student full-time
10	1 online course	Transferred/student	Student full-time/Work full-time
11	4 online courses	Returned/graduated	Work full-time
12	4 online courses	Returned/graduated	Work part-time
13	5 online courses	Returned/graduated	Work full-time
14	3 online courses	Transferred/student	Student full-time/Work part-time
15	3 online courses	Returned/student	Student full-time
16	2 online courses	Dropped	Work full-time
17	1 online course	Returned/graduated	Work full-time
18	3 online courses	Returned/graduated	Unemployed
19	1 online course	Transferred/student	Student full-time/Work part-time
20	6 online courses	Dropped	Work full-time
21	1 online course	Transferred/student	Student full-time/Work part-time
22	5 online courses	Returned/graduated	Work full-time
23	1 online course	Transferred/student	Work full-time
24	1 online course	Transferred/student	Student full-time/Work part-time
25	1 online course	Transferred/student	Student part-time/Work part-time
26	1 online course	Transferred/student	Work full-time
27	1 online course	Transferred/dropped	Work full-time
28	1 online course	Transferred/student	Student full-time/Work part-time
29	2 online courses	Returned/graduated	Work full-time
30	11 online courses	Transferred/dropped	Student full-time/Work part-time
31	4 online courses	Transferred/student	Student full-time/Work part-time
32	27 online courses	Returned/graduated	Work full-time
33	1 online course	Dropped	Student full-time/Work full-time
34	2 online courses	Returned/graduated	Student full-time
35	4 online courses	Returned/graduated	Work full-time
36	3 online courses	Returned/student	Internship
37	3 online courses	Returned/graduated	Work full-time
38	2 online courses	Dropped	Student part-time/Work full-time
39	2 online courses	Returned/graduated	Work full-time
40	1 online course	Returned/graduated	Work full-time
41	4 online courses	Returned/student	Student full-time/Work full-time
42	3 online courses	Returned/graduated	Student full-time/Work full-time
43	5 online courses	Transferred/graduated	Student full-time/Work part-time

Survey respondents represented nearly every possible combination of student status and employment status, including, yet not limited to: full-time undergraduate students who were working part-time; full-time graduate students who were working full-time; and individuals who were working full-time and no longer students. Student number 32 declared 27 online courses, which seems high at first; however, this student explained in her text responses that she had completed the majority of a bachelor's degree online. Later, she enrolled as a campus student in order to complete a second degree in a different field, and also took a semester break during that degree program (discontinuous enrollment).

The first open-ended question on the survey asked participants to reflect on their experiences with online courses at the university. There were several detailed and poignant quotes, including,

> I really enjoyed online courses at the university. The professors in my major were very prompt in their responses, and they were descriptive about what I could expect from the courses. With most online courses, there was good communication between students and professors. I really didn't feel like I was going through it blind.

Another participant reflected on his/her online experiences by saying,

> I really enjoyed the online classes that I took while at the university. I worked around 30 hours a week while going to school full-time, so any chance I had to take an online course helped my schedule. I only took 4 online courses because I didn't want to completely lose the feel of on-campus courses. I liked them because they were so easy to work on whenever I had free time. Some disadvantages I felt were the connections that I missed out on. I never really got to know any of the students or professors in any of my online classes. I kept to myself, did what I needed to do, and finished.

A participant who had taken 11 online courses noted,

> The main advantage of online courses was the convenience of completing homework when it fit in my schedule. Disadvantages included poor communication from teachers to students, and the lack of effort on the professors' part to provide an equal learning experience for online students as they would for face-to-face. Communication with teachers was poor. Out of my 11 classes, I had one teacher who regularly contacted his students on through the course LMS and email. The other teachers would post assignments for the entire semester, and I never heard from them again. I did not make a single meaningful connection compared to how I have made connections being on campus.

The second open-ended question on the survey asked participants to share the main reasons for why they left the university. None of the participants cited their online learning experiences as reasons for leaving the university (e.g., transferring, dropping out); however, they offered insightful statements, including the following participant,

> I will say that I have never been sure what I want to do in life, and I never will be. The only thing I know is that the idea of spending four years of my life to get a degree for a job that I will spend the rest of my life working within sickens me. I find a new thing approximately every 6 to 10 months and completely dedicate myself to that thing. I learn everything that I can about that thing until the time comes I have lost interest. At that time, I find a new thing. There are just some people that are not meant to be in a 4-year university. I'm not saying that I'm incompetent, as I received many scholarships for my ACT scores and GPA, but I'm just trying to find my own way in the world and I do not blame the university for my decision to get away from the rat race.

Another participant indicated that he/she left the university in order to "attend a community college that was less expensive." One participant indicated that her main reason for leaving the university was her engagement to her now husband and all of the life events happening at the time. Similarly, another student cited "personal situations that made life too unpredictable to pursue a degree" as factors influencing his/her decision to withdraw from the university. The participant who took 11 online courses shared the following statement,

> I had contacted the university several times to discuss how poor the online education system was, and they did not care about my position. The teachers did not take the courses seriously, and I was paying for an education that I was not receiving. Also, the university did not have the degree that I eventually chose available through online courses.

The third open-ended survey question asked participants to share any suggestions that they might have to improve online education at the university. One participant indicated that the student learning experience depended upon the instructor/professor, regardless of face-to-face or online delivery format, saying,

> It is really up to the professor to make the class worthwhile. I think that professors could be linked up with other professors who run really popular successful classes with lots of post and online interactivity. Maybe they would have to go through a workshop to be "eligible" to teach an online class, or maybe they would have to take two online classes themselves. Then, the professors could experience good and bad aspects of online learning first-hand.

Another participant noted the beneficial aspects of recorded video lectures, highlighting,

> Online education is really good at university. The only thing I would suggest to improve is adding video footage of professors during lectures, instead of just the voice-over. Only during one of my four classes I was able to watch my professor speak. I felt like it helped form a connection even though we weren't in person.

One participant expressed a desire for synchronous meetings, indicating that hybrid/blended courses would be more effective, stating that "everyone could join a live class meeting online to contribute and ask questions at the same time." Six participants said that "online education at the university was good," and they had no suggestions for improvement. Three other participants noted that they felt "very little sense of connection to the instructor and other students," and suggested more opportunities for synchronous interaction among class members. Another participant shared a heartfelt statement about pursuing goals, whether in higher education or elsewhere, declaring,

> If you do decide on online classes, set time aside for those classes and do not deviate from that schedule. Discipline is critical. Also, as far as choosing a life path, do not let your parents or anyone pressure you into something. Do what makes you happy, don't be afraid to talk to people, be yourself, and most of all, make sure what you are doing is for you and not anyone else.

Overall, survey respondents highlighted a multitude of advantages and disadvantages of online learning, and offered detailed recommendations for how online learning could be enhanced. Many participants believed that the university was providing mostly beneficial opportunities for online learning, and they appreciated the flexibility and convenience of online courses. Despite harsh criticisms of online courses from other participants, none of the 43 survey participants reported online courses as influencing their decisions to leave the university.

Thematic Analysis of Interview and Survey Data

Taken together, the participant responses from the 14 interviews and 43 surveys generated numerous significant statements and quotes related to university student retention and success, as well as with regard to online learning. I used thematic analysis to distill these significant statements into codes, which grouped into categories. From these categories, several themes emerged and these themes will be directed into assertions in Chapter V. The codes, categories, and themes are outlined in Table 2, followed by a discussion of the themes (grouped by their respective categories) in relation to the literature.

Table 2. *Thematic Analysis of Qualitative Data*

Codes	Categories	Themes
• Age • Gender • Culture • Family (parents, siblings) • Friends • Career/Finances/ Socioeconomic Status	Demographic Factors	More experienced undergraduate students (juniors, seniors) tended to handle online courses better than students early on in their academic career (freshman, sophomores). For many students, pursuing higher education was highly influenced by family values and expectations. Financial obligations and family situation also affected students' decisions to take online courses.
• Academic integrity • Achievement • Confidence • Disappointment/frustration • Physical health (sleep, eating, exercise) • Balance (school, work, social) • Career goals/decisions • Work ethic and study habits • Focus/attention	Internal Factors	Nearly all participants cited motivation and time management as important factors affecting success in online courses. Students who preferred independent, self-paced work viewed online courses more favorably, and were usually more successful in online courses.

Codes	Categories	Themes
• Mental health (e.g., anxiety, depression, bipolar, ADD) • Motivation • People skills/interpersonal skills • Personality traits • Priorities • Time Management (efficiency vs. procrastination) • Self-efficacy/self-esteem • Learning style • Coping with stress • Views of adulthood	Internal Factors (continued)	Many participants described how mental health interacts with the individualistic learning setting in online courses; they believed that anxiety and depression worsened due to disconnection from other students and instructors during online courses. Finding balance in school, work, and social life might also be more difficult.
• Assignments/homework • Applied learning/hands-on learning/experiential learning • Assessments/exams/quizzes • Bureaucracy • Time conflicts/scheduling • Obtaining a college/university degree • Cost of education • Course design/structure • Course delivery format (e.g., asynchronous, synchronous, hybrid) • Flexibility/convenience • Curriculum/course content • Discussion boards • Flexibility of online classes • Institutional policies and decisions (e.g., budget cuts) • Distraction • Teaching style (e.g., lecture, discussion, flipped classroom) • Group work/projects • Individual work/projects • High school curriculum • Social life (e.g., living situation, roommates, romantic partners, friends, family) • Grades	External Factors	Effective instructional design of online courses was essential for students to understand course content and successfully complete assignments. Grades were often described as providing extrinsic motivation for students, and multiple students claimed that their confidence in academic work largely stemmed from the grades they received. Tools for online interactivity (e.g., discussion boards, wikis) were met with mixed feelings from all students, who claimed that they can range from completely useless to mostly effective.

Codes	Categories	Themes
• Inequity/unfairness • Wikis/blogs • Textbook/readings • Technology for courses • Scholarships/financial aid/student loans • Research • Online course advantages • Online course disadvantages • Self-paced coursework • Papers/writing • Stressful events (e.g., death in the family, crises, relationship troubles) • Comparing online vs. face-to-face classes • Major/degree/program/field • Learning environment • Entertainment media (e.g., Netflix, Hulu, YouTube) • Social media (e.g., Facebook, Twitter, Instagram, LinkedIn, Snapchat, Pinterest)	External Factors (continued)	
• Academic advisor/mentor • Instructors/faculty/professors • Students/classmates/peers • Friends • Effective communication • Feedback from instructors • In loco parentis • Interactivity with course content • Campus resources (e.g., career services, counseling services, tutoring services, wellness center) • Student organizations • Student affairs personnel • Miscommunication • Isolation/disconnection • Various modes of communication (e.g., in-person, phone, text, email, discussion board, social media)	Meaningful Connections	Building professional relationships with instructors, academic advisors, and peers played a critical role in supporting all students through their degrees, as well as their online courses specifically. Students utilized and appreciated campus resources related to career services, health and wellness, tutoring, study skills, as well as others; they expressed a desire for more faculty members and student affairs personnel to understand student distress and reach out to lend support to university students.

Demographic Factors

Age/student status. Many participants believed that age/student status influenced students' success in online courses, indicating that more experienced students (juniors, seniors) usually perform better than younger students (freshman, sophomores). Less experienced students might be underprepared for the unstructured, self-paced learning environment of online courses, causing them to struggle (Cochran et al., 2014; Garza, Bain, & Kupczynski, 2014). Riley stated, "You have to be good at time management with online courses, because you have to learn it on your own. I think that's tougher for younger students to figure out, and they might fall behind in online courses." Preston added, "My friend took an online course as a freshman and did not do very well. Then, two years later, someone else convinced him to take another online course together, and he did very well. As he matured, I think he could better handle the self-paced nature of online courses."

Family and finances. For many of the participants, family values and/or parental expectations influenced their decisions to pursue higher education. Students often decided when and where to obtain their degree based on recommendations from family members or close friends (Mattern & Wyatt, 2009). Zoey mentioned, "Obviously, my family expected me to go to college, which is fine because I wanted to, as well." In contrast, no one in Whitney's family had attended college, yet she was always determined to obtain higher education. Whitney said, "I felt like college was never really out of the picture. I would go to college, get an education, and get into my desired career." Brock described his choice by saying, "I guess I pursued a degree because that's the thing you're supposed to do. Why would I not pursue a degree? Funding from my father's military career will help pay for my college education, so I was always planning on it."

Participants described how some students take online courses due to their family and/or work/financial situations, in order to accommodate these life obligations. Students with dependent children and full-time jobs often need to take online courses because they are the only feasible way to complete a degree (Cochran et al., 2014; Mounsey, Vandehey, & Diekhoff, 2013). One of the survey respondents wrote, "I had hoped to attend real college courses, but when I looked at all of my obligations, online classes were the only option I could manage."

Internal Factors

Motivation and time management. Nearly all participants emphasized the importance of motivation and effective time management in successfully completing online courses. Students who preferred independent, self-paced work viewed online courses more favorably, and tended to perform better in online courses (Bawa, 2016; Cochran et al., 2014). Paulina stated, "Time management is definitely a factor in online courses, because some people have the internal motivation to get work done on their own schedule. Other people tend to procrastinate more, which can be even more of a problem in online courses." Logan commented on the disadvantage of online courses for students who procrastinate by saying, "A major downfall of online classes is that they are sort of 'out of sight, out of mind.' If you're not constantly checking in, you can fall behind quickly."

Mental health. Many of the interview participants described how mental health is associated with the individualistic learning setting of online courses (Eagan et al., 2014; Iarovici, 2014). Multiple participants believed that symptoms of anxiety and depression worsen from the disconnection from other students and instructors during online courses. Students might struggle to find balance among academic, work, and social obligations while taking online courses, exacerbating various mental health issues (Dikel, 2014; Iarovici, 2014; Zhou et al., 2013).

Mackenzie disclosed, "During two summer months that I was only taking an online class, I felt like my depression worsened because I was missing that social aspect of the university." Riley added, "If a student is struggling with depression, anxiety, bipolar – any of those, I don't think they could motivate themselves to accomplish work in an online course. I think they should focus on treating their mental health before jumping into online courses." Raquel emphasized, "Nothing is more important than your health! Seek help from professionals, rather than struggling through an online course."

External Factors

Course design. All participants acknowledged that effective instructional design was particularly important for online courses. Students appreciated when course content and assignments were easy to access, and instructions were clear and consistent (Gašević et al., 2016; Hratsinki, 2008, Jayaprakash et al., 2014). Logan recalled one of his online courses, describing the course LMS as "a total mess. Sometimes, it was so difficult to find the materials for a given week, that I would just give up. It would have been so nice if the format was consistent each week." Riley explained that her online Spanish courses, "were designed very well. All of the assignments and readings were easy to find and very beneficial. The instructor included useful links and supplemental materials, and just laid out the course nicely overall." Among the 43 survey respondents and 3 interview participants who had dropped or transferred away from the university, none of them cited online courses as a reason for leaving. Learning analytics data (generated by the non-profit organization) for this university showed that "taking an increasing number of online courses" was predictive of lower retention rates among undergraduate students; however, the qualitative findings from this study suggest that these quantitative predictions are

not able to assess the multitude of internal factors and external factors that influence student retention and success. The implications of these findings will be discussed further in Chapter V.

Grades. A majority of the participants indicated that grades served as important external motivators for them to succeed in academics (Berlin, Tavani, & Beasançon, 2016; Cochran et al., 2014). Grading can be a particularly delicate issue online, where instructors need to clearly state rubrics and grading criteria in the syllabus because they cannot explain it in-person. Additionally, it is more difficult for instructors and students to have complicated discussions about grades in writing during online courses. Zoey said, "My confidence comes from my grades. When I get a bad grade, I feel less confident about that subject. When I get a good grade, then I feel more confident." Jasper and Spencer both described experiences where the grading criteria was unclear in their online courses. The lack of clarity caused misunderstandings and confusion throughout some of their online courses. Regarding grades in online courses, the interview participants who reported higher levels of communication in their courses tended to earn higher grades in those courses. For example, Logan, Yolanda, and Roxanne each cited a course with miscommunication occurring between students and the instructor, alongside a decrease in their letter grade for the course.

Interactivity tools. Tools for online interactivity (e.g., discussion boards, wikis, blogs) received mixed reviews from many students. One of the survey respondents indicated that discussion boards were used very effectively in one of his classes; they facilitated deep and meaningful interactions among the class members. Throughout her interview, Zoey repeated, "I am just anti-discussion boards. I don't think they really aid anyone's learning. I feel bad saying it, but I just hate discussion boards." The literature has also found that interactivity tools such as

discussion boards, wikis, and blogs can be used effectively, as well as ineffectively in online courses (Alarcon & Edwards, 2013; Harrigan, 2010; Slanger, 2015).

Meaningful Connections

Professional relationships. All participants valued connections and relationships with instructors, advisors, and peers during their academic careers. They indicated that these support systems were critical to their success and retention toward their degree, as well as in their online courses specifically. Whitney emphasized the importance of these connections throughout her interview, and differentiated face-to-face and online courses by saying, "You don't get the same connection in online classes. You don't meet the people." Jasper, Penny, Riley, and Preston all attempted to get to know their instructors early on each semester. They all described that making those connections were much easier and natural in person, and they struggled somewhat to replicate those connections in online courses. A survey respondent wrote, "I had one online instructor who was able to connect with the students almost as much as if it was a face-to-face course. She really tried to show that she cared about the students, even though it was through emails and discussion boards." The importance of professional connections on student retention and success is also supported in the literature (Iarovici, 2014; Shaw, Kominko, & Terrion, 2015).

Student support services. Many of the participants used support resources on campus, including the writing center, career services, wellness center, counseling center, and tutoring services. Several interview participants and survey respondents expressed appreciation for these student support services and described them as essential to their success at the university. Whitney and Yolanda believed that "online classes just don't have the support that is available on campus." Roxanne, Paulina, Jasper, and Raquel echoed that student support services are vital for all university students, yet online students have unique needs that they do not believe are

being addressed. Preston and Riley suggested that forming "online communities" that would include more than just academic material for a given course could be a way to help students feel more connected and supported in online courses. Support services and accommodations in online courses are topics that are being investigated by researchers in the recent literature (Britto, & Rush, 2013; Crawley, & Fetzner, 2013).

Summary

Chapter IV included a presentation of the qualitative data in relation to the literature. Narratives were used to portray the lived experiences of the 14 interview participants, and thematic analysis was conducted on the interview and survey responses. The resulting codes, categories, and themes were displayed and synthesized. In Chapter V, I translate the themes into assertions, as well as provide a summary, conclusions, and recommendations from this study.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The guiding research question for this study was: "How do demographic, internal, and external factors affect the retention and success of undergraduate students who take online courses?" Chapter I included an overview of the study, its purpose and significance, delimitations, and operational definitions. Chapter II consisted of a preliminary literature review that outlined the recent research on learning analytics, online learning, and university student retention and success. In Chapter III, the methodology for this study was detailed and explained. Chapter IV began with individual narratives from the participant interviews, followed by a synthesis of the qualitative themes in relation to the literature. Chapter V includes a summary of the study, as well as assertions, conclusions, and recommendations.

Overview of the Methodology

This study used the qualitative methodology of phenomenography to investigate data from 14 interviews, 43 surveys, as well as instructional design analyses of online courses. Participants included students who had taken one or more online courses and were considered on-campus students at a research university anytime from 2011 to 2016. Interviews and open-ended surveys were used to gather feedback from participants about their experiences in online courses, as well as their decisions to persist, transfer, or drop out of the university. Thematic analysis was used to generate codes, categories, and themes from the qualitative interview and survey data. The findings from the study were discussed in relation to the relevant research

literature in Chapter IV. Additionally, in Table 1, the progression from codes to categories to themes was displayed; in the following section, I translate those themes into assertions.

Assertions

Assertion One

Various demographic factors influence university students' enrollment decisions, as well as their retention and success in higher education. University students might not be ready for self-directed learning (that is inherent in online courses) as they transition from high school to college. As students mature, they often become more confident, motivated, and organized, making online courses more appropriate and beneficial to upper class students. In addition, students' decisions to pursue higher education are often influenced by family values and expectations. Once at an institution, financial obligations and family situations influence students' decisions to take online courses (considering the costs associated with them).

Student readiness for online learning has been studied in the literature, and findings suggest that often high school students are underprepared for self-directed learning environments as they enter a college or university (Farid, 2014; Horzum, Kaymak, & Gungoren, 2015). During their undergraduate career, most students develop study skills that enhance their time management, motivation, and ability to succeed in self-directed learning environments (Picciano, 2015). Expectations of parents and/or family have been influential in students' decisions to attend a college or university; family support has also been shown to have an important impact on student retention and success (Martin & Gardner, 2016; Credé & Niehorster, 2012).

Assertion Two

Internal factors have a large impact on university students' ability to both succeed in online courses and complete their degrees. Motivation and time management are essential in the

self-paced learning environments of online courses; therefore, students who are independent learners tend to thrive in these online settings. Additionally, mental health is affected by these individualistic environments, with many students indicating feelings of disconnection and isolation while enrolled in online courses. For students who struggle with anxiety, depression, and/or other mental health issues, online courses might worsen these conditions, as reported by several participants in this study. Both on-campus and online students must proactively seek support services as much as possible, in order to effectively treat mental health issues.

As posited by Gašević et al. (2016), internal factors do influence student retention and success, and they interact with the effects of external factors (studied by Gašević et al., 2016). Motivation, time management, and self-efficacy have been reported as vital skills for online learners, in order to succeed in self-paced online courses (Flynn & MacLeod, 2015; Lawanto, Santoso, Lawanto, & Goodridge, 2014; Stupnisky et al., 2013; Zimmerman & Kulikowich, 2016). In the literature, mental health conditions that are commonly expressed among college/university students include anxiety, depression, bipolar disorder, attention deficit disorder (ADD), and post-traumatic stress disorder (PTSD) (Fleming & McMahon, 2012; Lejeune, 2011; Mounsey, Vandehey, & Diekhoff, 2013; Nyer et al., 2013; Winger & Olson, 2015). Recognizing the unique needs of students in online courses, researchers have also begun studying student mental health in online settings, as well as possible treatments (Durand-Bush, McNeill, Harding, & Dobransky, 2015; Melnyk et al., 2015).

Assertion Three

As indicated in learning analytics research, external factors affect student success, both in online and face-to-face courses. All courses require effective instructional design in order to create productive learning environments and promote student success. Effective course design is

particularly important in online courses, as opportunities for synchronous instructor feedback may not be built into the course. Unclear grading policies and ineffective use of interactivity tools (e.g., discussion boards, wikis, blogs) also have the potential to detract from online learning environments. Taken together, online courses require sound design at the outset, in order to facilitate productive communication and connections among students and instructors, as well as to prevent common misunderstandings that might happen online (Jaggars et al., 2013; Sutton, 2014). As aforementioned, students' grades seem to decline in online courses where communication is ineffective between the instructor and students.

Many studies have investigated the effects of external factors on student retention and success in online settings, finding significant associations among course design, interactivity, instructor feedback, as well as overall communication within online courses (Means, 2014; Sutton, 2014; Vai & Sosulski, 2016). Gašević et al. (2016) found that course variables, including interactivity tools, overall design, and student-instructor communication, were significant predictors of student performance in online and blended courses.

Assertion Four

Meaningful connections among students, faculty members, academic advisors, and other university personnel are vital to student success and a healthy campus community. Results from my study indicate that university students appreciate the comprehensive support services offered at most institutions, and they express a strong desire for these services to be extended to online students as much as possible. When students make connections with faculty members, advisors, staff, and peers, they feel a sense of belonging at the university, and they are understandably more likely to succeed and graduate (Bawa, 2016; Jaggars et al., 2013).

The literature supports professional relationships among faculty, advisors, and students, showing increased academic performance and retention for students who make those connections at the university (Russo-Gleicher, 2013; Williamson, Goosen, & Gonzalez, 2014; Winger & Olson, 2015). Effective communication can be more difficult in online courses as compared to face-to-face courses, yet it is just as important, if not more so in online courses (Dalsgaard & Thestrup, 2015). Successful strategies for improving communication and fostering connections in online settings include: discussion boards, synchronous meetings when possible (e.g., web-conferencing), question-and-answer forums for peer and instructor support, recording audio and/or video messages, and using mobile technologies and software to distribute course announcements more efficiently (Callister & Love, 2016; Chaiprasurt & Esichaikul, 2013).

Limitations

The purpose of this study was to examine factors that affect undergraduate student retention and success, with a focus on students who have taken one or more online courses during their undergraduate career. Specifically, this study aimed to add qualitative insights to the quantitative data produced through learning analytics, which are only able to analyze external factors affecting student retention. Qualitative data included responses from 14 interview participants and 43 survey respondents, all of whom were enrolled at a research university sometime between 2011 and 2016 and had taken at least one online course. While 14 interviews and 43 surveys constitute a large qualitative sample size, these participants all attended the same university. The findings from this study add insights to the larger body of literature on learning analytics, online learning, and university student retention and success; however, caution should be used when applying these findings to students at other universities.

Conclusions

Findings from my study supported the idea that demographic, internal, and external factors interact to affect university student retention and success (both in online and face-to-face settings). Several studies have used learning analytics to describe the effects of external factors on student retention and success (de Freitas et al., 2015; Gašević et al., 2016; Jayaprakash et al., 2014; Lauria et al., 2013; Papamitsiou & Economides, 2014). At the conclusion of their study, Gašević et al. (2016) suggested that future research should investigate internal factors, as well as the interaction of internal and external factors, and how they influence student retention and success (in order to improve the accuracy of quantitative data from learning analytics).

As Gašević et al. (2016) called for, my study filled a gap in the literature by examining internal and external factors simultaneously, exploring how these factors influence students' academic performance in online courses and garnering rich qualitative data about the multitude of variables that affect student retention. Across the 46 students (3 interviews and 43 surveys) who took online courses and subsequently dropped out or transferred away from the university, none of them reported online courses as reasons for their departures. While all of the participants in my study described the advantages and disadvantages of online education, it was clear that students' unique life circumstances largely influenced their decisions to persist or leave the university (e.g., family obligations, work and financial issues, mental and physical health, social pressures, and course load).

The qualitative findings from my study can be used to augment and enhance the quantitative data from learning analytics, reminding university administrators and policy-makers that student retention and success cannot be accurately predicted with only statistical algorithms. Health and wellness (Eagan et al., 2014; Nyer et al., 2013; Winger & Olson, 2015), family

situations (Credé & Niehorster, 2012), work and financial issues (Mounsey, Vandehey, & Diekhoff, 2013), motivation and self-efficacy (Flynn & MacLeod, 2015; Stupnisky et al., 2013; Zimmerman & Kulikowich, 2016), learning styles (Garcia-Ros, Perez, & Talaya, 2008), instructional design of courses (Gašević et al., 2016; Jayaprakash, 2014), and connections among students and instructors (Williamson, Goosen, & Gonzalez, 2014; Winger & Olson, 2015) represent some of the nuanced factors that are not easily examined through learning analytics. While big data from learning analytics may be exciting to higher education stakeholders, both qualitative and quantitative methods must be leveraged in order to gain a holistic view of students' experiences. Mixed methods research often takes much time and effort; however, it is immensely valuable when investigating complex topics such as student retention and success. In addition, qualitative findings can be used to develop and/or refine quantitative survey instruments, in order to gather as much data as possible related to student retention (e.g., external factors, demographic factors, and internal factors).

Recommendations

Implications for Practice

The findings from my study provide several implications for improving online learning and student retention and success. For university students planning to enroll in online courses (particularly if they have not taken online courses previously), conducting a thorough analysis of their learning styles would help to determine if online learning is a good fit for them. As demonstrated in my study, as well as in the literature, self-directed students who prefer independent learning tend to thrive in online courses; thus, investigating learning styles prior to online enrollment would direct students into appropriate courses that fit their needs and abilities (Farid, 2014; Garcia-Ros, Perez, & Talaya, 2008).

Participants in my study reported that their symptoms of anxiety and depression worsened while enrolled in online courses, related to the feeling of disconnection from instructors, students, and the institution. Students who struggle with anxiety, depression, and/or other mental health issues should be cautious when considering a high number of online courses. These students must proactively stay connected to campus support services whenever possible, in order to mitigate the disconnected/isolated feeling that many students report while taking online courses. Researchers have started to investigate ways in which accommodations and support services might be extended to students in online courses (Crawley & Fetzner, 2013; Linder, Fontaine-Rainen, & Behling, 2015).

My findings, alongside the literature, indicate that online interactivity tools (e.g., discussion boards, wikis, blogs) can have widely varying levels of effectiveness in online courses (Cho & Kim, 2013; Gašević et al., 2016; Jayaprakash, Moody, Lauria, Regan, & Baron, 2014). These online tools do not function in the same way that interactions occur in a face-to-face learning environment; they must be implemented thoughtfully and effectively in order to promote meaningful interactions online. Too often, discussion boards and similar tools are added to an online course, assuming that they will replicate face-to-face communication. While considering best practices for teaching and learning, instructors must be intentional and strategic as they implement various technologies and software, in order to enhance communication and learning outcomes (Gašević et al., 2016; Ter-Stepanian, 2012).

Many students report that it is difficult to make meaningful connections and build relationships with instructors and other students in online courses. In order to facilitate beneficial connections in online settings, instructors must leverage all available resources, such as synchronous meetings through web-conferencing (one-on-one student and instructor, or full

class meetings if possible), recorded audio/video messages and lectures, detailed feedback on assignments, discussion boards, and timely responses through email (Chaiprasurt & Esichaikul, 2013; Dalsgaard & Thestrup, 2015; Winger & Olson, 2015).

Future Research

This phenomenographic study provided qualitative insights about the factors affecting retention and success of students in online courses at a Midwestern research university. Online education will continue to expand in the upcoming years, and the culture of university students will undoubtedly shift throughout future generations. Thus, further qualitative studies that capture the lived experiences and cultural characteristics of university students at various institutions would be immensely valuable to the research literature. As noted in Chapter III, researchers should be aware of the "research karma effect," whereby students are more likely to participate in research if they are also conducting their own research. With younger undergraduate students who might not yet see the value of research, it is important to leverage all appropriate and ethical communication methods in order to promote their participation. Also, reasonable incentives were beneficial to the response rate for this study; I would recommend trying different combinations of possible rewards in order to find the most effective balance for the target population of participants in future research (e.g., low number of higher value gift cards, or high number of lower value gift cards).

Additionally, the qualitative data from this study and similar studies can be incorporated into quantitative survey instruments that attempt to gather information regarding student retention and success. Enhancing and refining these quantitative instruments with the qualitative insights would allow researchers to gather data from a broader sample more expediently, and still garner more accurate measures of student retention and success. In one of my prior studies

(Winger, 2016), I developed the *Communication Preferences and Perspectives Scale (CPPS)*, a quantitative survey instrument designed to assess individuals' perceptions regarding communication modes, technology use, and the overall culture of human interaction. During that study, I piloted the CPPS, alongside established mental health instruments (State/Trait Anxiety Scale and Beck Depression Inventory), with a sample of 225 students (undergraduate and graduate level) in order to assess their perceptions of information and communication technology (ICT) use related to human interactions and wellness.

Next, I plan to use the qualitative findings from this study in order to enhance and refine the CPPS and improve its validity and reliability. Also, I will potentially modify scales related to mental and physical health to use alongside the CPPS. With qualitatively-informed quantitative scales, I plan to develop salient and updated survey instruments with the ability to capture details about internal factors that affect student retention and success. Then, results from these surveys could be used in tandem with learning analytics data to better inform retention initiatives at colleges and universities. Ideally, institutions will be able to synthesize this information to more accurately recognize students at risk, contact them, and effectively implement early intervention techniques. This iterative process of combining quantitative and qualitative research methods is time-consuming, yet essential for studying the complex factors that influence university student retention and success. Mixed methods research offers the opportunity to examine learning analytics, online learning, and student retention and success through a holistic and comprehensive perspective. Hopefully, findings from this study, as well as future research, will assist colleges and universities as they interpret learning analytics data more accurately, as well as enhance their decisions and policies related to online education and student retention initiatives.

APPENDICES

APPENDIX A

INFORMED CONSENT

[redacted]

April 11, 2016

Principal Investigator:	Austin Winger
Project Title:	What Do the Numbers Really Mean? A Qualitative Investigation of Learning Analytics Related to College Student Retention and Success
IRB Project Number:	IRB-201604-362
Project Review Level:	Expedited 6, 7
Date of IRB Approval:	04/08/2016
Expiration Date of This Approval:	04/07/2017
Consent Form Approval Date:	04/08/2016

The application form and all included documentation for the above-referenced project have been reviewed and approved via the procedures of the [redacted] Institutional Review Board.

Attached is your original consent form that has been stamped with the [redacted] IRB approval and expiration dates. Please maintain this original on file. ***You must use this original, stamped consent form to make copies for participant enrollment. No other consent form should be used.*** It must be signed by each participant prior to initiation of any research procedures. In addition, each participant must be given a copy of the consent form.

Prior to implementation, submit any changes to or departures from the protocol or consent form to the IRB for approval. No changes to approved research may take place without prior IRB approval.

You have approval for this project through the above-listed expiration date. When this research is completed, please submit a termination form to the IRB. If the research will last longer than one year, an annual review and progress report must be submitted to the IRB prior to the submission deadline to ensure adequate time for IRB review.

The forms to assist you in filing your project termination, annual review and progress report, adverse event/unanticipated problem, protocol change, etc. may be accessed on the IRB website:
[redacted]

Sincerely,

[redacted]

The [redacted] is an equal opportunity / affirmative action institution.

THE [redacted]
CONSENT TO PARTICIPATE IN RESEARCH

TITLE: *What Do the Numbers Really Mean? A Qualitative Investigation of Learning Analytics Related to College Student Retention and Success*

PROJECT DIRECTOR: *Austin T. Winger, Ph.D. Student*

OFFICE PHONE #: [redacted]
CELL PHONE #:
EMAIL: [redacted]

DEPARTMENT: *Teaching & Learning*

STUDENT ADVISOR: *Dr. Mary Baker*

PHONE #: [redacted]
EMAIL:

STATEMENT OF RESEARCH
A person who is to participate in the research must give his or her informed consent to such participation. This consent must be based on an understanding of the nature and risks of the research. This document provides information that is important for this understanding. Research projects include only participants who choose to take part. Please take your time in making your decision as to whether to participate. If you have questions at any time, please ask. The project director and student advisor's phone numbers and emails are provided above.

WHAT IS THE PURPOSE OF THIS STUDY?
You are invited to participate in a research study about factors that affect college student retention and success. Through interviews with students, detailed qualitative themes will be determined that will help illuminate important factors related to the retention and success of undergraduate students who have taken online courses. These themes will be compared with objective data regarding the instructional design aspects of online courses, in order to generate meaningful results that will add to the literature on college student retention and success.

HOW MANY PEOPLE WILL PARTICIPATE?
A total of approximately 12 - 20 participants will take part in this interview study on the University of North Dakota campus.

HOW LONG WILL I BE IN THIS STUDY?
Your participation in this study will last approximately 25-45 minutes.

Approval Date: APR 8 2016
Expiration Date: APR 7 2017
[redacted] IRB

Date: _____
Participant Initials: _____

WHAT WILL HAPPEN DURING THIS STUDY?
If you decide to participate in the interview, you will mutually decide upon a time and location that works for you and Austin (project director and researcher for this study). [redacted] or any other private location that you choose and agree upon. The interview will last approximately 25-45 minutes and will flow according to the conversation and discussion that arises with each unique participant.

WHAT ARE THE RISKS OF THE STUDY?
There may be some risk from participating in this study. Some of the questions asked may cause you to remember a memory or experience that causes mental or emotional distress. However, such risks are not viewed as being in excess of "minimal risk". If, however, you become upset by questions, you may stop at any time or choose not to answer the question, without any penalty.

If you do incur any emotional distress, and you wish to seek professional services, you may contact and visit the counseling center at [redacted]

WHAT ARE THE BENEFITS OF THIS STUDY?
You may or may not benefit personally from this study (immediate or long-term). Regardless, it is hoped that in the future other people will benefit from this study, as the results may provide data that can help college students, faculty, administrators, and student affairs personnel understand factors that affect college student retention and success. Furthermore, it is hoped that this understanding will help colleges and universities develop policies and accommodations that will improve student retention and success.

ALTERNATIVES TO PARTICIPATING IN THIS STUDY
You may choose not to participate in this study. There is no penalty for not participating.

WILL IT COST ME ANYTHING TO BE IN THIS STUDY?
You will not incur any financial costs for participating in this study.

WILL I BE PAID FOR PARTICIPATING?
You will not be paid directly for participating in the interviews. However, by agreeing to participate, your name will be entered in a drawing to win one of two $75 Amazon gift cards.

WHO IS FUNDING THE STUDY?
Neither the [redacted] the researchers are receiving payments from any other agencies, organizations, or companies to conduct this research study.

CONFIDENTIALITY
The records of this study will be kept private to the extent permitted by law. In any report about this study that might be published, you will not be identified. Your study record may be reviewed by any or all of the following: government agencies, the [redacted] and the [redacted] Institutional Review Board.

Any information obtained in this study that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by using

Approval Date: APR 8 2016
Expiration Date: APR 7 2017
[redacted] IRB

Date: _____
Participant Initials: _____

pseudonyms for all interview participants. Also, digital recordings of the interviews will be stored on a secure drive, and paper copies of signed consent forms will be stored in a locked file cabinet (separated from any other written data from the study, so that you cannot be identified in any way). You have the right to review the digital recording if you wish. After three years, the digital recordings and paper materials will be erased so that no trace remains. In any write up of this study, results will be reported in a de-identified and confidential manner, so that you cannot be identified.

[redacted] uses various modeling techniques to assist in determining how and when to intervene with students that may be at risk for leaving the institution. The scores produced as a result of this modeling will be categorized in three groups of "high", "medium" and "low" risk of retention. If consent is granted, this designation will be shared with the researcher for the purposes of analysis for this project. For meaningful analysis, the researcher will also need to know which online courses you took at [redacted]. If consent is granted, the catalog, course, and section numbers for those courses will be shared with the researcher; however, your course performance will not be released.

IS THIS STUDY VOLUNTARY?
Your participation is voluntary. You may choose not to participate or you may discontinue your participation at any time without penalty or loss of benefits to which you are otherwise entitled. Your decision whether or not to participate will not affect your current or future relations with the [redacted]

CONTACTS AND QUESTIONS?
The Project Director conducting this study is doctoral student, Austin T. Winger; he can be reached at his office [redacted] or if you are unable to reach Austin at his office phone, then you can call his cell phone [redacted]. The faculty member and student advisor for this research study is Dr. Mary Baker; she can be reached at her office phone [redacted]

If you have questions regarding your rights as a research subject, you may contact The [redacted] Institutional Review Board at [redacted]

- You may also call this number about any problems, complaints, or concerns you have about this research study.
- You may also call this number if you cannot reach research staff, or you wish to talk with someone who is independent of the research team.
- General information about being a research participant can be found by clicking "Information for Research Participants" on the web site: [redacted]

Please initial and sign all of the appropriate lines in the following section, indicating what you are willing to consent to for this interview:

I give consent to be audio-recorded during this study.

Please initial: _____Yes _____No

Approval Date: APR 8 2016
Expiration Date: APR 7 2017
[redacted] IRB

Date: _____
Participant Initials: _____

I give consent for my quotes to be used in the research; however, I <u>will not be identified.</u>

Please initial: _____Yes _____No

I give consent to have [redacted] release my retention risk score/category, in rank order, to the researcher, only for the purposes of analysis in this study.

Please initial: _____Yes _____No

I consent to have [redacted] release the catalog, course, and section number of the online courses that I have registered for while at [redacted]. My course performance information will <u>not be released.</u>

Please initial: _____Yes _____No

Your signature indicates that this research study has been explained to you, that your questions have been answered, and that you agree to take part in this study. You will receive a copy of this form.

Participant's Name: _____

_____

Signature of Participant Date

I have discussed the above points with the participant or, where appropriate, the participant's legally authorized representative.

_____

Signature of Person Who Obtained Consent Date

Approval Date: APR 8 2016
Expiration Date: APR 7 2017
[redacted] IRB

Date: _____
Participant Initials: _____

APPENDIX B

GUIDING INTERVIEW QUESTIONS

1. Imagine a typical day for you, including academic/schoolwork, employment, social time, and all other activities. Please describe what your days look like and approximately how much time you spend on each activity…

2. Please describe how you feel when you are working on different types of academic work (for example—writing papers, individual projects, group projects, studying for exams)…

3. Please describe your overall experience in the **online course** or multiple **online courses** that you have taken (for example – communication with instructor and other students, course activities, types of assignments and assessments, workload, time management).

4. Why did you choose to pursue a degree at the university? What has helped you continue your academic work at the university? What do you feel has hindered your academic success?
    a. What helped you come to the decision to leave or transfer away from the university? *(only asked if the student did leave the university before completing a degree)*

5. Is there anything else about your online learning experiences and/or overall experiences at the university that you wish to share?

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