

RELATIONSHIP OF INSTITUTIONAL SUPPORT TO ONLINE GRADUATE
LEARNING

by

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A dissertation submitted to the Graduate Council of
Texas State University in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
with a Major in Adult, Professional and Community Education
August 2020

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DEDICATION

This dissertation is dedicated to my daughters, Kaitlyn F. Nybro and Morgan E. Elliott.

ACKNOWLEDGEMENTS

I would like to thank my dissertation Chair, Dr. Robert F. Reardon, for his mentorship, guidance, and patience. Dr. Reardon went above and beyond to help me through the dissertation process and has shown me, by example, what an adult educator should be. Thank you, Dr. Reardon, for making this study possible and for making this such a valuable experience. It was an honor to have you serve as my Chair. Additionally, I would like to thank my dissertation committee members: Dr. Joellen E. Coryell, Dr. Gwendolyn M. Morel, and Dr. Sandhya Rao for their advice and support. I felt both honored and grateful to have each of you on my committee and to have each of your perspectives included in this work. I would like to sincerely thank Joseph J. Gradney and Jason P. Zencuch for their advice, encouragement, and support of my career goals.

For my mother, Lois A. McGuire, who believed in me when no one else did, who fought for me when no one else would, and who inspired me to fiercely pursue excellence, thank you. For my partner and best friend, Barry D. Elliott, thank you for always being a shoulder to lean on and sometimes cry on; thank you for your camaraderie, kindness, and most of all, love. For my daughters, last but certainly not least, Kaitlyn F. Nybro and Morgan E. Elliott, it is the honor of my lifetime to be your mother. I sit in awe of you both and feel eternally grateful to be your mom.

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ABSTRACT

Online graduate students' perceived level of institutional support was explored in relation to student satisfaction and importance. Graduate students, either previously or currently enrolled in at least one online course at a large state university in the Southwestern United States, submitted 321 online surveys ($n \approx 321$). Confirmatory factor analysis supported construct validity for the survey instrument and Bayesian path analysis established associations and relationships between study variables. Study findings revealed that the participants considered instructional services and academic services the most important areas of institutional support. Findings support a positive relationship between institutional support and satisfaction and a positive relationship between institutional support and importance. Gap analysis indicated areas in which increased student support could benefit online graduate learners.

Keywords: online; graduate students; institutional support; student satisfaction; student importance; confirmatory factor analysis; Bayesian path analysis; instructional services; academic services; gap analysis

I. INTRODUCTION

In 2018, the National Center for Education Statistics reported slightly more than one third (33.1%) of American college and university students enrolled in at least one online course (Lederman, 2018). The recent statistics are especially startling, considering less than one quarter of students were enrolled in an online course in 2012 (Lederman, 2018). Furthermore, online education programs are becoming the preferred method of schooling for many adult students (Friedman, 2018).

The rapid growth of online course enrollment is a current and timely issue within the field of adult education. It is critical that adult educators recognize and address this change in matriculation. Although there is resistance by faculty to accept this new approach to instruction (Mitchell, et al., 2014), Knowles (1980) andragogical theory of adult education supports, and even advocates, that instructors be flexible to meeting the needs of their students. A rich history of adult education supports an ever-evolving approach to learning, one that is both inclusive and student-centered (Kasworm, et al., 2010). This study was established to determine the relationship of institutional support to online graduate learning.

Background and Context of the Study

Online classrooms and course material quickly developed to meet increasing demands from the student population. Adult students, often struggling to balance career and family obligations while attending school, embraced asynchronous online education programs as an attractive option (Johnson, 2015). Online programs for adults offered the flexibility learners needed (Hew, 2018), allowing them to complete course material as their schedules permitted.

Not only were learner demands a driver, but efforts to cut costs in higher education contributed to the rapid growth as well (Twigg, 2003). Instructors were often assigned web-based classes with little to no training on instructional design or the unique needs of online learners (Hockly, 2015).

Despite increased online course enrollment, poor student retention and, consequently, high attrition rates have become an issue in many online education programs (Yang, et al., 2017). University administrators, struggling to adapt to the changing demographics on campus, rushed to implement distance learning programs without carefully considering institutional support or how learners make meaning in a web-based environment.

It should be noted that learners making meaning through online courses is critical and lies at the center of adult education. Learner engagement is also important, and instructors should not employ the same approach to online education as in a traditional classroom setting (Czerkowski & Lyman, 2016). Furthermore, Merriam and Bierema (2014) asserted, “. . . online learning is an undeniable trend that we must become adept at navigating both as learners and educators” (p. 195). Online graduate students, who are predominantly adult learners, have different needs from traditional students and require unique support from university services. Further research was necessary to determine how universities could effectively provide institutional support to assist online graduate learning.

Statement of the Problem

Although there is extensive research investigating how learners construct knowledge in online environments (Donnelly, 2017; Gunawardena et al., 1997; Hambacher et al., 2018; Lai, 2015; McLinden et al., 2010; Papert, 1980), a gap in the current literature exists, related to established and current best practices for online graduate courses (Milman, 2013) most notably, in regard to institutional support. The majority of current studies focus on learning methods (Chen, 2017; Donnelly, 2017; McDougall, 2015; Sendag & Odabasi, 2009) rather than providing a comparative evaluation of student services and institutional support. Additionally, many studies are dated and/or do not focus on the specific needs of the graduate student population. Recent research (Lohmann et al., 2018; Palmer & Holt, 2008; Ramayaha & Lee, 2012) revealed a need for data on institutional support and student satisfaction levels in regard to university graduate students. Previous studies neglected to address the importance of university services and student support for online graduate learners.

Extending the existing research using a constructivist lens (Piaget, 1952), this study evaluated the importance of institutional support and determined the most valued university student services. The Statistical Package for the Social Sciences, version 26 (SPSS, 2019) was leveraged to establish relationships through multivariate statistical analysis. Furthermore, confirmatory factor analysis and Bayesian path analysis were utilized to demonstrate data correlations and study findings.

Research Questions and Hypotheses

The online learning study revealed the association between perceived level of institutional support and the reported student satisfaction levels of online graduate

students. The study also established the relationship between perceived institutional support and student importance levels. Furthermore, findings demonstrated the impact age group had on such levels. While satisfaction levels demonstrated how well the institution was meeting online graduate learning needs, importance levels provided insight into the value placed on study factors. In effect, the gap between importance levels and satisfaction levels will allow the university to see where improvement may need to be made, from the perspective of the students, and where funding may need to be increased. If a student assessed low satisfaction for a survey item but also placed low importance on such an item, administrators should be less inclined to increase funding for this; certainly so, when contrasted with a survey item with low satisfaction and high importance. Assessing importance level provided online graduate learners a voice regarding what mattered most to them and will allow decision makers to effectively evaluate future online graduate support.

The study explored the impact of current enrollment status and college designation, assessing how both variables supported online graduate learner needs. Current enrollment status data revealed differences between students who were primarily enrolled in online courses as opposed to those who were primarily on campus. Additionally, evaluating the needs of the graduate online population by college designation provided the ability to identify the contrast between colleges. This will allow the university of study to customize current and future graduate online learning initiatives. Findings could also be beneficial to other universities with online course offerings.

The study identified the colleges most in need of additional support and to what extent that support is needed. College of Education online programs are quite different from those in the College of Health Professions; survey results revealed areas of shortfall, where the university may not be meeting student needs as well as it could. The college designation and enrollment status evaluation allowed this study to address all online graduate learners' needs rather than a one-size-fits-all approach that would have obscured the impact of college designation.

The study was guided by two major research questions, each with three correlated sub questions:

Research Question 1

Is there a positive relationship between Perceived Level of Institutional Support and Level of Satisfaction for online graduate students?

Hypothesis 1

As Perceived Level of Institutional Support (X) increases, Level of Satisfaction (Y) increases. Treatment, (X), refers to the independent variable (IV): Perceived Level of Institutional Support. Observed outcome, (Y), refers to the association of dependent variable (DV): Level of Satisfaction.

Sub Question 1a

Is there a strong association between Age Group and online graduate students' Level of Satisfaction?

Sub Question 1b

Is there a strong association between College Designation and online graduate students' Level of Satisfaction?

Sub Question 1c

Is there a strong association between Current Enrollment Status and online graduate students' Level of Satisfaction?

Research Question 2

Is there a positive relationship between Perceived Level of Institutional Support and Level of Importance for online graduate students?

Hypothesis 2

As Perceived Level of Institutional Support (X) increases, Level of Importance (Y) increases. Treatment, (X), refers to the independent variable (IV): Perceived Level of Institutional Support. Observed outcome, (Y), refers to the association of dependent variable (DV): Level of Importance.

Sub Question 2a

Is there a strong association between Age Group and online graduate students' Level of Importance?

Sub Question 2b

Is there a strong association between College Designation and online graduate students' Level of Importance?

Sub Question 2c

Is there a strong association between Current Enrollment Status and online graduate students' Level of Importance?

Specific Aims

The study included six specific aims that properly linked to research questions. The specific aims helped guide the study research. A Likert scale was utilized for survey

responses, with ratings from one through seven; one reflecting the lowest score and seven indicating the highest. Additionally, participants were provided the option to select ‘N/A’ for any item that did not apply to them.

Specific Aim 1

Identify the association between Perceived Level of Institutional Support and Level of Satisfaction.

Specific Aim 2

Identify the association between Perceived Level of Institutional Support and Level of Importance.

Specific Aim 3

Determine if there are increased Levels of Satisfaction from a high Perceived Level of Institutional Support.

Specific Aim 4

Determine if there are increased Levels of Importance from a high Perceived Level of Institutional Support.

Specific Aim 5

Determine the impact of Age Group, College Designation, and Current Enrollment Status on Level of Satisfaction.

Specific Aim 6

Determine the impact of Age Group, College Designation, and Current Enrollment Status on Level of Importance.

Purpose of the Study

The purpose of this study was to investigate the importance of Perceived Level of Institutional Support to online graduate students' Level of Satisfaction and to determine how Perceived Level of Institutional Support impacts students' Level of Importance in online graduate programs. Adult learners are enrolling in online education courses now more than ever (Bawa, 2016) and online learning is receiving growing attention from both academia and the corporate sector (Kentnor, 2015). Unfortunately, many online courses are not thoughtfully designed, and the high attrition rates of online programs (Yang, Baldwin, & Snelson, 2017) should be alarming for course instructors, students, and university faculty. This study specifically examined online graduate students' importance and satisfaction scores, using current student participants from a large Southwestern university in the United States. Graduate students were uniquely selected for the study due to the high rate of adult student enrollment. If online graduate courses are implemented, they should be effective, and provide students with a supportive learning environment. Findings from the study may lead to future improvements in online graduate course implementation and program sustainment.

Significance of the Study

The study extended existing knowledge in the area of adult education, identifying the importance of institutional support in graduate online learning through Bayesian path analysis. It investigated the value placed on student support services and revealed how universities could better support online graduate students by uncovering gaps between Level of Importance and Level of Satisfaction. The research and data collected highlighted the factors that mattered most to online graduate learners and provided a

benchmark for assessment. The study will serve administrators, faculty, and online graduate students, all standing to benefit from the improvement of university online graduate programs.

Findings will allow administrators to develop change-management initiatives and implementation plans for online graduate programs. Additionally, the study will help administrators and faculty make informed decisions so that university resources are both efficiently and effectively used. In an era of cost-cutting and program accountability, study results could be leveraged to ensure university spending is not exhausted in areas that offer little utility.

The implications of this study are far-reaching. Administrators, faculty, and adult educators are all struggling to adapt to online education. This study addressed a gap in the existing research and identified current issues from the online graduate student perspective. Universities throughout the world have proven that online graduate courses can be implemented; however, the questions educators and administrators must now address are: *How can this be done effectively? How can this be done well?*

Researcher's Perspective

The researcher set out to identify ways in which institutional support could be strengthened or mitigated so that online graduate students would be appropriately supported. The researcher was guided by the theoretical framework of constructionism, under the constructivist epistemology.

Through the lens of constructivism, there is not one truth nor one correct answer; there are many possible perspectives (Bruner, 1977). Throughout the study, the researcher sought to give a voice to online graduate students. The intent was to help move

online graduate education a little further in the right direction. Regardless of the research questions, the hypotheses, and the study aims, the findings provide quantitative data to allow university administrators and faculty to make real-world decisions for the betterment of the university, the students, and online graduate programs.

The study employed a constructionist framework, recognizing that “meaning is not discovered but constructed” (Crotty, 1998, p. 42). Constructionism is held in contrast to objectivism and, consequently, the positivist paradigm (Crotty, 1998). It would have been inappropriate to assume that the study factors maintained an objective and unchanging truth. Rather, the study captured the subjective responses from online graduate students. The survey research instrument was utilized to measure how students *felt* about institutional support and their unique university experiences. These were not static measurements and therefore, findings should be reviewed using a constructionist perspective. In regard to this study and the survey responses gathered, the researcher contends there was not a right answer nor a wrong one. The researcher set out, with an open mind, to understand the variables and their relationships.

The researcher has engaged in both online and traditional courses as an adult learner. First, as an Army veteran and single mother, the researcher earned a BBA in Finance. Later, as a working mother, the researcher obtained an MBA and then pursued a doctoral degree. The researcher maintains the belief that online courses can be highly effective; however, they can also be a waste of both time and money for a group of learners that have little of either to spare. Furthermore, the researcher is concerned that some ineffective online programs may lessen the perceived importance of higher

education degrees and increase the “diploma-mill” (Ezell, 2019) effect that may be created from sub-standard online graduate programs.

Delimitations

Delimitations are created by choices intentionally made by the researcher. Study delimitations included the selection of a concise survey, selected in-part, to conserve respondents’ time. Initial pilot study participants provided feedback, suggesting limiting the length of the survey and time required to complete the assessment. Questions were confined to a realistic number to increase survey completion, rather than dissuade participants from finalizing with an excessive amount. Ultimately, this step was taken to ensure the highest possible number of online surveys would be submitted from study respondents. Additionally, in designing the research to focus on online graduate learning, another delimitation was selecting exclusively master’s and doctoral student participants who were either currently or previously enrolled in at least one online course at the university.

Summary

Current statistical research was developed for this study to provide visibility on online graduate institutional support. With the rapid growth in online education, online learning studies are needed now, more than ever; at a higher level, the integrity of higher education could be at stake. Many American universities are now experiencing declining enrollments (Miller, 2019), and a student debt crisis (Walsemann & Ailshire, 2017) is causing both parents and students to question the utility of a college education.

Throughout the nation, there is increasing conversation that a college education is no

longer what it used to be, and it no longer offers graduates the job opportunities that it once did.

Online education programs potentially threaten the reputation of universities. Online courses can often be perceived as just checking a box – not really getting an education; no one really teaches, and no one really learns. Furthermore, online degrees are often regarded by the public as inferior to traditional degrees (Kizikec, Davis, & Wang, 2019). However, there are exceptionally effective online education programs in America and there are quality faculty who have executed courses both thoughtfully and effectively. This study identified the very factors that allow this to happen so that successful outcomes can be increased, specifically focusing on institutional support within online graduate courses.

Online instructors and online students alike are often undervalued by a university. Instructors are often lower status employees and less frequently tenured than traditional instructors (Perry & Steck, 2019). Many university support services focus on undergraduate, on-campus students; online students are often an after-thought, if that.

University administrators may not realize the danger in creating a population of second-class students. The researcher posits this could ultimately deteriorate the very foundation of the university. It devalues a degree from such an institution and, in part, may be one of the reasons a growing number of Americans no longer value a college degree. If online education is to be done at all, it should be done well.

Definition of Terms

Terminology is defined below in relation to the online graduate learning study. The same phrases and words could be defined differently by previous and subsequent

researchers. The underlying foundation for the definition of terms originated from the spirit and overarching themes developed within the review of literature.

Institutional Support: Services provided by the university to help reduce school-related stress (Markle, 2015). Institutional support includes academic services, enrollment services, instructional services, and student services.

Adult Students: Non-traditional students, often over the age of 24 (Madden, 2015). “This population defies definition in ways beyond age, for they represent diversity from every perspective” (Madden, 2015, p. 93).

Optimal Learning Methods: Instruction in ways that enhance learning (Vasquez et al., 2015).

Online Learning: Educational courses with at least 50% of instruction and coursework posted online.

Adult Education: Learning programs provided to non-traditional students, often over the age of 24 (Madden, 2015). “Adults enter the educational activity with a greater volume and more varied experiences than do children; adults have a readiness to learn those things that they need to know in order to cope effectively with real-life situations; adults are life-centered in their orientation to learning; and adults are more responsible to internal motivators than external motivators. (Knowles et al., 2014 , p. 70).

Constructivism: “epistemological considerations focusing exclusively on 'the meaning-making activity of the individual mind'” (Crotty, 1998, p. 58). “Schwandt (1994, p. 125) states that ‘constructivists are deeply committed to the contrary view that what we take to be objective knowledge and truth is the result of perspective.

Constructivists, he adds, emphasize the instrumental and practical function of theory construction and knowing”” (Crotty, 1998, p. 57)

Constructionism: “. . . all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context” (Crotty, 1998, p. 42). “According to constructionism, we do not create meaning. We construct meaning. We have something to work with. What we have to work with is the world and objects in the world” (Crotty, 1998, pp. 43-44).

Online Graduate Programs: Fully or partially online master’s or doctoral programs in which, at least 50% of instruction and coursework is online. More often than not, enrolled students are over the age of 24.

Online Graduate Students: University students enrolled in at least one online graduate course.

Level of Satisfaction: Students will evaluate how pleased they are with a survey factor. Measurement provided by online learning survey results and quantitative data. Levels will be based off a one through seven Likert scale. Levels of one through three will be considered low, with one being the lowest satisfaction level. Levels of five through seven will be considered high, with seven being the highest satisfaction level.

Level of Importance: Students will evaluate the value they place on each survey factor. Measurement provided by online learning survey results and quantitative data. Levels will be based off a one through seven Likert scale. Levels of one through three will be considered low, with one being the lowest importance level. Levels of five through seven will be considered high, with seven being the highest importance level.

Learning Retention: True learning retention occurs when the adult learner is able to apply information and concepts to her/his situation. Merriam and Bierema (2014) suggested learning retention would result by linking theory to practice.

Structural Equation Model (SEM): “A collection of statistical techniques that allow a set of relationships between one or more independent variables, either continuous or discrete, and one or more dependent variables, either continuous or discrete, to be examined” (Tabachnick & Fidell, 2019, p. 676). “SEM allows questions to be answered that involve multiple regression analyses of factors. When exploratory factor analysis is combined with multiple regression analyses, you have SEM” (Tabachnick & Fidell, 2019, p. 676).

Path Analysis: Connections among correlated variables will be examined through this detailed analysis (Fraenkel et al., 2015). Path analysis looks at both direct and indirect relationships and reveals the strength of such relationships.

Instructional Design: “instructional materials and courses, particularly for digital delivery” (Intentional Futures, 2016, p. 3). Instructional design includes analyzing learner needs and developing a course strategy to meet such needs; it is a critical element in developing an online learning platform. High quality instructional design is believed to increase course effectiveness.

Institutional Perceptions: “Assesses how students perceive the institution” (Noel-Levitz, 2012, p. 2) and if the institution has a good reputation or not. Such perceptions often impact student enrollment and retention at a university.

Academic Services: University support services designed to help students who reside both on and off campus with scholastic assistance. Examples of such services

include “advising, course offerings, technical assistance, online library resources, and tutoring services” (Noel-Levitz, 2012, p. 2).

Instructional Services: University services designed to support a student’s educational experience. Examples include “instructional materials, the faculty/student interactions, evaluation procedures, and the quality of the instruction” (Noel-Levitz, 2012, p. 2).

Enrollment Services: Programs designed to assist students before, during, and after the university enrollment process. Services help to ensure students have accurate and current information on the enrollment process and availability to necessary resources. Examples include “financial aid, registration, and payment procedures” (Noel-Levitz, 2012, p. 2).

Student Services: University services designed to support student needs that fall outside the scope of the other services aforementioned; such services vary according to university. The online survey measures student importance and satisfaction in regard to “responses to student requests, online career services, and the bookstore” (Noel-Levitz, 2012, p. 2).

II. REVIEW OF THE LITERATURE

The review of literature begins with a walkthrough in the origins of constructivism and the underling theory guiding the research. It sets the tone and foundation for the study on the relationship of institutional support to online graduate learning. It is critical that the review begins with this rich epistemological history and that the importance of such is understood before progressing to the subsequent subsections.

Following constructivism and underlying theory, four institutional support factors are explored. Current research on academic services, instructional services, enrollment services, and student services effectively leads to review of the importance of institutional support and the importance of student satisfaction in relation to adult online learning. The review of literature culminates by clarifying the need for the current study while leveraging guiding research from the field.

Constructivism and Underlying Theory

The origins of the constructivist epistemology can be loosely traced to the work of Piaget (1952), who later inspired Vygotsky (1926). Although his research primarily focused on youth participants, his findings have implications beyond children. Piaget determined that learning occurred while engaging within the environment and while socially interacting with others (Piaget, 1952). Piaget's findings called for a new approach to teaching, an approach that could stimulate the learner's growth and facilitate development. He found that both the environment and level of social interaction were critical to learning and development (Piaget, 1952). His findings caused many to question established teaching methods and stimulated future research in the areas of education and

online learning. Piaget's work set the foundation for the constructivist theory and the underlying philosophy for many adult online education programs to later follow.

John Dewey (1938) advocated a learner-centered approach and suggested that students learn based on previous experiences they bring with them to the classroom. Dewey (1938) found that direct interaction with the environment was critical to the learning process. He opposed a highly regulated, rule-based educational approach that restricted students too severely. He argued the instructional approach should be less formal and be adapted to the individual in the classroom. Dewey (1938) posited that educators should find a way to incorporate learners' prior knowledge, providing a way for them to make meaningful connections between existing understanding and course material. A fundamental aspect of adult education includes incorporating student experiences in the classroom environment (Moll et al., 1992). Furthermore, adult learners, with valuable life experiences, especially benefit when instructors provide opportunities for students to incorporate their funds of knowledge (Moll et al., 1992). Online instructors can use Dewey's work and findings to incorporate students' existing knowledge, engaging adult learners, and allowing them to actively participate in the web-based classroom.

Vygotsky (1926) found that students learn through socially interacting with one another and his work has great implications for all learning programs. Vygotsky's sociocultural theory (1926) held that learning is constructed by students in a community environment, by talking and interacting as members of groups. This theory can be seen as a viable foundation for online graduate programs. Vygotsky found that collaboration and student interaction are both critical to the learning process (Doolittle, 1997). In regard to

the online learning environment, adult students and educators benefit from interacting socially as well as engaging in meaningful discussions within group forums. Active construction of knowledge takes place during such interactions and Vygotsky (1926) contended that this is how students make meaning. However, Vygotsky (1926) explained that limitations and realities of the social environment are embedded within the education system. These limitations and realities underscore the need for adult educators and students to be aware that schools, and online learning programs, reflect the prejudices and constraints of the environment around them.

Papert (1980), known for his efforts in the development and advancement of constructionism, began his work as a student of Piaget (1952). Papert furthered Piaget's findings and ultimately applied a constructionist learning theory to applications in technology. As an MIT professor, Papert envisioned the role technology would ultimately take in education and provided research that now supports many aspects of current online graduate programs. Papert (1980) demonstrated the importance of technology by explaining that the computer can be leveraged as a learning tool, something students can use to help think through a problem.

Papert advocated for technology in learning programs in the early 1980's, when this was still a relatively new concept. His international work highlighted the positive aspects of computer-based learning and justified the use of the web-based education programs that would later follow. Papert's lifelong research allowed educators greater visibility in regard to technology-based learning tools and an understanding of the applications of such tools. During the infancy of computer-based learning, his work demystified technology and allowed the area of technology-based learning to move

forward. The very beginnings of all online education programs can be partially traced back to Papert's groundbreaking work. Despite his efforts, Papert (1980) failed to identify major drawbacks to online learning that would later need to be addressed within the field.

Institutional Support, Instructional Services

Parson and Bignell (2017) researched online learning and explored how it related to cooperative learning. They looked at three-dimensional multi-user virtual environments (MUVES) in their study and posited that such applications could effectively provide a learning experience comparable to face-to-face classroom instruction. Avatars were utilized to create an interactive, immersive learning environment for students (Parson & Bignell, 2017). By use of such avatars, Parson and Bignell (2017) found that multi-user virtual environments created an experiential growth opportunity for online students. Students actively learned course material while being fully engaged in the virtual environment. Parson and Bignell (2017) demonstrated how online learning could be implemented effectively. Additionally, their study established the need for innovation in the area of online adult learning.

Parson and Bignell (2017) suggested web-based educational tools need to be utilized further to encourage active engagement, critical thinking, and a learner-centered approach. Additionally, online staff should engage students to determine appropriate educational tools. It should be noted that technological resources will need to be secured to support advanced online learning programs. Parson and Bignell (2017) highlighted that technological capabilities may be an issue at many institutions. Furthermore, innovative,

interactive online learning methods will require increased funding to online learning programs.

McLinden et al. (2010) investigated the effectiveness of real-world case studies in an online setting, studying a cohort of teachers enrolled in a professional development program. They suggested that, with the use of such activities, true learning can take place and the construction of knowledge is effectively facilitated (McLinden et al., 2010). The cohort included 36 participants currently employed as teachers and actively working on their professional development requirements. After completion of the online course, the entire cohort received a mailed questionnaire, of which 26 teachers responded (McLinden et al., 2010). The study results overwhelmingly supported the use of real-world case scenarios. McLinden et al. (2010) emphasized the need for well-designed web-based learning environments to support learner needs. Courses must be thoughtfully planned and developed so that students can learn course objectives and ultimately apply their knowledge in their career field.

Wheeler (2006) explored the unique needs of online students. Five evaluation methods were used in his study, to include a pre-course and post-course questionnaire. Wheeler (2006) found, “. . . students reported that they appreciated the opportunities to collaborate together through discussion groups” (p. 181). Discussion groups can be an effective way for students to come together, make meaning, and solve problems. These groups can help alleviate the social isolation frequently caused by the online learning environment.

Wheeler (2006) determined that collaboration allowed students to develop critical thinking skills. Additionally, he found that learners required special support to be

successful in web-based learning environments. Wheeler (2006) advocated for “online discussion groups and visual collaboration . . . used in combination to build and support a virtual community of learners” (p. 175). His 2006 work helped to bring clarity to student needs in an online learning environment. Furthermore, his findings can be used as a guide to assist with the implementation of online graduate programs.

Chen (2016) effectively explained how, with training, online instructors can implement online learning programs and engage students in a meaningful way. Her work established that web-based learning should be both active and dynamic. Furthermore, Chen (2016) argued online learning can be done well, and that online learning can be just as effective as traditional learning methods in adult education. It should be noted that many academics and researchers oppose this viewpoint, advocating for face-to-face learning within a traditional classroom setting.

Donnelly (2017) argued for blended educational programs that would allow instructors to successfully facilitate learning, combining an online educational environment with a traditional classroom setting. Additionally, he recommended the implementation of training programs that would provide an opportunity for instructors to troubleshoot current issues in navigating the online environment. Donnelly (2017) believed such training would set the stage for a more effective approach to online education; however, he did not address instructor resistance to web-based platforms.

Ng et al. (2014) explored the implementation methods of online learning in synchronous online educational environments. They researched how to design and evaluate online programs so that students can optimally participate and actively learn course material. Ng et al. (2014) researched eight enrolled students, randomly selected

from the University of Hong Kong and participating in online learning courses. Students were in their third year of university studies and broken out into two groups for analysis: Group 1 focused on online learning students, while Group 2 looked at face-to-face or traditional learners (Ng. et al., 2014).

Adobe Connect served as the online platform in the study, allowing students to engage in discourse with their class peers. The researchers assessed participant questionnaires and student grades from coursework. The results of study demonstrated that online learning can be as effective and even potentially more effective than traditional university classroom instruction. Ng et al. (2014) revealed that course grades were similar for both groups studied, indicating that an online platform does not detract from excelling in university courses.

Andreasen and Nielsen (2013) evaluated online learning through the use of four distinct categories: the exploration of problems, projects as a method, online collaboration, and the dialogic aspect of students' project work (p. 210). As a result of their research, the authors developed guidance on course instruction and on the implementation of online learning courses. The authors described how educators should present questions to students and allow them to develop solutions on their own terms, utilizing course materials. Andreasen and Nielsen (2013) contended that this is how students make meaning and ultimately learn course material. Learning is effective and memorable when adult students are given the opportunity to incorporate real-world practices.

Andreasen and Nielsen (2013) encouraged active engagement and participation in regard to online collaboration. Online group learning allows students to share ideas and

learn from one another in a supportive environment. Lastly, the authors evaluated the importance of a dialogic approach. With individual reflection, students can develop their own voice and learn to interact with peers. Andreasen and Nielsen (2013) contended, “Thus, a creative learning environment is not necessarily established only through harmony and consensus, but may rather be developed by allowing for asymmetry and difference” (p. 214). As students encounter opposing opinions, they engage in a learning environment that facilitates an authentic educational experience. All four categories explored by the authors can be integrated to produce an optimal online learning experience that allows for active participation and scholarship.

McDougall (2015) explored how adult students make meaning in web-based university classrooms. The researcher conducted a qualitative study on 37 incoming adult students, enrolled in leveling university classes in the Skills for Tertiary Education Preparatory Studies (STEPS) program at CQ University in Queensland, Australia. Classes were designed to help prepare students, many of whom identified as first-generation college students, for the more rigorous educational curriculum in upcoming university courses.

McDougall (2015) reviewed students’ online postings, identified common themes, and analyzed content using the diagnostic instrument, NVivo. The McDougall (2015) research demonstrated how adult students engage in critical thinking within online discussion forums. Additionally, McDougall (2015) found that students provided support to one another through social interaction in the forums, establishing that online discussion can be used as an effective tool in web-based learning.

McDougall (2015) found that the classroom lecturer served a critical role in the discussion forum. The lecturer needed to demonstrate a strong online presence, facilitating discussions and monitoring students' comments. Approximately one third of the discussion posts were made by the course lecturer, setting a tone of respect, compassion, and positivity. McDougall's study suggested that online discussion boards can be highly effective in online learning programs; however, course instructors will need to provide a meaningful presence. McDougall (2015) demonstrated the instructor's input is key to producing authentic adult student participation.

Webb et al. (2004) researched the use of discussion forums in online university courses. Researchers measured how often students accessed Blackboard and the frequency of postings made by student participants. Two separate groups of students were compared and contrasted in the quantitative study during the Fall 2001 semester.

Webb et al. (2004) employed multiple regression analysis to evaluate the study data. The authors determined that both the design of the discussion forum and the involvement of the course facilitator affected learning outcomes. Webb et al. (2004) suggested that students and instructors could benefit from completing online educational environment training. Such training would mitigate issues encountered on Blackboard and allow students to reap greater benefits from an online course.

Selhorst et al. (2017) studied adult learners in online courses to determine the ideal use of online discussion boards in distance learning. The researchers looked at Ashford University online students enrolled in communications, criminal justice, and sociology courses during the Fall 2016 semester. They determined that a high volume of online discussions overwhelms students and make them less motivated to learn.

Ultimately, Selhorst et al. (2017) determined that one discussion per week rather than two or more decreased student withdrawal. Their results suggested that the greatest emphasis should be placed on coursework. Furthermore, the study showed that online discussions, while beneficial, should play a supporting role to the academic course assignments.

Kabat (2014) examined the relationship of time, space, and dialogue within students' online discussion postings over the course of one college semester. The author reviewed 322 Blackboard messages from 41 graduate students enrolled in either Master's or doctoral classes at a top-tier university (Kabat, 2014). Kabat (2014) determined that online instructors should establish parameters for web-based courses and set time specifications for student discussion forums. Instructor involvement is a critical part of the discussion board collaborative process and provides oversight for academic discussions (Kabat, 2014). Online instructors should engage students and facilitate the online environment. Additionally, instructors should encourage learners to reflect upon classmates' contributions. This will allow students to construct meaning in a thoughtful way while advocating for their positions.

Lai (2015) investigated the knowledge construction of 12 doctoral students in an online learning environment. The study of a 2008-2009 cohort included analysis of discussion forum postings and one-on-one phone interviews with student participants. The researcher revealed that students were actively learning in the web-based classroom and student discussion forums were an effective means for evaluating and learning from course material (Lai, 2005). The participant interviews provided confirmation of the group forum data. The study supports the concept that online discussion boards enable

the construction of knowledge and that social knowledge construction is an important aspect of doctoral studies (Lai, 2015).

Garrison et al. (2001) researched student discourse and ways of making meaning in web-based learning programs. They examined computer-conference transcripts to assess the level of critical thinking that transpired during the online educational process (Garrison et al., 2001). The researchers found that effective facilitation is key to the implementation of online classrooms (Garrison et al., 2001). Additionally, Garrison et al. (2001) explained that cognitive presence is critical within a community of inquiry.

Gunawardena et al. (1997) developed an Interactive Analysis Model to determine the level of collaboration and social constructionism that occurred within an online environment. The researchers leveraged Vygotsky's sociocultural theory (1926) and incorporated his seminal work in their research. The Interactive Analysis Model allowed researchers to determine how online participants socially constructed knowledge and provided a tool for future researchers to do the same.

Hambacher et al. (2018) explored the effectiveness of students leading course online discussions. In their study, Hambacher et al. (2018) used the constructivist theory to guide the analysis. They found that online forums offered students an effective way to collaborate and actively make meaning in an online environment. The researchers found that students were able to engage in dialogue and co-construct meaning with their classroom peers (Hambacher et al., 2018).

Hambacher et al. (2018) suggested that web-based courses should be strategically designed and facilitated to optimize the student learning experience. Students can contribute their personal thoughts in a respectful environment, self-monitoring in

autonomous groups (Hambacher et al., 2018). Additionally, online students can reflect on their classmates' contributions and discover different interpretations. The online learning environment can be a positive tool; however, instructors should appreciate the importance of assigning roles to student contributors, group placement, and group size (Hambacher et al., 2018). Lastly, it should be noted that there is unequal access to technology based on socio-economic status. With the emergence of online education, this barrier will need to be addressed.

Eröz-Tuğa and Sadler (2009) researched video chat tools and provided an analysis on the benefits of these learning tools for online education programs. The study evaluated graduate students during one semester, comparing American university students and Turkish university students' responses (Eröz-Tuğa & Sadler, 2009). Students were focused on language learning, evaluating video tools based on the ability to teach and learn with the various approaches. Eröz-Tuğa and Sadler (2009) revealed that MSN Messenger and Skype were preferred tools for distance learning.

Eröz-Tuğa and Sadler (2009) supported training teachers and teacher candidates to implement the use of video chat tools. Furthermore, the authors explained that as technology changes, teachers will need to incorporate new and emerging learning tools. Tools should be user-friendly, making it easier for students to learn; not harder. Online education programs should leverage modern technological advances, allowing students to engage in distance learning more fully. Barriers and drawbacks do exist, such as when this technology fails; however, the 2009 work demonstrated the benefits outweigh the downsides.

Eröz-Tuğa and Sadler (2009) focused on language learners in their study; however, implications of the study are wide-ranging. Video technology, and technology in general, can be a tremendous asset in online education programs. Instructors should stay informed of the online tools available and survey students to fully understand the changing needs of an increasingly digital native student population.

King (2014) explored the impact of applying online learning tools in traditional, in-person courses, focusing on adult learners. King (2014) conducted a case study of 109 graduate students, concluding that electronic bulletin boards and Web-based conferencing can be effectively utilized in the classroom to benefit the adult learner population. Although users experienced some difficulties with Web-based conferencing, ultimately, King (2104) found “positive aspects outweigh the negative” (p. 351). Students engaged in online discussions and indicated this form of dialogue was beneficial to learning. Institutional support was identified as the first of seven recommendations resulting from study findings.

Simone (2010) researched the use of technology with adult learners using a constructivist approach. A total of 26 graduate students participated in the study, many identifying issues encountered with asynchronous online communication (Simone, 2010). Students preferred face-to- face dialogue, noting frustrations and technical difficulties with the educational software. Study findings suggest that training students on classroom technology is a critical aspect of software deployment, especially if the software is not user-friendly. Software should be tested rigorously before implementing in a classroom environment and training materials should be available to assist new users. Furthermore,

it is recommended that user-friendly software should be identified and utilized the classroom.

Institutional Support, Academic Services

Cross (2018) explored the perceptions of online advising for online graduate students enrolled in a 4-year public institution in the Southeastern United States. Using an online Qualtrics survey, 165 online students participated and submitted responses on their experience with online advisors. Cross (2018) revealed that timely communication was valued by online graduate students and such students had an expectation that online advisors would provide this. Furthermore, respondents revealed that advisors should be proactive in their communication efforts. Respondents felt that advisors should contact them, taking the initiative to provide information about their program of study and university policies (Cross, 2108).

Cross (2018) demonstrated the need for online advisors to take a more hands-on approach in working with online graduate students. Her work demonstrated the importance of advisors in the online graduate academic experience and provided implications for non-graduate students as well. Students value advisor feedback and are often hesitant to seek this input. Study findings from Cross (2018) suggested that online graduate advisors establish stronger channels of communication and look for ways to become more involved with online students, who often feel removed from the traditional university experience. Online advisors play an important role in the online graduate experience. It is important that advisors are engaged and stay well informed of changes in university policies so that they can effectively communicate with the student population and increase student satisfaction.

Nurse et al. (2018) investigated the impact of library resources on student success in online programs. The study, based in the United Kingdom, was conducted during the Fall 2015 semester. Researchers examined library accessed logs, revealing the online library habits of 86,954 university students. Through quantitative data analysis, Nurse et al. (2018) found that students who accessed a higher number of library materials demonstrated higher grades than those students who accessed a lesser amount of library resources.

Although Nurse et al. (2018) were quick to point out that the relationship between increased library use and higher levels of student success is not causal, “This research seems to support the view that an approach that encourages students to use library resources earlier may be beneficial to student success” (p. 84). Furthermore, Nurse et al. (2018) concluded that online library use, as opposed to on-campus library use, does not disadvantage students. The researchers posited that the online library experience is highly beneficial, and students should be supported to seek out and understand how to utilize university library resources.

Jeong and Hmelo-Silver (2010) researched learning resources in an online learning environment. In their study of online university students enrolled in a 14-week course, they determined which resources were most effective and made recommendations for web-based educational resources. Jeong and Hmelo-Silver (2010) determined that learning in an online environment is a complicated and challenging process. It is not as simple as administrators may believe and requires careful consideration of the students’ environment and the instructional design of institutions’ web-based courses (Jeong & Hmelo-Silver, 2010). The authors determined that it is critical to customize learning

resources to facilitate learning; there is not one uniform approach to designing online learning courses.

Institutional Support, Enrollment and Student Services

Calhoun et al. (2017) explored the professional preparation gap in higher education for student affairs personnel in regard to online student support. The researchers utilized a mixed method survey, examining both quantitative and qualitative data from participants throughout the United States. Calhoun et al. (2017) found that student affairs professional programs lacked appropriate training to prepare staff in their work with online students. The focus of the student affairs department was overwhelmingly placed on the traditional student population.

Calhoun et al. (2017) suggested that online learners are often a neglected or overlooked student population within the university system. This pattern unassumingly began when online learners only represented a small minority at the university. However, as the online student ratio has increased, Calhoun et al. (2017) recommended that student affairs departments should respond accordingly. All students at the university, both online and traditional, should have equal access and consideration in regard to student affairs services.

Schroeder and Terras (2015) investigated the advising experiences of graduate students, focusing on the specific needs of this predominantly adult student population. The researchers conducted a phenomenological study of 9 graduate students, with online learners, cohort participants, and traditional classroom learners being evenly represented in the study. Schroeder and Terras (2015) found that advising needs are complex, and recommended that advising be individualized to meet student needs.

Furthermore, Schroeder and Terras (2015) suggested the need for a holistic approach to graduate advising, to include strong communication channels between advisors and students. The researchers concluded by recommending a strengthening of university graduate advising programs and the implementation of student assessments to evaluate the effectiveness of current advisors. With this, the university can capture current feedback and respond accordingly to meet student needs.

Newberry and DeLuca (2014) explored the importance of student services for online students. The researchers posited “retaining online students goes beyond offering resident-equivalent services to online learners” (Newberry & DeLuca, 2014, p. 25). As a result of their research, Newberry and DeLuca (2014) developed a holistic strategy and advocated for a “networked approach that leverages existing technologies and an institutional commitment to its online learners” (Newberry & DeLuca, 2014, p. 25). With this, the authors suggested universities should develop services specifically designed to meet the needs of the online learner population. Furthermore, in regard to support services, Russo-Gleicher (2013) cautioned, “Under-utilization of student support services can contribute to a low retention rate found in online courses.” (p. 1). Student support is a critical, yet often overlooked, component of online education programs. By identifying and providing greater assistance to the most valued university support services, online student withdrawal could possibly be mitigated.

Importance of Institutional Support

Britto and Rush (2013) researched institutional support for students in an online program within the Lone Star College System. In an effort to improve retention rates, a study was conducted to assess online student support services and identify areas that

needed a stronger presence for online learners. Britto and Rush (2013) demonstrated that satisfaction surveys could be effectively utilized to measure how well support services met student needs. Furthermore, the researchers found that satisfaction surveys could be used to make recommendations based on quantitative results. Britto and Rush (2013) determined that the survey findings provided the visibility faculty and administrators needed to effectively address online learning needs. Additional studies are suggested, in which a more robust survey instrument is utilized.

Milman et al. (2015) researched the impact of institutional support and resources for graduate online students in master's degree programs. Through an exploratory mixed methods study, the researchers found that all academic support services, with the exclusion of the writing center, were considered important or very important to the majority of survey respondents (Milman et. al., 2015). An online survey was distributed in 2014 to students in two different fully online master's programs; the programs represented were the Master of Arts with a concentration in Education Technology (ET) and the Master of Science in Nursing (MSN). The researchers instructed students to assign an importance rating and satisfaction rating for each survey item. A one through five Likert scale was utilized, with an additional option for respondents to select "N/A" if it was not applicable to them.

Survey data, analyzed using SPSS, revealed that more students felt the registrar's and admissions offices' support services were more important than the other support services (Milman et. al., 2015). Additionally, survey results showed that although online and just-in-time help was considered important to most students, satisfaction ratings were considerably low (Milman et. al., 2015). The gap between the

importance ratings and satisfaction ratings in this area demonstrated a need for increased institutional support. The study effectively evaluated institutional support using quantitative methods and demonstrated the need for additional research in this area.

Gazzaa and Matthias (2016) explored institutional support in an online accelerated nursing education program. The Priorities Survey for Online Learners™ was leveraged for the study and a survey link was sent to study participants in 2014. Participants were asked to rate survey items on a Likert scale of one through seven, with choices ranging from not satisfied/not important to very satisfied/very important. It should be noted that the majority of survey respondents were white females.

Gazzaa and Matthias (2016) revealed “Items within the categories of Institutional Perceptions, Academic Services, and Instructional Services received high importance ratings, but lower satisfaction ratings, and this resulted in a larger performance gap score” (p. 174). The researchers explained that this divergence in assigned ratings indicated a need for the university to evaluate support. The study demonstrated the value of the Priorities Survey for Online Learners™ instrument; however, with a small study sample size, it is recommended that the survey is distributed to a greater number of online students in future research. Gazzaa and Matthias (2016) provided a valuable tool that can be further utilized to assess institutional support and identify student needs.

Importance of Student Satisfaction

Lohmann et.al. (2018) researched learning outcomes and student satisfaction in online business simulations. The study focused on quantitative analysis and findings were further supported by qualitative, focus group research. Four hundred undergraduate and

graduate business students completed surveys; 365 surveys were considered valid and used in the study. A survey-questionnaire utilized a seven-point Likert scale to examine student perspectives.

Structural equation modeling (SEM) was employed to demonstrate the relationships among teamwork, learning outcomes, and student satisfaction; results showed the direct and indirect effects of teamwork on learning outcomes and satisfaction. The study demonstrated that business simulations can be used in an online environment to help develop and apply students' abilities and increase student satisfaction (Lohmann et.al., 2018). Furthermore, the work revealed the complexity of student satisfaction ratings and the need for more quantitative research in this area of study.

Ramayaha and Lee (2012) developed a study to measure how user satisfaction impacts system quality, information quality, and service quality. Additionally, the researchers set out to measure how user satisfaction relates to usage continuance, and how both system quality and service quality relate to intention to use (Ramayaha & Lee, 2012). Ramayaha and Lee (2012) found that both system quality and information quality have a "positive relationship with user satisfaction" (p. 201).

The researchers used a structured questionnaire to conduct a study on 250 undergraduate students at public university in Penang, Malaysia. AMOS version 16 was utilized to analyze data. A two-step analytical procedure was applied: 1) evaluating the measurement model first, 2) evaluating the structural model second (Ramayaha & Lee, 2012). This approach provided valuable results that could later be leveraged by decision makers at the university. Further studies are recommended using a two-step approach with graduate level online students, as opposed to undergraduates. Overwhelmingly adult

learners, graduate students have different needs than the undergraduate student population.

Palmer and Holt (2008) researched student satisfaction in online learning programs and how satisfaction is related to learning outcomes. A quantitative study, employing multivariate linear regression, was conducted at Deakin University in Australia. Palmer and Holt (2008) utilized a survey questionnaire titled the 'experiences of learning online' (ELO). The initial population was comprised of 5,862 undergraduate students enrolled in 21 online university courses; the study sample consisted of 761 undergraduates who submitted surveys. Palmer and Holt (2008) posited:

With a knowledge of the factors that contribute to student satisfaction in online learning, we can intentionally act to provide appropriate support and design appropriate online learning environments that will have a positive impact on student satisfaction, with the expectation that this will positively influence student engagement with the learning, and, ultimately, positively influence student learning outcomes" (p. 102).

Study results demonstrated that an online survey can be effectively used to determine what factors contribute to student success in an online program. The survey instrument utilized could be improved upon for future studies. Additionally, the study exclusively focused on an undergraduate student population. It is recommended that future studies consider the graduate online student university population.

Summary

Adult online learning programs should be designed strategically (Hambacher et al., 2018; McLinden et al., 2010), leveraging the modern technology available and

considering student needs. The online education environment should be both dynamic and innovative. Instructors should be trained on emerging technologies and best practices for online course development (Chen, 2016; Donnelly, 2017; Webb et al., 2004). Additionally, adult students come to the classroom with prior experiences and benefit from incorporating such experiences as they actively participate in discussions with classmates (Moll et al., 1992). Researchers have demonstrated that both small group discourse and online interaction help adult learners (Hambacher et al., 2018; Lai, 2015). Furthermore, Parson and Bignell (2017) argued that instructors should engage students and encourage active participation. Finally, Gazzaa and Matthias (2016) and Milman et. al. (2015) demonstrated the importance of evaluating institutional support and advocated for effective student support in online programs.

Online learning can be an effective way for students to construct meaning if the learning environment is implemented purposefully (Parson & Bignell, 2017). Many of the reviewed studies singularly address one learning method or one aspect of online education; the depth and breadth of the studies are too myopic. Leveraging the work of Gazzaa and Matthias (2016) and Milman et. al. (2015), further research was conducted to determine the relationship of institutional support to online graduate learning and the factors that students valued most. This study examined students' satisfaction and importance levels in regard to university support services.

III. METHODOLOGY

The relationship of institutional support to online graduate learning was evaluated using a quantitative research design. The methodology of survey research was utilized, with survey participants responding to questions based on a one to seven Likert scale. The study included participants' assessments of the university's student support services, the value of such services, preferred method of instruction, and demographic information. Respondents evaluated both the importance of each survey item and selected a satisfaction rating as well.

Correlational research was utilized to conduct the online graduate learning study. Fraenkel et al. (2014) explained that correlational research determines "relationships among two or more variables and explore(s) their implications for cause and effect" (p. 12). Additionally, correlational research "can help us make more intelligent predictions" (Fraenkel, et al., 2014, p. 12). The survey instrument captured study data from participants, without exerting influence or manipulation over study variables.

The study factors shown in Table 1 align to the two main research questions and were measured to determine their impact on two dependent study variables: (1) Level of Satisfaction, (2) Level of Importance. The main research questions investigated the effects of five survey factors: (1) Institutional Perceptions, (2) Academic Services, (3) Instructional Services, (4) Enrollment Services, and (5) Student Services. Research sub questions focused on the independent variables Age Group, College Designation, and Current Enrollment Status; Level of Satisfaction and Level of Importance serve as the dependent variables.

Table 1*The Priorities Survey for Online Learners: Survey Factors*

Institutional Perceptions	Academic Services	Instructional Services	Enrollment Services	Student Services
Assesses how students perceive the institution.	Assesses the services students utilize to achieve their academic goals. These services include advising, course offerings, technical assistance, online library resources, and tutoring services.	Measures students' academic experience, the instructional materials, the faculty/student interactions, evaluation procedures, and the quality of the instruction.	Assesses the processes and services related to enrolling students in the online program, including financial aid, registration, and payment procedures.	Measures the quality of student programs and services, including responses to student requests, online career services, and the bookstore.

Note: Adapted from Noel-Levitz, Inc. 2012

The following research questions were addressed by analyzing the online survey data: Question 1) Is there a positive relationship between Perceived Level of Institutional Support and Level of Satisfaction for online graduate students? The null hypothesis was: $H_0: r(\text{Perceived Level of Institutional Support}) = 0$, showing that the treatment did not have a significant relationship. Additionally, the alternative hypothesis was: $H_1: r(\text{Perceived Level of Institutional Support}) \neq 0$, demonstrating that the treatment did have an effect (Reardon, 2018). Question 2) Is there a positive relationship between Perceived Level of Institutional Support and Level of Importance for online graduate students? The null hypothesis was $H_0: r(\text{Perceived Level of Institutional Support}) = 0$; the alternative hypothesis was $H_1: r(\text{Perceived Level of Institutional Support}) \neq 0$. The study utilized

Bayesian path analysis to support associations between study variables. The null hypotheses would be rejected in the study if the 90% confidence intervals (90% upper bound and 90% lower bound) were on the same side of zero for measured study variables. The Statistical Package for the Social Sciences, version 26 (SPSS, 2019) was utilized for the study.

Although it would be valuable to conduct one-on-one interviews with university students and faculty, a qualitative method was not selected for the study. After conducting extensive research, considering similar studies, and consulting with experts in the field, it was conclusively determined that a quantitative study would best suit the research and subject matter. Quantitative methods would yield a substantially higher volume of data, allowing university administrators to make organizational decisions to possibly effect program change.

Setting and Participants

The study population of interest was all online graduate students, with the selected sample of online graduate students from a large state university in the Southwestern United States. Demographic information was captured by the survey and reported in the results. Of the 3,487 graduate students who received an email invitation with survey link, it was unknown how many were currently, or had been previously, enrolled in at least one online course. Current statistics showed that graduate students represented 11.6% of all students at the large Southwestern university, and that 21.8% of graduate students at the university took at least one online course; with this, the researcher estimated approximately 979 graduate students were either currently or had previously been enrolled in at least one online course. Of the estimated 979 who took at

least one online course, approximately 20.3% took all courses online (Student Population, 2019).

Of all graduate students at the university, 65% were female and 35% were male.

Graduate students over the age of 25 represented 89% of all graduate students.

Demographic data revealed 57% of current graduate students were White, 28% Hispanic, 8% Black, 4% Asian. The remaining 3% either identified as two or more races or race unknown (Student Population, 2019). Online graduate students were represented from every college at the university; see Table 2. Nineteen graduate programs that were either fully online or had an online component were included in the study. The study included three additional categories to quantify students from the remaining university programs: (1) Other – Master’s degree program not listed, (2), Other – Doctoral degree program not listed, (3) Other – Certificate program not listed.

Table 2

College Designation

College Designation	Number of Students
College of Education	19
College of Applied Arts	29
College of Fine Arts and Communication	7
College of Health Professions	18
College of Liberal Arts	22
College of Science and Engineering	15
Other - Master's Program Not Listed	155
Other - Doctoral Program Not Listed	42
Other – Certificate program not listed	4
Total	311
No Response	10

Note: Adapted from Ruffalo Noel Levitz, 2020

Graduate students at the university were emailed the Ruffalo Noel Levitz Priorities Survey for Online Learners™ (PSOL) from a university doctoral faculty member. The distribution list of all graduate students was obtained from the university online system by the designated doctoral faculty member aligned to the study. Students were provided an invitation with instructions and a link directing them to the survey from their university email accounts. Email instructions clearly specified that only graduate students who have taken, or were currently taking, at least one online course should complete the survey; with this, students determined if they were eligible or not. To capture the greatest amount of participant responses, a reminder email was sent to students who did not complete the survey within a one-week period of time. Of the 3,487 graduate students who received the email invitation, it was unknown how many were currently, or had been previously, enrolled in at least one online course. A total of 321 graduate students submitted online surveys.

Study data were encrypted and stored in password protected files on institutionally maintained servers with limited access. There was minimal risk to online graduate students participating in the study and responses were completely anonymous. Participants could have skipped over any questions they did not feel comfortable with. Also, participants could have chosen not to take the survey or not to submit responses if, for any reason, they felt uncomfortable.

Survey Instrument

A pilot study titled *Leveraging Modern Technology: Determining the most effective methods for adult online learning* was initiated during the 2019 Summer semester at the same university in which the final survey was distributed. Both master's

and doctoral students were represented in the graduate student online learning survey. The final online learning survey was selected based on pilot study results.

In August of 2019, the researcher determined that a larger, more established online learning survey would be leveraged for the study. Based on previous quantitative research and guidance from multiple doctoral faculty, the Ruffalo Noel Levitz Priorities Survey for Online Learners™ (PSOL) was selected as the study instrument. This instrument provided flexibility for customization, allowing the university to incorporate up to ten additional survey questions and two additional demographic questions.

The Ruffalo Noel Levitz Priorities Survey for Online Learners™ (PSOL) is considered an industry standard survey and added both reliability and validity to the study. “The Ruffalo Noel Levitz (RNL) Satisfaction-Priorities Surveys are the national standard for benchmarking student satisfaction in higher education” (Ruffalo Noel Levitz, 2018, p. 3). The surveys have been utilized by more than 2,900 colleges and universities (Ruffalo Noel Levitz, 2018). In regard to reliability, results are consistent and aligned properly with the study instrument (Davaasambuu, et al., 2019). Gazza and Matthias (2016) demonstrated internal consistency and scale reliability with the instrument, revealing a Cronbach’s coefficient α of .77 for the Ruffalo Noel Levitz survey. Boylston et al. (2004) established instrument validity, demonstrating that accurate findings can be derived from the study instrument. Furthermore, the survey was effectively calibrated and professionally designed by experts in the field (Ruffalo Noel Levitz, 2018).

The online learning survey took participants approximately 15 minutes to complete. The format was clean, professional, and user-friendly. Students evaluated each

survey item by selecting how important it was to them and by assessing their current level of satisfaction with it. Utilizing a one through seven Likert scale, selection of one through three was considered low, with one being the lowest satisfaction level. An assessment of four was considered neutral. Selection of five through seven was considered high, with seven being the highest satisfaction level. Responses of 'N/A' were excluded from data analysis. Examples of survey questions include: "instruction materials are appropriate for program content" and "student-to-student collaborations are valuable to me" (Ruffalo Noel Levitz, 2019). Additional example questions are captured in Table 3 and a full list of survey questions can be viewed in Appendix M.

Table 3*Priorities Survey for Online Learners™ Sample*

Survey Item	Importance	Satisfaction
This institution has a good reputation.	6	5
My program advisor is accessible by telephone and e-mail.	5	7
Instructional materials are appropriate for program content.	4	2
Faculty provide timely feedback about student progress.	5	3
My program advisor helps me work toward career goals.	6	7
Tuition paid is a worthwhile investment.	4	6
Program requirements are clear and reasonable.	2	5
Student-to-student collaborations are valuable to me.	7	4
Adequate financial aid is available.	5	5
This institution responds quickly when I request information.	1	2
Student assignments are clearly defined in the syllabus.	4	7
There are sufficient offerings within my program of study.	5	1
The frequency of student and instructor interactions is adequate.	7	6
I receive timely information on the availability of financial aid.	7	5
Channels are available for providing timely responses to student	2	2
Appropriate technical assistance is readily available	5	3

Note: Adapted from Ruffalo Noel Levitz, 2020

The Priorities Survey for Online Learners™ (Ruffalo Noel Levitz, 2020) included sixteen demographic questions, including: Gender, Age, Ethnicity/Race, Current Enrollment Status, Current Class Load, Class Level, Educational Goal, Employment, Current Residence, Marital Status, Current Plans, Current Online Enrollment, Previous Online Enrollment, Program Enrollment, and two questions assessing how informed graduate students were. The instrument provides university administrators and faculty a specialized view of the online graduate student population, including evaluative reports of what is most important to graduate students. The survey instrument allows for actionable results and can be used to make strategic decisions at an organizational level. Moreover, the measurement tool gave online graduate students a voice they otherwise would not have at the university. Surveys are used throughout the nation to “evaluate students’ concerns that influence student success, college completion, student recruitment, strategic planning, and re-accreditation” (Ruffalo Noel Levitz, 2018, p. 3).

Variable Relationships

Data were measured from survey responses on a seven-point Likert scale. With this ordinal scale, responses were compared and contrasted against one another. In the first research question, the study measured how (1) the independent variable ‘Perceived Level of Institutional Support’ supports the dependent variable ‘Level of Satisfaction’; (1a) the independent variable ‘Age Group’ supports the dependent variable ‘Level of Satisfaction’; (1b) the independent variable ‘College Designation’ supports the dependent variable ‘Level of Satisfaction’; (1c) the independent variable ‘Current Enrollment Status’ supports the dependent variable ‘Level of Satisfaction’. Next, the second research question, measured how (2) the independent variable ‘Perceived Level of Institutional

Support' supports the dependent variable 'Level of Importance'; (2a) the independent variable 'Age Group' supports the dependent variable 'Level of Importance'; (2b) the independent variable 'College Designation' supports the dependent variable 'Level of Importance'; (2c) the independent variable 'Current Enrollment Status' supports the dependent variable 'Level of Importance' as shown in Table 4, Variables and Measurement Instruments.

Table 4*Variables and Measurement Instruments*

Research Questions	Independent Variables	Dependent Variables
Research Question #1:		
Is there a positive relationship between Perceived Level of Institutional Support and Level of Satisfaction for online graduate students?	Perceived Level of Institutional Support	Level of Satisfaction
1a Is there a strong association between Age Group and online graduate students' Level of Satisfaction?	Age Group	Level of Satisfaction
1b Is there a strong association between College Designation and online graduate students' Level of Satisfaction?	College Designation	Level of Satisfaction
1c Is there a strong association between Current Enrollment Status and online graduate students' Level of Satisfaction?	Current Enrollment Status (primarily online vs. primarily on-campus)	Level of Satisfaction
Research Question #2:		
Is there a positive relationship between Perceived Level of Institutional Support and Level of Importance for online graduate students?	Perceived Level of Institutional Support	Level of Importance
2a Is there a strong association between Age Group and online graduate students' Level of Importance?	Age Group	Level of Importance
2b Is there a strong association between College Designation and online graduate students' Level of Importance?	College Designation	Level of Importance
2c Is there a strong association between Current Enrollment Status and online graduate students' Level of Importance?	Current Enrollment Status (primarily online vs. primarily on-campus)	Level of Importance

Threats to internal validity included selection and response bias and lack of randomization. Additionally, the lack of control over the independent variables could be considered a threat to internal validity as well. Through standardization and thorough calibration (Ruffalo Noel Levitz, 2018), threats to internal validity were mitigated.

Level of Satisfaction

Level of Satisfaction represented a criterion variable in the study. In capturing what increases or decreases student satisfaction in online courses, respondents truly had a voice in the study. Key survey evaluation items included: “How important is high learning retention to your overall student satisfaction?”, “Faculty provide timely feedback about student progress” and “The quality of online instruction is excellent” (Ruffalo Noel Levitz, 2020). Evaluation of student satisfaction levels provided insight into how well online graduate students’ needs were being met. Survey results are an indicator of what changes may need to be implemented within university graduate programs.

Perceived Level of Institutional Support

Perceived Level of Institutional Support was studied as an independent research variable. Perceived Level of Institutional Support was measured by the Level of Satisfaction and Level of Importance of all survey factors. Examples of key survey evaluation items for Perceived Level of Institutional Support include: “I receive excellent institutional support from university services”, “online research assistance is readily available”, and “the institution provided an informative orientation process” (Ruffalo Noel Levitz, 2020). The online learning study evaluated the importance of institutional support to online graduate student success.

The study examined how online graduate students' Perceived Level of Institutional Support, Age Group, College Designation, and Current Enrollment Status all impacted students' Level of Satisfaction and Level of Importance. The researcher posited the study variables did not stand in isolation, but in relation to one another. Level of Satisfaction and Level of Importance represented the area of overlap for study variables. The Venn diagram in Figure 1 represents the "shared variance (or correlation) as overlapping areas between two (or more) circles" (Tabachnick & Fidell, 2007, p. 8). The researcher collected data to determine the associations of the variables and their relationships.

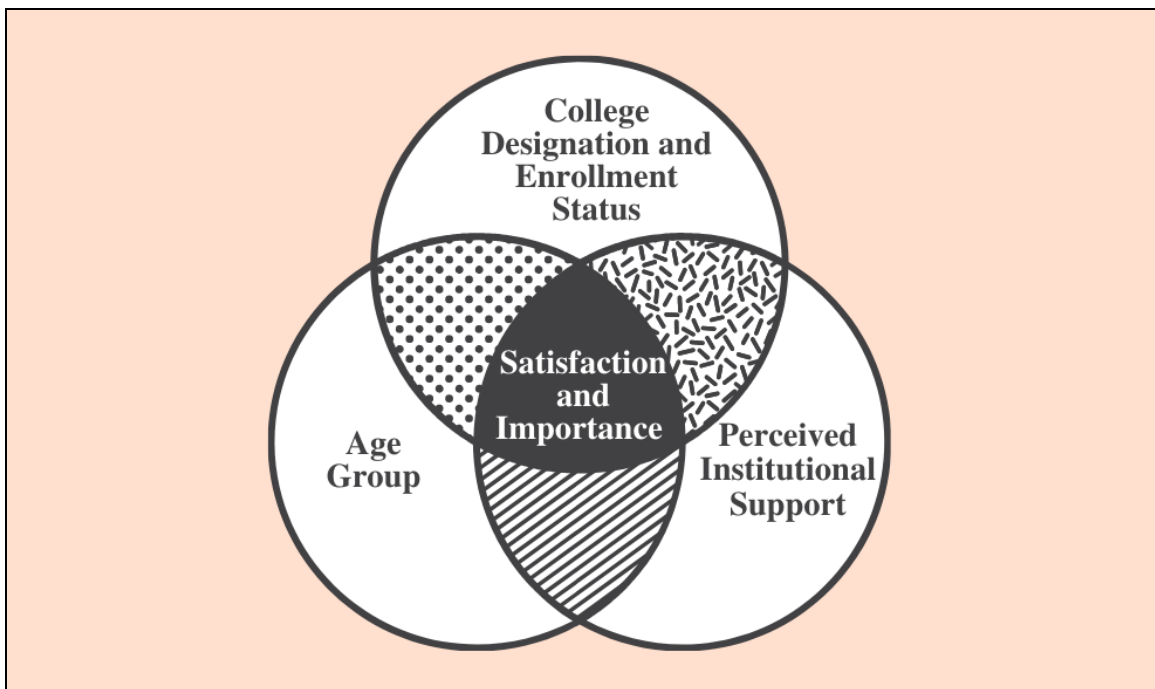


Figure 1

Venn Diagram

Data Analysis

The correlational survey study included multiple dependent and independent variables; independent variables were not manipulated over the course of the study. Early on, both univariate and bivariate statistics were excluded as techniques. Tabachnick and Fidell (2007) provide greater detail on univariate and bivariate statistics, along with insight as to why such statistics were eliminated from the online graduate student study, below.

Typically, many people are surveyed, and each respondent provides answers to many questions, producing a large number of variables. These variables are usually interrelated in highly complex ways, but univariate and bivariate statistics are not sensitive to this complexity. Bivariate correlations between all pairs of variables, for example, could not reveal that the 20 to 25 variables measured really represent only two or three "supervariables". (Tabachnick & Fidell, 2007, p. 3).

After extensive research and consultation, it became evident that multivariate statistical analysis would be employed for the study. This method allowed for the concurrent analysis of all study variables, both dependent and independent. Tabachnick and Fidell (2007) explained, "With the use of multivariate statistical techniques, complex interrelationships among variables are revealed and assessed" (p. 3). Multivariate statistical analysis provided the results necessary for usable study findings and real-world solutions.

Furthermore, structural equation modeling (SEM), a multivariate statistical analysis method, guided the data analysis. This technique combined both multiple

regression and factor analysis, and was utilized to examine structural relationships within the dataset. The structural equation modeling path analysis for this study is presented in Figure 2.

The Statistical Package for the Social Sciences, version 26 (SPSS, 2019) was the software utilized for the online graduate student study. Taking into consideration specific study factors, this was determined to be the optimal solution for data analysis. The researcher has taken multiple courses to become familiar with the Statistical Package for the Social Sciences (SPSS) and performed numerous data analysis tests in preparation for this study.

As aforementioned, the study utilized correlational data analysis. Furthermore, Bayesian path analysis was used to identify associations between study variables using a 90% confidence interval. When regression weights in the 90% upper bounds and 90% lower bounds were both on the same side of zero, an association was established. Convergence statistics and standard errors were evaluated to determine accuracy. Additionally, standard deviations and means were explored as well. To avoid making a type one error, the researcher examined the *p* value, seeking a value less than .05 to establish that relationships were not due to chance.

Upon receiving study results, raw data were reviewed to eliminate outliers, checking data for more than three standard deviations, and looking for surveys with scores of all sevens or all ones; no outliers were found. Confirmatory factor analysis was utilized to group like variables into factors and test for consistency. Figure 2 demonstrates the five factors included in the study: 1) Institutional Perceptions (F_1), 2) Academic Services (F_2), 3) Instructional Services (F_3), 4) Enrollment Services (F_4), 5)

Student Services (F₅). Institutional Perceptions was measured by survey items one and six. Academic Services was measured by survey items two, five, seven, twelve, sixteen, twenty-one, and twenty-four. Instructional Services was measured in the study by items three, four, eight, eleven, thirteen, seventeen, twenty, and twenty-five. Enrollment Services was measured by survey items nine, fourteen, eighteen, and twenty-three. Lastly, Student Services was measured by survey items ten, fifteen, nineteen, twenty-two, and twenty-six.

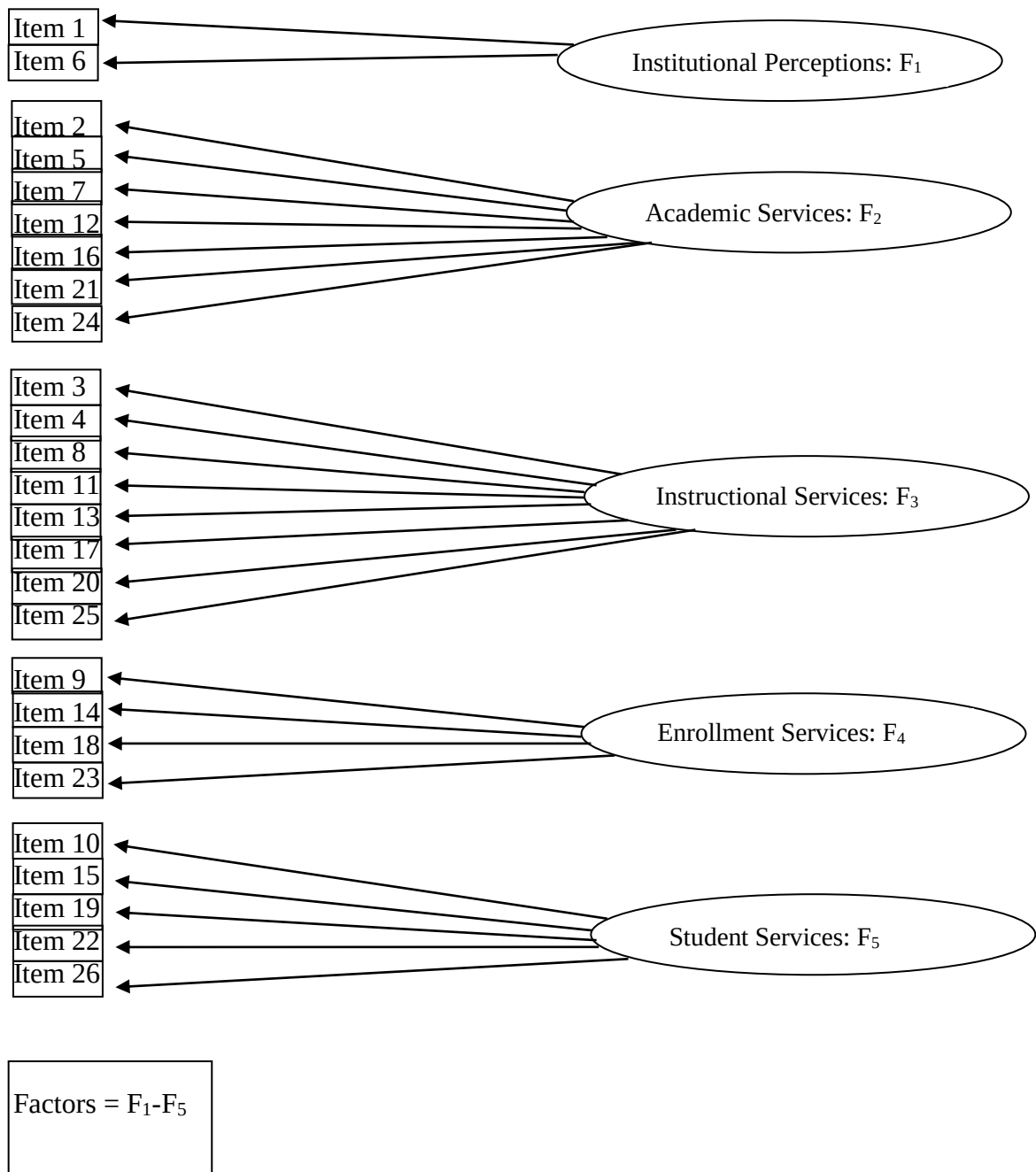


Figure 2

Structural Equation Modeling (SEM): Confirmatory Factor Analysis

The study contained four exogenous variables and two endogenous variables, as shown in the structural equation modeling path analysis (see Figure 2). Exogenous variables included: (1) Perceived Level of Institutional Support (Ex_1), (2) Age Group (Ex_2), (3) College Designation (Ex_3), (4) Current Enrollment Status (Ex_4). Endogenous variables included: (1) Level of Importance (En_1), (2) Level of Satisfaction (En_2). Exogenous variables represented independent variables, also considered predictor variables; whereas, endogenous variables represented dependent variables or criterion variables. Error terms (e) impacted both endogenous variables in the study: (1) Level of Importance (En_1), (2) Level of Satisfaction (En_2).

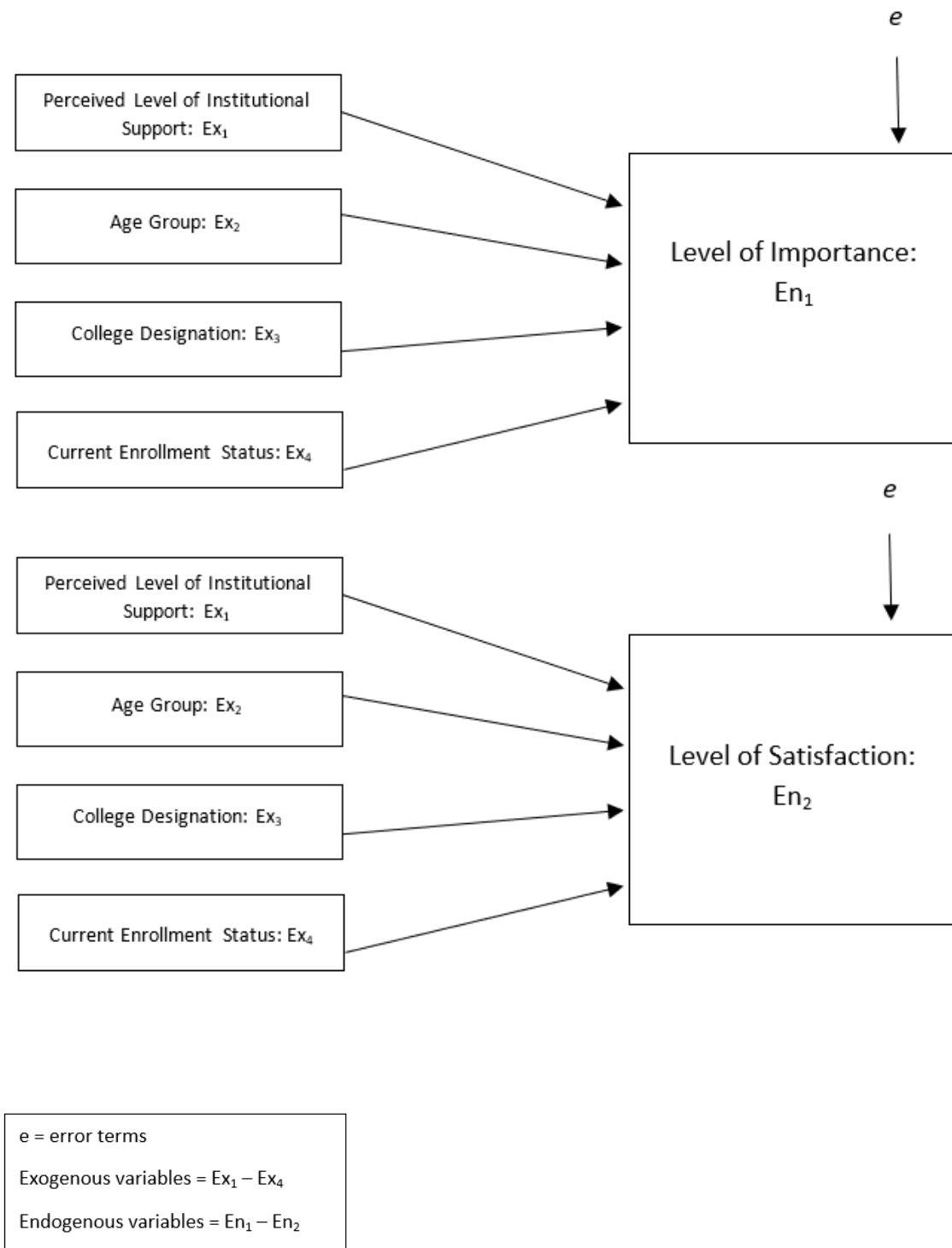


Figure 3

Structural Equation Modeling (SEM): Path Analysis

Summary

Quantitative methods can be effectively used to examine the relationship of institutional support to online graduate learning (Milman et. al., 2015). The study methodology appropriately aligns with the nature of the research (Ramayaha & Lee, 2012). Furthermore, the survey instrument is an industry standard survey (Ruffalo Noel Levitz, 2018) and the data analysis software, SPSS, is considered both effective and powerful (El Hajjar, 2015). Measuring the satisfaction and importance levels of online graduate learners provides valuable information for faculty, administrators, and researchers. In closing, the large Southwestern university analyzed in this study has recently experienced significant growth in online programs, making the proposed research both timely and relevant.

IV. DATA ANALYSIS AND RESULTS

The purpose of the study was to investigate the relationship of Perceived Level of Institutional Support to online graduate students' Level of Satisfaction and to determine how Perceived Level of Institutional Support impacted students' Level of Importance in online graduate programs. The online learning study consisted of two major research questions: (1) Is there a positive relationship between Perceived Level of Institutional Support and Level of Satisfaction for online graduate students? (2) Is there a positive relationship between Perceived Level of Institutional Support and Level of Importance for online graduate students?

Study data were collected from online learning survey responses, to include extensive demographic information. All graduate students enrolled in a large state university in the Southwestern United States received an email during the Spring semester of 2020, inviting them to take the survey if they were either currently or previously enrolled in at least one online course. A total of 321 ($n \approx 321$) graduate students submitted online surveys for the study assessing the relationship of institutional support to online graduate learning. The survey closed upon the completion of 321 assessments since this response rate exceeded the need for the sample size.

Prior to conducting analysis, data cleansing was performed to detect outliers and anomalies. Data were examined to uncover scores with more than three standard deviations from the mean. Upon making the determination that all data were valid for use, further analysis was performed to develop results and study findings.

Five survey factors: (1) Institutional Perceptions, (2) Academic Services, (3) Instructional Services, (4) Enrollment Services, and (5) Student Services were measured

against online graduate students' (1) Level of Satisfaction (2) Level of Importance.

Scores in Table 5 provide a high-level overview of study results. Based on a seven-point Likert scale, Instructional Services (6.37) were considered the most important survey factor by online graduate students, closely followed by Academic Services (6.36). The highest rated survey factor for student satisfaction was Academic Services (5.73), with Enrollment Services (5.72) next. Appendix M provides detail on all survey items and student scores.

Table 5

Results by Survey Factors

Survey Factors	Importance	Satisfaction	SD	Gap
Institutional Perceptions	6.31	5.49	1.22	0.82
Academic Services	6.36	5.73	0.98	0.63
Instructional Services	6.37	5.71	1.04	0.66
Enrollment Services	6.33	5.72	1.11	0.61
Student Services	6.06	5.52	1.19	0.54

Note: Adapted from Ruffalo Noel Levitz, 2020

Demographics

Sixteen demographic factors were captured from study participants as they self-selected items in the final section of the online learning survey. Demographic factors included: Gender, Age, Ethnicity/Race, Current Enrollment Status, Current Class Load, Class Level, Educational Goal, Employment, Current Residence, Marital Status, Current Plans, Current Online Enrollment, Previous Online Enrollment, Program Enrollment, and two items designed to assess how informed graduate students were. Survey data revealed that 71.3% of respondents were female and 28.7% were male; full results provided in Appendix N. The number of female participants were higher than the 65% demographic accounting for all female graduate students at the university; however, more females than

males typically participate in online surveys (J. Bryant, personal communication, May 8, 2020).

Master's degree students overwhelmingly outnumbered doctoral students in survey response rate; the high ratio of this student population was expected for the study. Appendix N provides a demographic table with the distribution of respondents by Educational Goal. Of all student respondents, either currently or previously enrolled in at least one online course, master's degree students comprised 75.1% of the sample, doctoral or professional degree students made up most of the remaining sample, with 24.3%; graduate certification/other students represented the residual .64% in this demographic category.

Participants selected a predefined Age Group in the survey demographic section, placing each student within a range of the sample population. The 24 to 34 Age Group represented the majority of study participants at 39.5%; the 35 to 44 Age Group represented the second highest group at 23.1%. Results are captured in Table 6.

Table 6

Sample by Age

Age	Number of Students	Percentage of Sample
19 to 24	43	15.0%
25 to 34	113	39.5%
35 to 44	66	23.1%
45 to 54	38	13.3%
55 to 64	22	7.69%
65 and over	4	1.40%
Total	286	100%
No Response	35	

Note: Adapted from Ruffalo Noel Levitz, 2020

Demographic survey data revealed 43.3% of student respondents were employed full-time, 38.14% were employed part-time, and 18.6% were not employed at all; detail provided in Appendix N. Additionally, the survey demographic section included an item for participants to select their Ethnicity/Race. A drop-down box included the following options: African-American, American Indian or Alaskan Native, Asian or Pacific Islander, Caucasian/White, Hispanic, Other race, Race - Prefer not to respond. The majority of respondents (55.3%) identified as Caucasian/White, with the second highest response rate indicating Hispanic (24.3%) identification. The Ethnicity/Race distribution in this study is close in proximity to current graduate student Ethnicity/Race statistics for the university. Sample by Ethnicity/Race is detailed in Table 7.

Table 7

Sample by Ethnicity/Race

Ethnicity/Race	Number of Students	Percentage of Sample
African American	20	7.04%
American Indian or Alaskan Native	2	0.70%
Asian or Pacific Islander	16	5.63%
Caucasian/White	157	55.3%
Hispanic	69	24.3%
Other race	6	2.11%
Race - Prefer not to respond	14	4.93%
Total	284	100%
No Response	37	

Note: Adapted from Ruffalo Noel Levitz, 2020

The survey demographic item aligned to Current Enrollment Status revealed most students represented in the study identified as primarily on-campus students (59.2%), either currently or previously enrolled in at least one online graduate course. Primarily online students (40.8%) comprised the slight minority. In a related survey item,

respondents identified their current plans in the demographic section, with the options: complete degree online, complete degree on campus, transfer credits, complete this course. The majority (59.8%) selected “complete degree on campus”; these findings support the abovementioned Current Enrollment Status data. Implications of students’ Current Enrollment Status and current plans will be explored in the latter part of chapter four, and in chapter five as well. Note, demographic tables in Appendix N provide greater detail of the items addressed above.

Current online enrollment was identified in the study by grouping students in their respective credit level for the current semester. The slight majority of students (55.1%) were enrolled in four to nine online credits, with 27.6% enrolled in four to six credits and 27.6% enrolled in seven to nine credits. Students enrolled in one to three credits represented 33.9% of the student sample. Additionally, the majority of respondents’ previous online enrollment was minimal. The distribution detailed in Table 8 demonstrates the majority of students in the study (70.4%) had either previously taken no online classes at all (25.7%) or had previously taken between one to three online classes (44.6%).

Table 8*Sample by Previous Online Enrollment*

Previous Online Enrollment	Number of Students	Percentage of Sample
No classes	79	25.7%
1-3 classes	137	44.6%
4-6 classes	30	9.77%
7-9 classes	19	6.19%
10-12 classes	22	7.17%
13-15 classes	4	1.30%
More than 15 classes	16	5.21%
Total	307	100%
No Response	14	

Note: Adapted from Ruffalo Noel Levitz, 2020

To help determine how informed graduate student respondents were, two demographic items were provided by the institution and incorporated into the final section of the online survey. The first of which, asked students if they had participated in professional development opportunities such as a graduate college shop talk. Selection options included: not sure what these are, never, once, participated in 2-3, participated in 4-5, participated in more than 5, more than 15 classes. Approximately half of respondents (50.6%) were either “not sure what these are” (9.12%) or indicated that they had never participated in such opportunities. The remainder (49.4%) indicated they had participated once (19.5%), two to three times (17.6%) or four or more (12.3%); greater detail provided in Appendix N. Table 9 provides the distribution of student responses to the additional survey item, aiming to identify how well-informed graduate students were. Study data revealed that only 26.6% of respondents read the weekly graduate bulletin more than five times that semester. Note, at the time of survey distribution, the semester was well beyond five weeks in.

Table 9*Sample: Do you read the weekly graduate bulletin?*

Weekly Graduate Bulletin	Number of Students	Percentage of Sample
Not sure what this is	18	5.77%
Never	45	14.4%
Once	29	9.29%
Read 2-3 times	97	31.1%
Read 4-5 times	40	12.8%
Read more than 5 times	83	26.6%
Total	312	100%
No Response	9	

Note: Adapted from Ruffalo Noel Levitz, 2020

Sample by College Designation data in Table 10 provides the college distribution of all survey respondents. The majority of graduate programs had a representation of ten or less students; therefore, graduate programs were grouped by the college they were currently aligned to for data analysis. College designations included: College of Education, College of Applied Arts, College of Fine Arts and Communication, College of Health Professions, College of Liberal Arts, College of Science and Engineering, Other - Master's Program Not Listed, Other - Doctoral Program Not Listed. The category designated 'Other – Master's degree program not listed' represented the largest group of survey respondents (49.8%). The second largest group 'Other – Doctoral degree program not listed' represented 13.5% of the sample population.

Table 10*Sample by College Designation*

College Designation	Number of Students	Percentage of Sample
College of Education	19	6.11%
College of Applied Arts	29	9.32%
College of Fine Arts and Communication	7	2.25%
College of Health Professions	18	5.78%

Table 10. Continued

College Designation	Number of Students	Percentage of Sample
College of Liberal Arts	22	7.06%
College of Science and Engineering	15	4.82%
Other - Master's Program Not Listed	155	49.8%
Other - Doctoral Program Not Listed	42	13.5%
Other – Certificate program not listed	4	1.29%
Total	311	100%
No Response	10	

Note: Adapted from Ruffalo Noel Levitz, 2020

Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) was applied to test the established Ruffalo Noel Levitz (2020) Priorities Survey for Online Learners™ measurement model for both consistency and construct validity. This type of factor analysis confirmed the utility of the survey measurement tool presented in Chapter three. Twenty-six survey items were measured against five predetermined factors. Figure 4 demonstrates the survey item alignment to survey factors: (1) Institutional Perceptions, (2) Academic Services, (3) Instructional Services, (4) Enrollment Services, and (5) Student Services.

Confirmatory factor analysis (CFA) was performed with study data using SPSS Analysis of a Moment Structures (AMOS) structural equation modeling software. Based on critical ratios (CR) resulting from the data analysis, probabilities demonstrated high significance in the study. At less than .001 ($p < .001$), p-values demonstrated a very strong association between survey items and the factors they corresponded to; therefore, indicating a high level of statistical significance and a low probability in the null hypothesis. Table 11 provides additional detail. Standardized coefficients in Table 11 demonstrate effect size, ranging from .468 to .802. All standardized coefficients are of acceptable size, with the majority significantly higher than .50. Ultimately, the

confirmatory factor analysis revealed survey questions were appropriately aligned within the survey instrument and results provided construct validity.

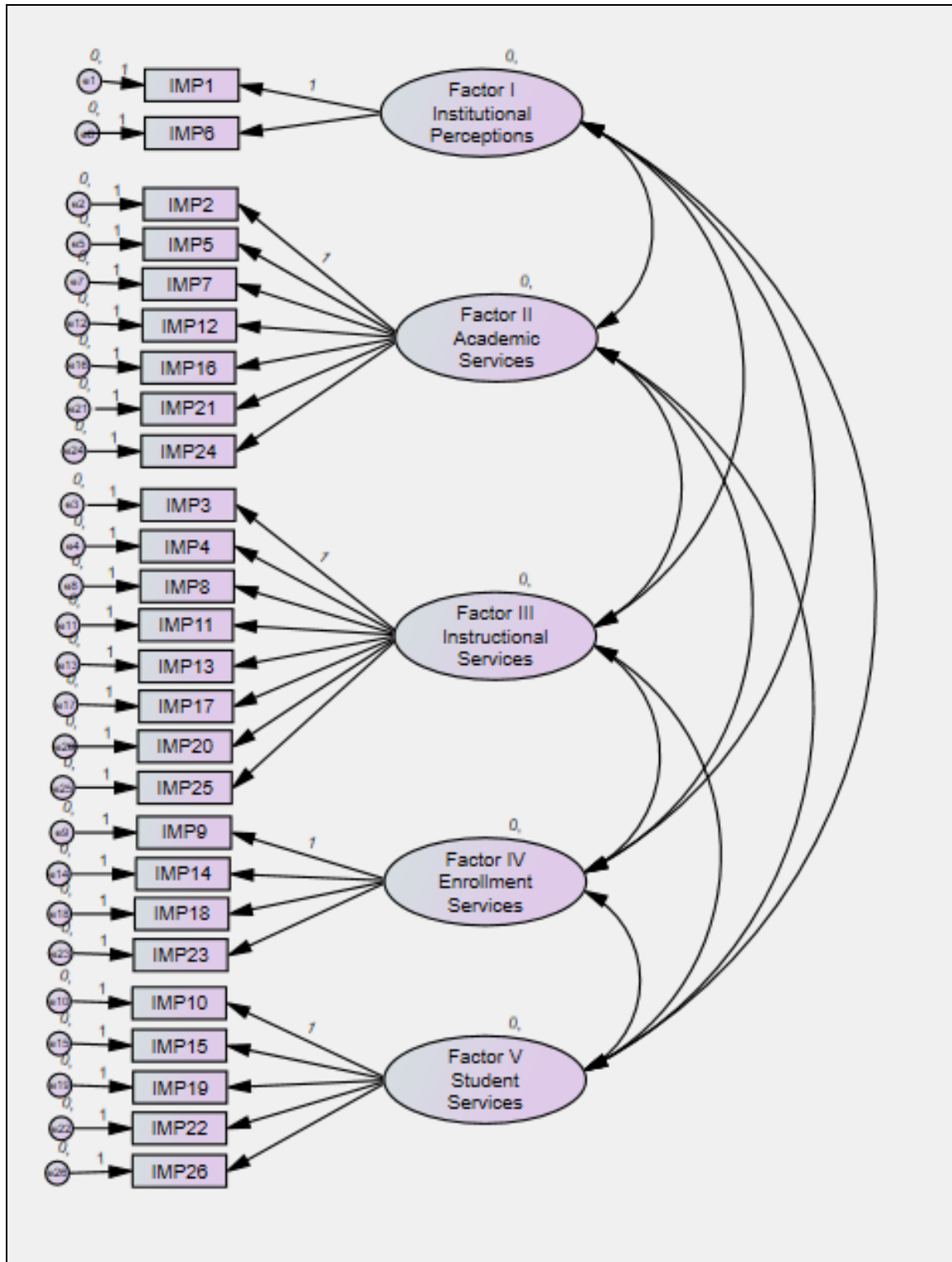


Figure 4

Confirmatory Factor Analysis

Table 11*Confirmatory Factor Analysis*

Survey Factor	Reg. Weight	S.E.	C.R.	P	Std. Coef.
SAT1 ←FI	1.00		9.42		.649
SAT6 ←FI	1.32	.140		***	.750
SAT2 ←FII	1.00		8.90		.632
SAT5 ←FII	1.34	.151	10.2	***	.607
SAT7 ←FII	1.20	.117	10.1	***	.711
SAT12 ←FII	1.39	.137	8.40	***	.705
SAT16 ←FII	.922	.110	7.19	***	.583
SAT21 ←FII	.649	.090	6.59	***	.468
SAT24 ←FII	1.16	.176		***	.537
SAT3 ←FIII	1.00		11.9		.708
SAT4 ←FIII	1.18	.099	7.86	***	.723
SAT8 ←FIII	.791	.101	12.1	***	.486
SAT11 ←FIII	1.02	.084	12.7	***	.736
SAT13 ←FIII	1.15	.091	12.4	***	.779
SAT17 ←FIII	1.07	.086	11.8	***	.764
SAT20 ←FIII	1.23	.104	13.0	***	.727
SAT25 ←FIII	1.27	.098		***	.802
SAT9 ←FIV	1.00		9.55		.680
SAT14 ←FIV	.972	.102	7.23	***	.752
SAT18 ←FIV	.643	.089	9.62	***	.511
SAT23 ←FIV	.817	.085		***	.734
SAT10 ←FV	1.00		12.6		.772
SAT15 ←FV	1.17	.093	7.37	***	.784
SAT19 ←FV	.628	.085	12.1	***	.518
SAT22 ←FV	1.02	.084	7.22	***	.700
SAT26 ←FV	.805	.112		***	.534

Note: ***p < .001

Using structural equation modeling, the root mean square error of approximation (RMSEA), comparative fit index (CFI), and Tucker–Lewis index (TLI) analyses were utilized in the study. All three were applied to the raw data to measure the goodness of fit in relation to the survey instrument. In aggregate, the combined fit indices revealed model sufficiency. However, in isolation, both the comparative fit index and Tucker–Lewis index fell slightly below standard, with CFI measuring .87 and TLI measuring .84. The root mean square error of approximation measured .069, revealing an acceptable fit

for the study model. Additionally, AMOS data analysis revealed a strong association among all five survey factors. Data covariances and correlations are shown in Table 12 in relation to survey factors one through five. Ideally, the covariances should be small. These high covariances indicate that the factors are more interrelated than intended (measuring the same underlying construct). However, since the intention of this study is to utilize the overall factor score, excluding individual scores; with this, factor intercorrelations are acceptable.

Table 12

Goodness of Fit: Covariances and Correlations

Survey Factors	Cov.	S.E.	C.R.	P	Corr.
FI↔FII	.533	.079	6.78	***	.812
FI↔FIII	.581	.082	7.07	***	.771
FI↔FIV	.613	.104	5.92	***	.646
FV↔FI	.714	.099	7.22	***	.796
FII↔FIII	.621	.081	7.63	***	.893
FII↔FIV	.543	.090	6.03	***	.620
FV↔FII	.771	.097	7.93	***	.931
FIII↔FIV	.594	.095	6.24	***	.590
FV↔FIII	.830	.100	8.34	***	.872
FV↔FIV	.996	.134	7.42	***	.831

Note: ***p < .001

Interpretation of Results

Bayesian path analysis was conducted on both (1) Level of Satisfaction and (2) Level of Importance structural equation models to identify associations between study variables using a 90% confidence interval. Regression weights in the 90% upper bounds and 90% lower bounds were explored in this analysis, along with convergence statistics, standard errors, and standard deviations derived from the data. The main research questions and corresponding sub-questions were analyzed for study findings. Both

hypotheses previously presented in Chapter one were examined and addressed according to the study results and in alignment with the research questions.

Research Question 1

Is there a positive relationship between Perceived Level of Institutional Support and Level of Satisfaction for online graduate students?

Hypothesis 1

As Perceived Level of Institutional Support (X) increases, Level of Satisfaction (Y) increases. Treatment, (X), refers to the independent variable (IV): Perceived Level of Institutional Support. Observed outcome, (Y), refers to the association of dependent variable (DV): Level of Satisfaction.

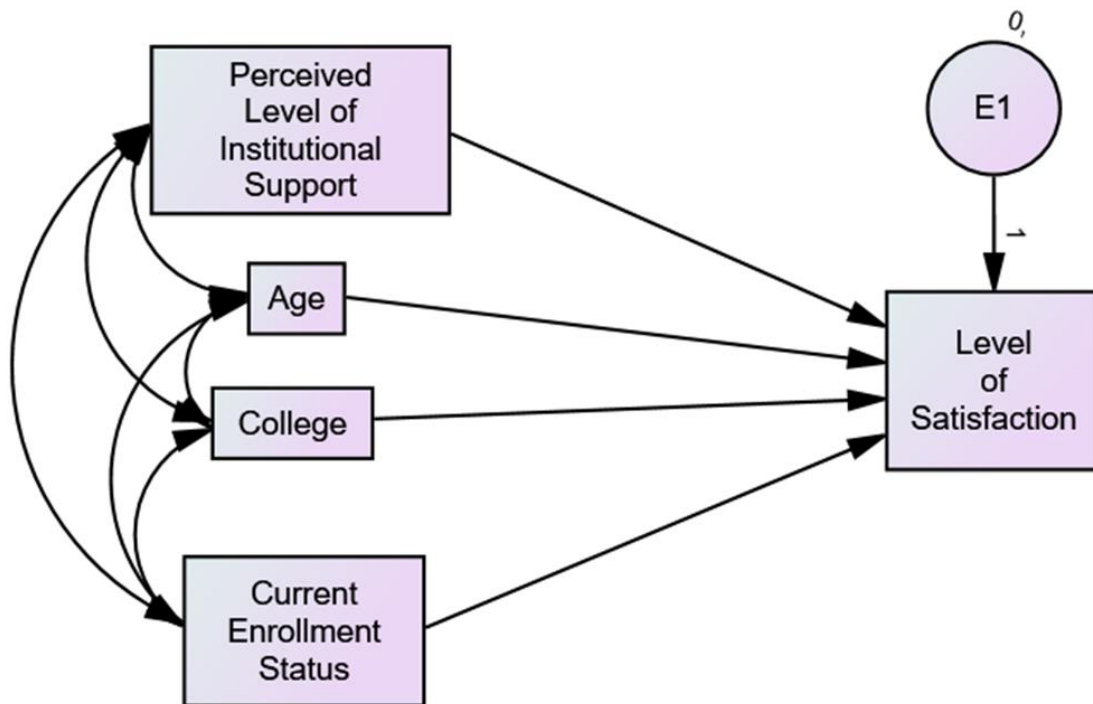


Figure 5

Bayesian Path Analysis – Satisfaction

The Bayesian path analysis conducted for this study supported a positive relationship between Perceived Level of Institutional Support and Level of Satisfaction. Regression analysis revealed a score of 1.84 in the 90% lower bound category, 2.28 in the 90% upper bound category, and a mean score of 2.06, supporting a strong association between institutional support and satisfaction level; detail provided in Table 13 and Table 14. The convergence statistic of 1.000 demonstrated accuracy, and is well under the standard 1.002 requirement for an acceptable score. The standard error score .004 additionally demonstrated accuracy in the association. Furthermore, a posterior predictive *p* measurement demonstrated a strong goodness of fit score of .50. The positive weight for Perceived Level of Institutional Support and Level of Satisfaction demonstrated that as Perceived Level of Institutional Support increased, the Level of Satisfaction increased. Findings revealed a positive relationship between Perceived Level of Institutional Support and Level of Satisfaction; moreover, the independent variable Perceived Level of Institutional Support is the biggest predictor of the dependent variable Level of Satisfaction.

Table 13

Bayesian Path Analysis - Satisfaction

Regression weights	Mean	S.E.	S.D.	C.S.	90% Lower Bound	90% Upper Bound
Sat←Inst.Spt.	2.06	.004	0.13	1.000	1.84	2.28
Sat←Age	3.32	.039	1.36	1.000	1.07	5.56
Sat←College	0.41	.024	0.69	1.001	-0.71	1.55
Sat←Enr. Status	7.62	.121	3.30	1.001	2.17	13.0

Table 14*Covariance Analysis - Satisfaction*

Covariances	Mean	S.E.	S.D.	C.S.	90% Lower Bound	90% Upper Bound
Coll $\leftrightarrow$ Enr. Status	0.40	.002	0.07	1.000	0.29	0.52
Enr. Status $\leftrightarrow$ Age	-0.11	.001	0.04	1.000	-0.17	-0.05
Enr. Status $\leftrightarrow$ Inst. Spt.	0.11	.014	0.52	1.000	-0.74	0.98
Coll $\leftrightarrow$ Age	-0.08	.006	0.17	1.001	-0.36	0.20
Coll $\leftrightarrow$ Inst. Spt.	-2.39	.066	2.28	1.000	-6.05	1.43
Age $\leftrightarrow$ Inst. Spt.	0.02	.028	1.24	1.000	-1.97	2.08

Sub Question 1a

Is there a strong association between Age Group and online graduate students' Level of Satisfaction?

Under a 90% confidence interval, study data revealed Age Group strongly supported graduate students' Level of Satisfaction. Age Group scored 1.07 under 90% lower bound analysis and 5.55 under 90% upper bound analysis, demonstrating an association, although not as strong as the association between Perceived Level of Institutional Support and Level of Satisfaction. Graduate student survey result data presented in Table 15 provides visibility on the differences in satisfaction by Age Group. Most notably, the 55 to 64 age group reported the highest Level of Satisfaction in the Age Group mean scores.

Table 15*Age Group Mean Scores*

Age Group	Importance	Satisfaction	SD	Gap
All Age Groups	6.29	5.63	1.11	0.65
25 to 34	6.26	5.62	1.09	0.64
35 to 44	6.33	5.55	1.25	0.79
45 to 54	6.38	5.85	0.78	0.53
55 to 64	6.52	5.9	0.95	0.62

Note: Adapted from Ruffalo Noel Levitz, 2020

Sub Question 1b

Is there a strong association between College Designation and online graduate students' Level of Satisfaction?

College Designation did not support online graduate students' Level of Satisfaction as significantly as other study variables; the analysis did not detect an association between the two variables. Bayesian analysis revealed considerable differences between the 90% lower bound analysis and 90% upper bound analysis for this category. Categorical designations included: All Programs, College of Education, College of Applied Arts, College of Fine Arts and Communication, College of Health Professions, College of Liberal Arts, College of Science and Engineering, Other - Master's Program Not Listed, Other - Doctoral Program Not Listed. Of all designations, College of Education graduate students reported being most satisfied with their online experience (5.80). In contrast, College of Liberal Arts students reported being least satisfied (5.57). Details on college designation satisfaction levels provided in Table 16.

Table 16*Mean Scores by College Designation*

Designation	Importance	Satisfaction	SD	Gap
All Programs	6.29	5.63	1.11	0.65
College of Education	6.23	5.80	0.89	0.43
College of Applied Arts	6.31	5.78	0.89	0.53
College of Fine Arts and Communication	5.96	5.70	0.83	0.26
College of Health Professions	6.44	5.70	1.32	0.74
College of Liberal Arts	6.25	5.57	1.10	0.68
College of Science and Engineering	6.27	5.75	1.06	0.51
Other - Master's Program Not Listed	6.30	5.59	1.14	0.71
Other - Doctoral Program Not Listed	6.31	5.70	0.98	0.61

Note: Adapted from Ruffalo Noel Levitz, 2020

Sub Question 1c

Is there a strong association between Current Enrollment Status and online graduate students' Level of Satisfaction?

The Current Enrollment Status variable, contrasting graduate students who either identified as primarily online or primarily on-campus, was found to strongly support online graduate students' Level of Satisfaction with primarily on-campus students having, on average, higher Level of Satisfaction Scores. Bayesian path analysis showed a distribution of 2.17 in 90% lower bound and 12.98 in 90% upper bound. The association between Current Enrollment Status and Level of Satisfaction is not as strong as associations with other variables in the study, and the convergence statistic (1.001), although in acceptable range, is higher than other study variable associations. Current enrollment status mean scores in Table 17 detail the difference between primarily online students and those primarily on-campus, with a net difference of .05. The difference in satisfaction level mean scores between primarily online students and all graduate

students' is -.02; whereas, the difference in primarily on-campus and all graduate students' satisfaction mean scores is .03.

Table 17

Current Enrollment Status Mean Scores

Enrollment Status	Importance	Satisfaction	SD	Gap
All Participants	6.29	5.63	1.11	0.65
Primarily Online	6.22	5.61	1.12	0.61
Primarily On-campus	6.32	5.66	1.08	0.66

Note: Adapted from Ruffalo Noel Levitz, 2020

Research Question 2

Is there a positive relationship between Perceived Level of Institutional Support and Level of Importance for online graduate students?

Hypothesis 2

As Perceived Level of Institutional Support (X) increases, Level of Importance (Y) increases. Treatment, (X), refers to the independent variable (IV): Perceived Level of Institutional Support. Observed outcome, (Y), refers to the association of dependent variable (DV): Level of Importance.

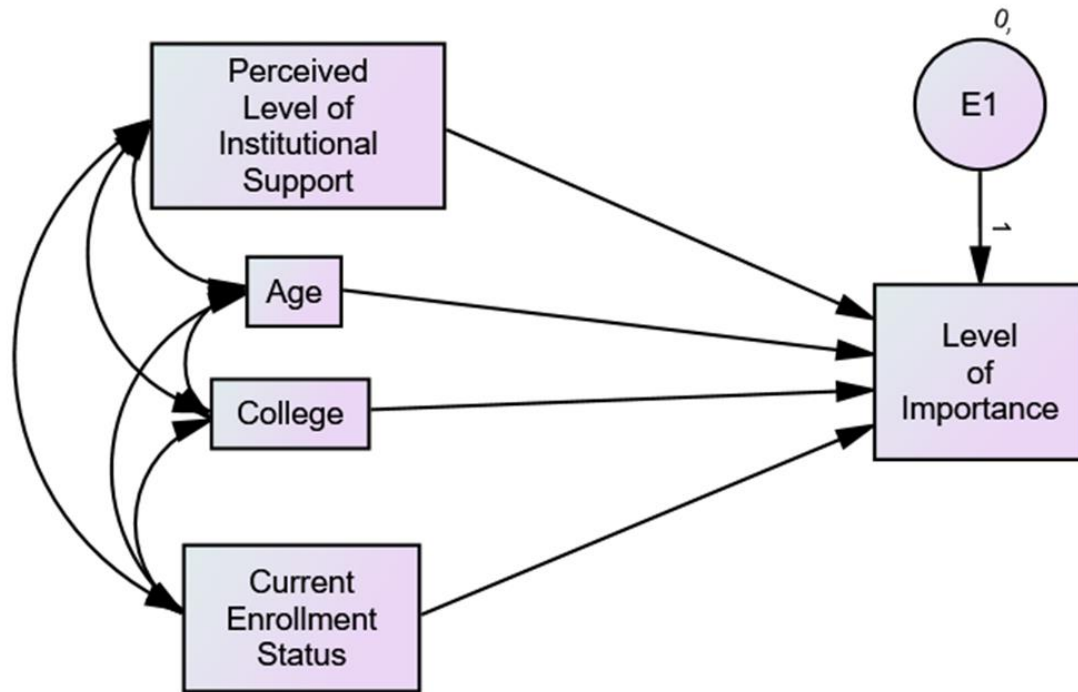


Figure 6

Bayesian Path Analysis – Importance

Bayesian path analysis revealed a positive association between Perceived Level of Institutional Support and Level of Importance for online graduate students; Figure 6 provides independent variables and the dependent variable they align to. Table 18 and Table 19 provide detail on the path analysis and covariance analysis pertaining to findings for research question two. In regard to Table 18, regression weights for the relationship between Perceived Level of Institutional Support and Level of Importance demonstrated 1.266 for the 90% lower bound confidence interval and 1.601 for the 90% upper bound confidence interval. Furthermore, the convergence statistic (1.000) and standard error score (.003) provided accuracy in the findings. Comparable to research question one, a posterior predictive p measurement of .50 established goodness of fit in the model. In regard to research question two and all sub-questions aligned to it, the only

strong association supported by Bayesian path analysis existed between Perceived Level of Institutional Support and Level of Importance.

Table 18

Bayesian Path Analysis - Importance

Regression weights	Mean	S.E.	S.D.	C.S.	90% Lower Bound	90% Upper Bound
Imp←Inst.Spt.	1.44	.003	0.10	1.000	1.27	1.60
Imp←Age	0.80	.019	0.83	1.000	-0.56	2.16
Imp←College	0.38	.009	0.37	1.000	-0.23	1.01
Imp←Enr. Status	1.24	.045	1.88	1.000	-1.82	4.33

Table 19

Covariance Analysis - Importance

Covariances	Mean	S.E.	S.D.	C.S.	90% Lower Bound	90% Upper Bound
Coll←→Enr. Status	0.40	.002	0.07	1.000	0.29	0.52
Enr. Status ←→Age	-0.11	.001	0.04	1.000	-0.17	-0.05
Enr. Status ←→Inst. Spt.	0.50	.005	0.33	1.000	-0.05	1.05
Coll←→Age	-0.09	.004	0.17	1.000	-0.36	0.19
Coll←→Inst. Spt.	0.33	.026	1.48	1.000	-0.05	1.05
Age ←→ Inst. Spt.	1.19	.019	0.86	1.000	-0.36	0.19

Sub Question 2a

Is there a strong association between Age Group and online graduate students' Level of Importance?

Although a strong association could not be established through Bayesian path analysis, Age Group mean scores detailed in Table 20 demonstrate a marked pattern in regard to the impact of Age Group on students' Level of Importance. Graduate students' aggregated survey responses provided the results detailed in Figure 7. The 25 to 34 age

group scored lowest in importance at 6.26 on a seven-point Likert scale; the 55 to 64 age group measured highest in this variable at 6.52. As Age Group increases, Level of Importance increases as well, demonstrating a positive relationship between the two study variables.

Table 20

Age Group Mean Scores

Age Group	Importance	Satisfaction	SD	Gap
All Age Groups	6.29	5.63	1.11	0.65
25 to 34	6.26	5.62	1.09	0.64
35 to 44	6.33	5.55	1.25	0.79
45 to 54	6.38	5.85	0.78	0.53
55 to 64	6.52	5.9	0.95	0.62

Note: Adapted from Ruffalo Noel Levitz, 2020

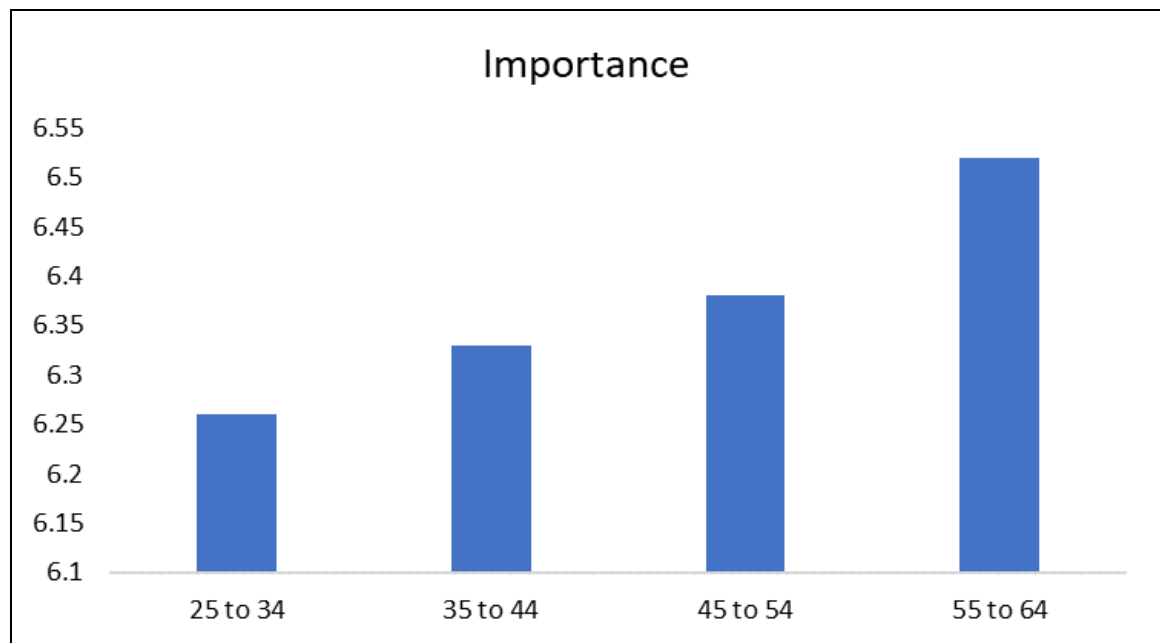


Figure 7

Age Group Mean Scores and Level of Importance

Sub Question 2b

Is there a strong association between College Designation and online graduate students' Level of Importance?

No association could be established between College Designation and graduate students' Level of Importance. Bayesian path analysis 90% lower bound/90% upper bound examination determined that with one side negative and its respective counterpart positive, a significant relationship could not be identified. Furthermore, Figure 8 confirms the abovementioned findings and Table 21 provides visibility of the breakout by College Designation.

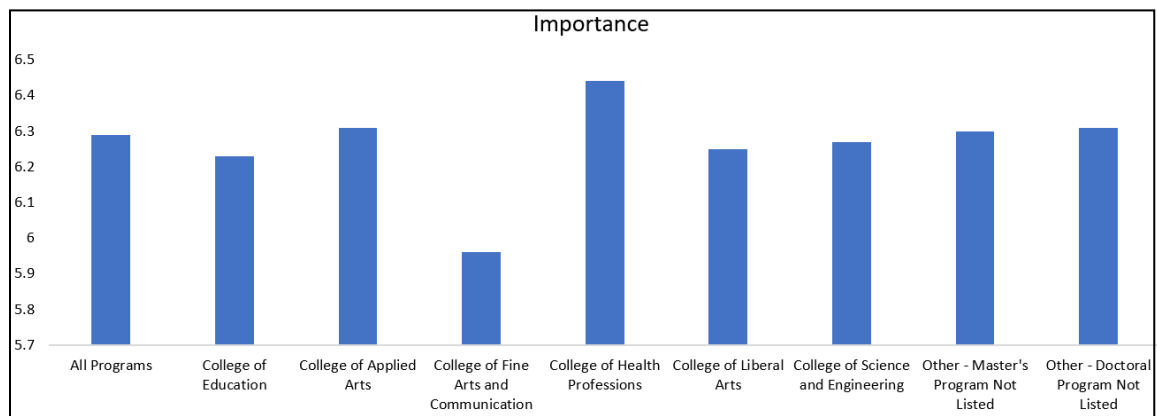


Figure 8

College Designation and Level of Importance

Table 21*Mean Scores by College Designation*

Designation	Importance	Satisfaction	SD	Gap
All Programs	6.29	5.63	1.11	0.65
College of Education	6.23	5.80	0.89	0.43
College of Applied Arts	6.31	5.78	0.89	0.53
College of Fine Arts & Communication	5.96	5.70	0.83	0.26
College of Health Professions	6.44	5.70	1.32	0.74
College of Liberal Arts	6.25	5.57	1.10	0.68
College of Science and Engineering	6.27	5.75	1.06	0.51
Other - Master's Program Not Listed	6.30	5.59	1.14	0.71
Other - Doctoral Program Not Listed	6.31	5.70	0.98	0.61

Note: Adapted from Ruffalo Noel Levitz, 2020**Sub Question 2c**

Is there a strong association between Current Enrollment Status and online graduate students' Level of Importance?

Although a strong association cannot be established through path analysis, a weak pattern can be identified in regard to the role Current Enrollment Status has on graduate students' Level of Importance. Survey results demonstrated that primarily on-campus graduate students have higher mean importance scores (6.32) than primarily online students (6.22). The difference between the two groups can be seen in Table 22 and Figure 9.

Table 22*Current Enrollment Status Mean Scores*

Enrollment Status	Importance	Satisfaction	SD	Gap
All Participants	6.29	5.63	1.11	0.65
Primarily Online	6.22	5.61	1.12	0.61
Primarily On-campus	6.32	5.66	1.08	0.66

Note: Adapted from Ruffalo Noel Levitz, 2020

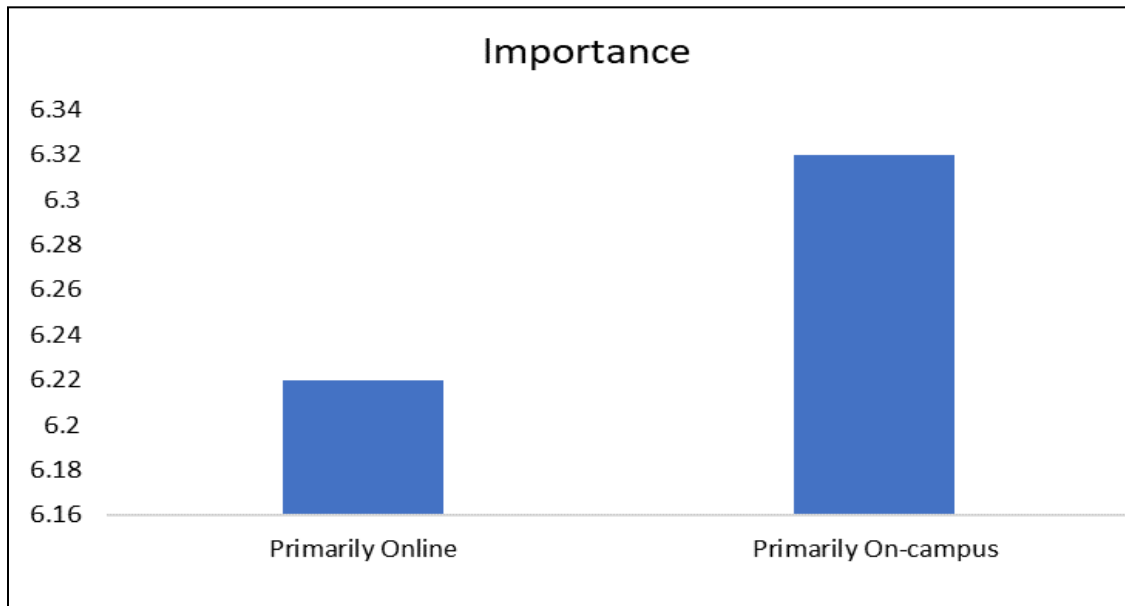


Figure 9

Current Enrollment Status and Level of Importance

Gap Analysis

The study examining the relationship of institutional support to online graduate learning consisted of two dependent variables, Level of Importance and Level of Satisfaction. Throughout the dissertation document, dependent variables were often shortened or abbreviated to Importance and Satisfaction for brevity, such as in the Table 23 header row. The dependent variables and the findings associated with them lay at the center of the online learning study. By performing gap analysis between the two dependent variables, Level of Importance and Level of Satisfaction, university faculty, administrators, and instructors have visibility into the areas that students believe require the most support.

The survey factor with the largest gap between Importance and Satisfaction was Institutional Perceptions (0.82) followed by Instructional Services (0.66). To provide a more indicative gap analysis, individual survey items were analyzed. Table 24 highlights

fifteen survey items, beginning with the greatest identified gap, and progressing downward in descending order. The top five gaps revealed by graduate student responses include: item #12, There are sufficient offerings within my program of study; item #6, Tuition paid is a worthwhile investment; item #32, Campus item: The institution's website is easy to navigate; item #9, Adequate financial aid is available; item #20, The quality of online instruction is excellent. Implications of the gap analysis will be explored in Chapter five.

Table 23

Survey Factors with Greatest Gaps

Survey Factors	Importance	Satisfaction	Gap
Institutional Perceptions	6.31	5.49	0.82
Instructional Services	6.37	5.71	0.66
Academic Services	6.36	5.73	0.63
Enrollment Services	6.33	5.72	0.61
Student Services	6.06	5.52	0.54

Note: Adapted from Ruffalo Noel Levitz, 2020

Table 24

Survey Items with Greatest Gaps

Survey Item	Importance	Satisfaction	Gap
12. There are sufficient offerings within my program of study.	6.53	5.23	1.30
6. Tuition paid is a worthwhile investment.	6.49	5.36	1.13
32. Campus item: The institution's website is easy to navigate.	6.28	5.24	1.04
9. Adequate financial aid is available.	6.23	5.21	1.02
20. The quality of online instruction is excellent.	6.37	5.35	1.02
15. Channels are available for providing timely responses to student complaints.	6.17	5.17	1.00
4. Faculty provide timely feedback about student progress.	6.52	5.61	0.91
36. Campus item: The layout of the online course is easy to understand.	6.47	5.61	0.86
5. My program advisor helps with career goals.	6.30	5.47	0.83

Table 24. Continued

Survey Item	Importance	Satisfaction	Gap
24. Tutoring services are readily available for online courses.	5.51	4.73	0.78
25. Faculty are responsive to student needs.	6.64	5.88	0.76
3. Instructional materials are appropriate for program content.	6.61	5.86	0.75
33. Campus item: The institution provided an informative orientation process.	5.96	5.23	0.73
7. Program requirements are clear and reasonable.	6.54	5.82	0.72
10. This institution responds quickly when I request information.	6.39	5.67	0.72

Note: Adapted from Ruffalo Noel Levitz, 2020

Summary of Findings

Confirmatory factor analysis validated the survey measurement instrument and confirmed the underlying measurement theory for the study. The Priorities Survey for Online Learners™ (PSOL) was established as an effective tool for use in this study and future studies as well. Through Bayesian path analysis, associations and relationships were established between study variables. Most notably, findings revealed that strong associations existed between (1) Perceived Level of Institutional Support and Level of Satisfaction and (2) Perceived Level of Institutional Support and Level of Importance. The study demonstrated that independent variables Age Group and Current Enrollment Status were both predictors of Level of Satisfaction but not Level of Importance. Furthermore, findings revealed College Designation was not associated with Level of Importance nor Level of Satisfaction.

Gap analysis results indicated areas in which the university can increase support to create higher student satisfaction. Gap analysis reports identified institutional perceptions and instructional services as areas graduate students indicated significantly higher importance scores when contrasted with satisfaction scores. Additionally, a review

of individual survey items with the greatest gaps suggested (1) the desire for more online course offerings, (2) a more user-friendly university website, (3) higher quality in online instruction. These items are to be discussed further and interpreted in Chapter 5.

V. DISCUSSION

The purpose of this quantitative research study was to investigate the relationship of Perceived Level of Institutional Support to online graduate students' Level of Satisfaction and to determine how Perceived Level of Institutional Support impacted students' Level of Importance in online graduate programs. Leveraging current research and relevant online learning studies, the intent of this study was to extend the existing adult education research, with a focus on adult online learning. Statistical measurements and findings provided visibility on how best to support online graduate learner needs, from the perspective of the students, and the factors that mattered most to them in their online experience. Under the lens of constructionism, the study was designed with the understanding that students would be impacted by their feelings at the time they filled out the online learning surveys. Therefore, although the data collected were highly informative, findings were based on subjective responses. Study findings supported the work of Hambacher et al. (2018), Palmer and Holt (2008), Newberry and DeLuca (2014), and Russo-Gleicher (2013), identifying institutional support as a critical aspect of the adult learning process. This chapter will review the literature findings, provide a discussion of results, study limitations, implications for future research, and implications for practice. Recommendations will be made based on findings from the main research questions of the study.

Review of Literature Findings

During the initial development phase of the online learning study, relevant literature in the subject area was reviewed and collected to ensure the study leveraged previous findings. The study was guided by the leading research on constructionism and

online learning. Study results and findings supported much of the literature reviewed in chapter two. Hambacher et al. (2018) argued for the strategic design of online courses to support the online learner while Palmer and Holt (2008) advocated for designing online courses to support students and increase student satisfaction, suggesting that by doing so, students would benefit significantly. The current Priorities Survey for Online Learners™ study findings revealed that increased student support increases student satisfaction, validating the earlier research from Hambacher et al. (2018) and Palmer and Holt (2008).

As found by Newberry and DeLuca (2014), student support services were critical to the online learning experience and strong support from the university increased retention levels. As this study similarly found that an increase in institutional support increased satisfaction levels, it can be inferred that this would ultimately impact retention rates as well; additional research is recommended to explore this. Furthermore, Russo-Gleicher (2013) found that “Under-utilization of student support services can contribute to a low retention rate found in online courses” (p. 1), also supporting study findings in regard to the positive relationship established between institutional support and student satisfaction.

As noted in the literature review section, Selhorst et al. (2017) found that frequent use of discussion boards fatigued online learners and increased withdrawal from online courses. The 2017 study found that students did not find increased peer-to-peer interaction beneficial. Similarly, one of the survey items that received the lowest importance ratings from students in the current study, was in regard to opportunities for online peer-to-peer interaction. This does not refute Vygotsky's sociocultural theory (1926) or Wheeler's (2006) work encouraging online student collaboration, but suggests

that there is an optimal amount of online student interaction, and this area of online learning should be explored further.

This study extended previous adult education research from King (2014) and Simone (2010). The research confirmed King's 2014 findings regarding the benefit of online technology; moreover, this research supported the King (2014) recommendations in regard to the importance of institutional support. The research also supported Simone's 2010 findings and suggested that novice online graduate learners can become frustrated with online tools as they are struggling to adapt to a new online environment. To mitigate issues, it is recommended that user-friendly educational software is leveraged, IT support is readily available, and new-user training is encouraged.

Interpretation of the Findings and Discussion of Results

Two guiding research questions were examined in the study: (1) Is there a positive relationship between Perceived Level of Institutional Support and Level of Satisfaction for online graduate students? (2) Is there a positive relationship between Perceived Level of Institutional Support and Level of Importance for online graduate students?

Survey items for the online learning study were grouped into five factors: (1) Institutional Perceptions, (2) Academic Services, (3) Instructional Services, (4) Enrollment Services, and (5) Student Services. All five study factors were measured to assess their impact on graduate students' importance and satisfaction levels.

Findings revealed that positive relationships existed between (1) Perceived Level of Institutional Support and Level of Satisfaction and (2) Perceived Level of Institutional Support and Level of Importance. Furthermore, gap analysis identified the areas at the

university with the greatest opportunity for improvement: Institutional Perceptions and Instructional Services.

Level of Satisfaction

The study data revealed a positive relationship between Perceived Level of Institutional Support and Level of Satisfaction for online graduate students. With this, findings demonstrated that institutional support increased online graduate students' satisfaction levels and implied that with higher levels of institutional support, students would experience higher degrees of satisfaction in their online courses. The association between institutional support and student satisfaction suggests that universities should examine the current services they provide to online students and consider ways in which they could provide better support.

Using a seven-point Likert scale, the survey factors with the highest overall satisfaction levels included Academic Services (5.73) and Enrollment Services (5.72); factors with the lowest satisfaction included Institutional Perceptions (5.49) and Student Services (5.52). Results by survey factors provided in Table 5 and all satisfaction scores provided in Appendix M. The survey factor comparison data mentioned above provides a high-level overview, but it does not provide the necessary visibility to understand what truly meets the needs of the online graduate student population. To do so, individual survey items are explored below, in regard to the specific areas that influence student satisfaction.

The survey items with the five highest composite satisfaction scores, listed from highest to lowest, included: (1) item #21, Adequate online library resources are provided ($S = 6.25$; $I = 6.52$); (2) item #2, My program advisor is accessible by telephone and e-

mail ($S = 6.2$, $I = 6.61$); (3) item #23, Billing and payment procedures are convenient for me ($S = 6.07$, $I = 6.43$); (4) item #16, Appropriate technical assistance is readily available ($S = 6.0$, $I = 6.3$); (5) item #18, Registration for online courses is convenient ($S = 5.98$; $I = 6.44$). Importance scores were provided alongside satisfaction scores; all items were at the midpoint or above for importance ($I \geq 6.30$). Survey items with the highest satisfaction scores should be given positive attention and celebrated by the university. Graduate students, either currently or previously enrolled in at least online course, identified them as the items they are most pleased with. Although survey items vary significantly, the university should leverage what is working for the abovementioned areas to help improve the five lowest satisfaction items.

Including only items with importance scores at the midpoint or above for importance ($I \geq 6.30$), the five areas graduate students were least satisfied with, listed from lowest to highest, included: (1) item #12, There are sufficient offerings within my program of study ($S = 5.23$; $I = 6.53$); (2) item #20, The quality of online instruction is excellent ($S = 5.35$; $I = 6.37$); (3) item #6, Tuition paid is a worthwhile investment ($S = 5.36$; $I = 6.49$); (4) item #5, My program advisor helps me work toward career goals ($S = 5.47$; $I = 6.30$); (5) item #4, Faculty provide timely feedback about student progress ($S = 5.61$; $I = 6.52$). These five areas should be explored further by the university and additional information should be gathered to determine if change is necessary. The two lowest ranked items imply a lack of course offerings and poor quality in online instruction. If graduate students feel this way, this could ultimately impact university retention rates.

Survey results from the large state university in the Southwestern United States were compared against Ruffalo Noel Levitz (2020) national survey results. In the summary section of the online survey, students were asked “So far, how has your college experience met your expectations?”. On a one to seven Likert scale, with one being the lowest and seven being the highest, the mean score was 4.58, contrasted with the national average of 5.16 (-.58 difference). Additionally, students were asked to “Rate your overall satisfaction with your experience here thus far”. The university respondent mean score was 5.05 compared to 5.79 nationally (-0.74 difference). The variances in these items are statistically significant and indicate that students at the large state university in the Southwestern United States were overall less satisfied with their online experience. Findings suggest that survey items should be evaluated by administrators and faculty to determine ways in which student satisfaction levels could be increased.

Level of Importance

Study findings identified a positive relationship between Perceived Level of Institutional Support and Level of Importance for online graduate students. The data revealed that students who perceived a higher level of institutional support have higher importance scores. Findings implied that, with stronger institutional support, students placed higher value on the student services they use. Survey factors with the highest mean importance scores include Instructional Services (6.37) and Academic Services (6.36). In contrast, Student Services (6.06) was considered least important by survey respondents. Individual survey items are discussed below, in relation to highest and lowest importance levels.

The highest ranked importance items, listed from highest to lowest, included: (1) item #25, Faculty are responsive to student needs ($I = 6.64$, $S = 5.88$); (2) item #2, My program advisor is accessible by telephone and e-mail ($I = 6.61$, $S = 6.20$); (3) item #3, Instructional materials are appropriate for program content ($I = 6.61$, $S = 5.86$); (4) item #11, Student assignments are clearly defined in the syllabus ($I = 6.59$, $S = 5.88$); (5) item #7, Program requirements are clear and reasonable ($I = 6.54$, $S = 5.82$). As indicated by student responses, these are most valued items of the online graduate student population at the university.

The importance items that scored lowest in the survey results represented areas in which students placed little value. Additionally, it could be inferred that by scoring these items so low, not only are these areas of little importance but they may represent areas of dislike or pain points for online graduate students. Ordered from lowest to highest, the five least important survey items evaluated by students, included: (1) item #8, Student-to-student collaborations are valuable to me ($I = 5.36$, $S = 5.37$); (2) item #30, Campus item: Opportunities for online peer to peer interactions are plentiful ($I = 5.39$, $S = 5.28$); (3) item #35, Campus item: Student involvement opportunities are available ($I = 5.49$, $S = 5.41$); (4) item #29, Campus item: Online career readiness workshops are available ($I = 5.50$, $S = 5.65$); (5) item #24, Tutoring services are readily available for online courses ($I = 5.51$, $S = 4.73$).

One of the most surprising key findings of the study resulted from the importance scoring outcomes reviewed above. The two lowest scored items are similar in regard to student collaboration and peer interaction. Implications from this study suggest that students do not like collaborating together online for group projects or participating in

online discussion boards. While these findings are relevant and offer visibility on student preferences, it is also important to note that there is a distinction between what students want and what is beneficial to their online learning. Based on these findings, it is recommended that this area of online education is further explored. In particular, discussion boards are often a central aspect of the online classroom. Study findings suggest that peer discussion is not as valued as it previously was thought to be. This may be due to the barriers of being in an online environment; however, some of these barriers may be overcome by implementing more current, innovative online learning capabilities.

Gap Analysis, Challenges

Gap analysis provided visibility on the university's current strengths and challenges. Challenges are discussed in this section and strengths will be discussed in the subsequent section. The ten most predominant gaps between importance and satisfaction survey item scores can be seen in Table 25. To capture the most relevant problem areas, survey items were only included in the gap analysis if they were at the midpoint or above for importance ($I \geq 6.30$). With this, items that were deemed less important to students were intentionally excluded, allowing the data to be prioritized and used in the most effective way. Survey item #12 (There are sufficient offerings within my program of study) contained the largest gap in the study of 1.3, demonstrating a high level of importance (6.53) but a low level of satisfaction (5.23). It can be inferred from the analysis that university online graduate students would like to see more numerous offerings in their program areas. Study results did not demonstrate a statistical difference between program type or college designation, so findings can be applied to all students and all programs, either fully online or with an online component.

The second highest gap identified (1.13) was for survey item #6 (Tuition paid is a worthwhile investment), also with a high importance score (6.49) and contrasting low satisfaction score (5.36). This finding was especially concerning because it indicated that student respondents would like their tuition to be a worthwhile investment but they either question if it is or do not believe so. It can be inferred that a substantial number of students do not believe their degrees will provide them with the opportunities they would like.

The next gap explored is in regard to the quality of online instruction. Respondents provided a mean importance score of 6.37 and a mean satisfaction score of 5.35, indicating that many graduate students are not satisfied with the overall quality of online instruction at the university. This is certainly an area for improvement. With emerging technologies and innovative online classroom solutions, it is recommended that this area is also furthered explored. Additionally, it is important that online instructors feel comfortable facilitating in an online environment and receive proper training on how to conduct an online course.

Table 25

Top Ten Survey Gaps

Survey Item	Importance	Satisfaction	Gap
12. There are sufficient offerings within my program of study.	6.53	5.23	1.30
6. Tuition paid is a worthwhile investment.	6.49	5.36	1.13
20. The quality of online instruction is excellent.	6.37	5.35	1.02
4. Faculty provide timely feedback about student progress.	6.52	5.61	0.91
36. Campus item: The layout of the online course is easy to understand.	6.47	5.61	0.86
5. My program advisor helps me work toward career goals.	6.30	5.47	0.83
25. Faculty are responsive to student needs.	6.64	5.88	0.76

Table 25. Continued

Survey Item	Importance	Satisfaction	Gap
3. Instructional materials are appropriate for program content.	6.61	5.86	0.75
7. Program requirements are clear and reasonable.	6.54	5.82	0.72
10. This institution responds quickly when I request information.	6.39	5.67	0.72

Note: Survey items at the midpoint or above for importance ($I \geq 6.30$)

There is not a one-size-fits-all solution to the gaps identified above. It is recommended that work groups be established to review the study findings and conduct additional inquiries into how students feel about institutional support, such as student focus groups and one-on-one interviews. Especially now, as the need for quality online programs is increasing, it is important to address the results of the online learning study.

Gap Analysis, Strengths

This section will address the smallest gaps uncovered in the study. These gaps represent areas in which the university is currently meeting student needs quite well and should continue to do so. Within the midpoint or above range for importance ($I \geq 6.30$), item #21(Adequate online library resources are provided) represents the smallest identified gap (0.27). Students' importance scores with a mean of 6.52 were close in proximity to their corresponding composite satisfaction scores of 6.25, demonstrating that the university is sufficiently meeting students' needs in regard to providing adequate online library resources. Gaps are identified for all survey items in Appendix M.

Additional areas in which gap analysis indicated the university is appropriately meeting student needs and expectations include: item #16, availability of technical assistance; item #23, convenience of billing and payment procedures; item #2, accessibility of program advisors. The abovementioned items are considered university strengths and little to no area of shortfall was identified for these items. The university

should acknowledge these strengths and celebrate these successes. Additionally, the university should identify the elements that make these areas so effective and what allows them to meet the needs of the online graduate student population so precisely.

Study Limitations

The study was conducted during the 2020 Spring semester, weeks after all university courses were moved to a remote or distance learning format due to COVID-19. Recall bias presented a study limitation. Students were instructed in the survey invite correspondence:

Please do not consider the remote or alternative delivery that is being done in response to COVID-19 in your survey evaluation. The intent of this survey is to evaluate fully online courses or courses with online components, classified as such in the university Graduate Catalog. (Elliott, 2020, p. 124)

However, despite the provided guidance, recall bias presented an issue in the study. Student responses were influenced by the current learning environment and current course work rather than students' providing a complete evaluation of their full online graduate experience at the university. Selection bias presented an issue in the study as well. Survey invitations were exclusively distributed to graduate students at a large state university in the Southwestern United States; therefore, all survey responses and data collected represent this relatively small group of students. This population was selected to increase the consistency of the study and to reduce the variability associated with different levels of support and competing learning management systems (LMS). However, the student sample represented in the study impacted the ability to form broad generalizations from study findings.

Although established as an industry standard survey, the Ruffalo Noel Levitz Priorities Survey for Online Learners™ presented an additional study limitation as this restricted customization of the survey instrument and included a neutral response option for individual survey items. With participants having the option of a neutral selection, less actionable feedback was collected than otherwise would have been.

Implications for Future Research

The planning and development phase of the study transpired years before the COVID-19 pandemic. However, the study was inevitably impacted by survey distribution during the 2020 Spring semester. During this time, all traditional, face-to-face courses were moved to remote delivery at the large state university in the Southwestern United States. Due to the current climate, the prevalence of online education is increasing dramatically. Now more than ever, it is important to identify how best to support online learners, both graduate and undergraduate. This research should be repeated post-pandemic and compared against the current findings to identify differences. Additionally, undergraduate online learners should be included in future research as well.

Further research should be conducted to assess the relationship of institutional support to online learning throughout the United States and the entire world. This study was limited in scope but could be executed at any university offering online courses. Additional online studies, investigating impacts beyond institutional support are also recommended. It is suggested that future studies explore the relationship between the number of online courses a student is enrolled in and satisfaction levels to distinguish differences between novices, primarily online and primarily on-campus students. Additional future studies could also explore how employment impacts online learning,

identifying differences between those who work full time and those who do not, and those who commute and those who do not. Online learning is complex and could be explored from different perspectives. The direct impact of COVID-19 on online learning, for example, is a recommended topic to explore. Also, online learning within an organization, as opposed to a university, is an additional topic recommended for study.

A combination of both quantitative and qualitative research is recommended for future studies. Quantitative research is valuable because it provides the opportunity to study a large sample size and a greater ability to form generalizations from study data. Qualitative research, such as one-on-one interviews and focus groups, allows the researcher visibility into current issues, and allows all categories of students to have a voice in the study.

Implications for Practice and Recommendations

One implication of this study is the need to provide strong institutional support for online graduate learners. Current institutional support should be examined by reviewing study results, evaluating internal university data, and conducting qualitative research at the university. Based on the Priorities Survey for Online Learners™ national data comparison, the large state university in the Southwestern United States should determine how to provide better support to online learners. Increased support could require additional funding; however, this is not always necessary.

With the consideration that many universities are currently experiencing issues in securing increased funding, especially for student support services, it is recommended that universities encourage increased support from university online instructors, student advisors, and university support staff. Survey findings revealed that students believe this

support is important to their online learning experience and this may help increase student retention rates. Additional training for faculty and staff may be helpful so that they can understand how to effectively provide additional support to students.

Another implication of this study is that online collaboration is not considered an important aspect of the online learning process by online graduate student respondents. This does not mean that it should be rejected entirely, but the research suggests that this area should be further explored to determine how this online learning method can best suit the needs of online graduate students. For example, online group collaboration and discussion forums may be incorporated into the online classroom, but it may be best to minimize these components and emphasize problem-based learning.

It should be noted that the findings from this study indicated that Institutional Support is linked to Importance and Satisfaction. However, survey responses indicated that over half of the graduate students seldom, if ever, read the weekly graduate bulletin; this provides information about university resources and support services each week. It is recommended that this is evaluated and explored further. If graduate students become more aware of university student services, they may also come to place higher value on such services and be more satisfied with them as well.

Lastly, it is recommended that additional studies be conducted in regard to the relationship of institutional support and online learners. This study serves as benchmark for future studies and continual assessment is recommended so that the university can measure areas of improvement and decline.

Summary and Conclusion

This study supports previous research conducted by Hambacher et al. (2018), Newberry and DeLuca (2014), Palmer and Holt (2008), and Russo-Gleicher (2013), and suggested that online graduate students benefitted from strong institutional support. Although the study included limitations, findings provided valuable information in regard to the services that students value most and recognized areas that they are most satisfied with. While a national survey data comparison revealed that student respondents were less satisfied than the average student in the United States, gap analysis provided valuable results and identified areas that could benefit most from increased support.

This study provided an important contribution to the current literature in adult and online education. Through the use of confirmatory factor analysis and Bayesian path analysis, the online learning study provided strong and effective results that could be replicated. Findings demonstrated a positive relationship between institutional support and importance; moreover, findings demonstrated a positive relationship between institutional support and satisfaction. Furthermore, the study presented real-world applications and provided actionable results.

This study transpired during a very turbulent time for administrators, adult educators, and students alike. It is a prescient study, initiated before online learning became the subject of debate that it currently is. The future of online education, and higher education in general, will be inevitably affected by COVID-19 in the months and years to come. Universities are faced with making tough decisions about online versus on-campus course delivery. This study, along with suggested follow on research, could help provide clarity during a unique and challenging time for higher education.

APPENDIX SECTION

APPENDIX A

SURVEY FACTORS

Institutional Perceptions	Academic Services	Instructional Services	Enrollment Services	Student Services
Assesses how students perceive the institution.	Assesses the services students utilize to achieve their academic goals. These services include advising, course offerings, technical assistance, online library resources, and tutoring services.	Measures students' academic experience, the instructional materials, the faculty/student interactions, evaluation procedures, and the quality of the instruction.	Assesses the processes and services related to enrolling students in the online program, including financial aid, registration, and payment procedures.	Measures the quality of student programs and services, including responses to student requests, online career services, and the bookstore.

Note: Adapted from Noel-Levitz, Inc. 2012

APPENDIX B

COLLEGE DESIGNATION

College Designation	Number of Students
College of Education	19
College of Applied Arts	29
College of Fine Arts and Communication	7
College of Health Professions	18
College of Liberal Arts	22
College of Science and Engineering	15
Other - Master's Program Not Listed	155
Other - Doctoral Program Not Listed	42
Other – Certificate program not listed	4
Total	311
No Response	10

Note: Adapted from Ruffalo Noel Levitz, 2020

APPENDIX C

SURVEY INSTRUMENT

PRIORITIES SURVEY FOR ONLINE LEARNERS
 Ruffalo Noel Levitz (mock)

1 About the responses

Each item below describes an expectation about your experiences with this program.

On the left, tell us how <u>important</u> it is for your institution to meet this expectation.	On the right, tell us how <u>satisfied</u> you are that your institution has met this expectation.
--	--

Level of importance... 1 - Not important at all 2 - Not very important 3 - Somewhat unimportant 4 - Neutral	5 - Somewhat important 6 - Important 7 - Very important N/A - Does not apply	1 - Not satisfied at all 2 - Not very satisfied 3 - Somewhat dissatisfied 4 - Neutral	...Level of satisfaction 5 - Somewhat satisfied 6 - Satisfied 7 - Very satisfied N/A - Not available/not used
---	--	---	---

1 2 3 4 5 6 7 N/A	1. This institution has a good reputation.	1 2 3 4 5 6 7 N/A
--	--	--

1 2 3 4 5 6 7 N/A	2. My program advisor is accessible by telephone and e-mail.	1 2 3 4 5 6 7 N/A
--	--	--

1 2 3 4 5 6 7 N/A	3. Instructional materials are appropriate for program content.	1 2 3 4 5 6 7 N/A
--	---	--

1 2 3 4 5 6 7 N/A	4. Faculty provide timely feedback about student progress.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	5. My program advisor helps me work toward career goals.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	6. Tuition paid is a worthwhile investment.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	7. Program requirements are clear and reasonable.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	8. Student-to-student collaborations are valuable to me.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	9. Adequate financial aid is available.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	10. This institution responds quickly when I request information.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	11. Student assignments are clearly defined in the syllabus.	1 2 3 4 5 6 7 N/A

1 2 3 4 5 6 7 N/A	12. There are sufficient offerings within my program of study.	1 2 3 4 5 6 7 N/A
-------------------	--	-------------------

About the responses

Each item below describes an expectation about your experiences with this program.

On the left, tell us how important it is for your institution to meet this expectation.

Level of importance...

1 - Not important at all
2 - Not very important
3 - Somewhat unimportant
4 - Neutral

5 - Somewhat important
6 - Important
7 - Very important
N/A - Does not apply

On the right, tell us how satisfied you are that your institution has met this expectation.

...Level of satisfaction

5 - Somewhat satisfied
6 - Satisfied
7 - Very satisfied
N/A - Not available/not used

13% Complete

1 2 3 4 5 6 7 N/A	13. The frequency of student and instructor interactions is adequate.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	14. I receive timely information on the availability of financial aid.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	15. Channels are available for providing timely responses to student complaints.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	16. Appropriate technical assistance is readily available.	1 2 3 4 5 6 7 N/A

1 2 3 4 5 6 7 N/A	17. Assessment and evaluation procedures are clear and reasonable.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	18. Registration for online courses is convenient.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	19. Online career services are available.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	20. The quality of online instruction is excellent.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	21. Adequate online library resources are provided.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	22. I am aware of whom to contact for questions about programs and services.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	23. Billing and payment procedures are convenient for me.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	24. Tutoring services are readily available for online courses.	1 2 3 4 5 6 7 N/A

About the responses

Each item below describes an expectation about your experiences with this program.

On the left, tell us how important it is for your institution to meet this expectation.

Level of importance...

1 - Not important at all
2 - Not very important
3 - Somewhat unimportant
4 - Neutral

5 - Somewhat important
6 - Important
7 - Very important
N/A - Does not apply

On the right, tell us how satisfied you are that your institution has met this expectation.

...Level of satisfaction

5 - Somewhat satisfied
6 - Satisfied
7 - Very satisfied
N/A - Not available/not used

25% Complete

1 2 3 4 5 6 7 N/A	25. Faculty are responsive to student needs.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	26. The bookstore provides timely service to students.	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	27. Campus defined item defined by institution	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	28. Campus defined item defined by institution	1 2 3 4 5 6 7 N/A

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1 2 3 4 5 6 7 N/A	29. Campus defined item defined by institution	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	30. Campus defined item defined by institution	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	31. Campus defined item defined by institution	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	32. Campus defined item defined by institution	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	33. Campus defined item defined by institution	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	34. Campus defined item defined by institution	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	35. Campus defined item defined by institution	1 2 3 4 5 6 7 N/A
1 2 3 4 5 6 7 N/A	36. Campus defined item defined by institution	1 2 3 4 5 6 7 N/A

About the responses

Each item below describes an expectation about your experiences with this program.

On the left, tell us how important it is for your institution to meet this expectation.

Level of importance...

1 - Not important at all	5 - Somewhat important
2 - Not very important	6 - Important
3 - Somewhat unimportant	7 - Very important
4 - Neutral	N/A - Does not apply

On the left, tell us how important each of the following sources of information were in your decision to enroll in this program.

38% Complete

1 2 3 4 5 6 7 N/A	37. Source of information: Catalog and brochures (printed)
1 2 3 4 5 6 7 N/A	38. Source of information: Catalog (online)
1 2 3 4 5 6 7 N/A	39. Source of information: College representatives
1 2 3 4 5 6 7 N/A	40. Source of information: Web site

1 2 3 4 5 6 7 N/A	41. Source of information: Advertisements
1 2 3 4 5 6 7 N/A	42. Source of information: Recommendation from instructor or program advisor
1 2 3 4 5 6 7 N/A	43. Source of information: Contact with current students and / or recent graduates of the program
On the left, tell us how important each of the following factors were in your decision to enroll in this program.	
1 2 3 4 5 6 7 N/A	44. Factor to enroll: Ability to transfer credits
1 2 3 4 5 6 7 N/A	45. Factor to enroll: Cost
1 2 3 4 5 6 7 N/A	46. Factor to enroll: Financial assistance available
1 2 3 4 5 6 7 N/A	47. Factor to enroll: Future employment opportunities
1 2 3 4 5 6 7 N/A	48. Factor to enroll: Reputation of institution

About the responses

Each item below describes an expectation about your experiences with this program.

On the left, tell us how important it is for your institution to meet this expectation.

Level of importance...

1 - Not important at all	5 - Somewhat important
2 - Not very important	6 - Important
3 - Somewhat unimportant	7 - Very important
4 - Neutral	N/A - Does not apply

On the left, tell us how important each of the following factors were in your decision to enroll in this program.

50% Complete

1 2 3 4 5 6 7 N/A	49. Factor to enroll: Work schedule
1 2 3 4 5 6 7 N/A	50. Factor to enroll: Flexible pacing for completing a program
1 2 3 4 5 6 7 N/A	51. Factor to enroll: Convenience

1 2 3 4 5 6 7 N/A	52. Factor to enroll: Distance from campus
1 2 3 4 5 6 7 N/A	53. Factor to enroll: Program requirements
1 2 3 4 5 6 7 N/A	54. Factor to enroll: Recommendations from employer

About the responses

Choose the one response that best applies to you for each of the questions below.

63% Complete

Summary Questions

1. So far, how has your online experience met your expectations?

2. Rate your overall satisfaction with your online experience thus far.

3. If you had to do it over, would you enroll in this program again?

About the responses

The following demographic items are asked to help us better respond to the data you have provided. Please indicate the best response for each of the following items.

75% Complete

Demographic Questions

1. Gender

2. Age

3. Ethnicity/Race

4. Current Enrollment Status

5. Current Class Load	
6. Class Level	
7. Educational Goal	
8. Employment	
9. Current Residence	
10. Marital Status	
11. Current Plans	
12. Current Online Enrollment	

About the responses	
The following demographic items are asked to help us better respond to the data you have provided. Please indicate the best response for each of the following items.	
88% Complete	
Demographic Questions	
13. Previous Online Enrollment	
14. Campus demographic item #1	
15. Campus demographic item #2	
16. Selection of Program/Major:	

Final Thoughts....

17. How likely is it that you would recommend our institution to a friend or colleague?

☐ 0 - Not at all likely

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5 - Neutral

☐ 6

☐ 7

☐ 8

☐ 9

☐ 10 - Extremely likely

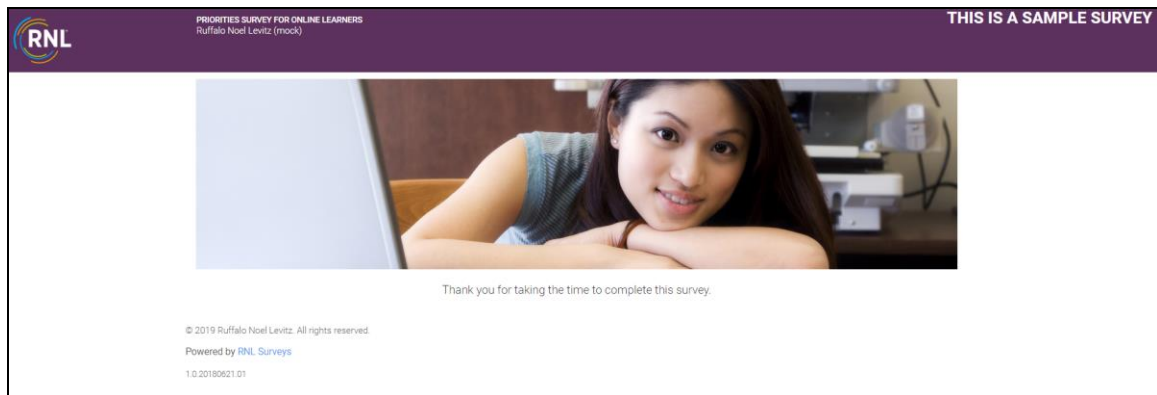
18. Please enter any comments you would like to share with this institution.

Remaining Characters: 2048

[« Previous](#)

[Complete Survey](#)

[Next »](#)



Ruffalo Noel Levitz, 2019

Campus defined items defined by the institution; survey items #27-36

1. I receive excellent institutional support from university services.
 2. Online research assistance is readily available.
 3. Online career readiness workshops are available.
 4. Opportunities for online peer to peer interactions are plentiful.
 5. Virtual conference opportunities with instructors are available.
 6. The institution's website is easy to navigate.
 7. The institution provided an informative orientation process.
 8. Applications to the program were easy to locate and complete.
 9. Student involvement opportunities are available.
 10. The layout of the online course is easy to understand.
-

Campus demographic items provided by the institution; demographic questions #14-15:

1. Have you participated in professional development opportunities such as a graduate college shop talk?
 1. I'm not sure what these are
 2. Never
 3. Once
 4. I've participated in 2-3
 5. I've participated in 4-5
 6. I've participated in more than 5
 2. Do you read the weekly graduate bulletin?
 1. I'm not sure what this is
 2. Never
 3. Once
 4. I've read this 2-3 times
 5. I've read this 4-5 times
 6. I've read this more than 5 times
-

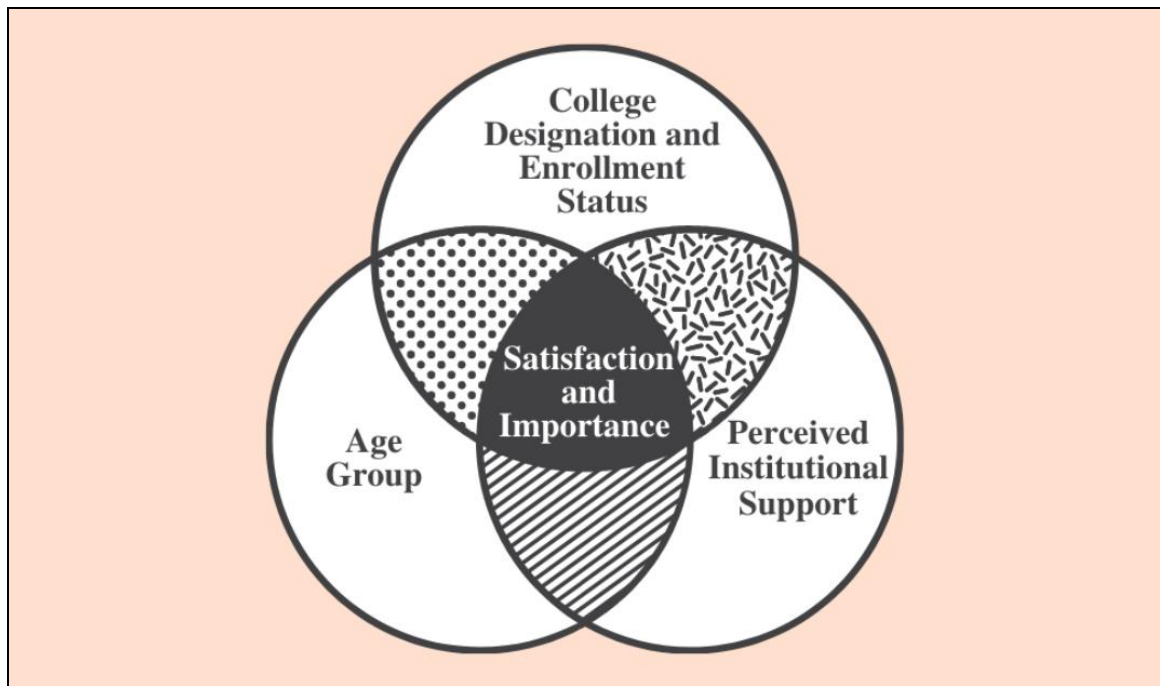
APPENDIX D

MATRIX OF RESEARCH QUESTIONS

Research Questions	Independent Variables	Dependent Variables
Research Question #1:		
Is there a positive relationship between Perceived Level of Institutional Support and Level of Satisfaction for online graduate students?	Perceived Level of Institutional Support	Level of Satisfaction
1a Is there a strong association between Age Group and online graduate students' Level of Satisfaction?	Age Group	Level of Satisfaction
1b Is there a strong association between College Designation and online graduate students' Level of Satisfaction?	College Designation	Level of Satisfaction
1c Is there a strong association between Current Enrollment Status and online graduate students' Level of Satisfaction?	Current Enrollment Status (primarily online vs. primarily on-campus)	Level of Satisfaction
Research Question #2:		
Is there a positive relationship between Perceived Level of Institutional Support and Level of Importance for online graduate students?	Perceived Level of Institutional Support	Level of Importance
2a Is there a strong association between Age Group and online graduate students' Level of Importance?	Age Group	Level of Importance
2b Is there a strong association between College Designation and online graduate students' Level of Importance?	College Designation	Level of Importance
2c Is there a strong association between Current Enrollment Status and online graduate students' Level of Importance?	Current Enrollment Status (primarily online vs. primarily on-campus)	Level of Importance

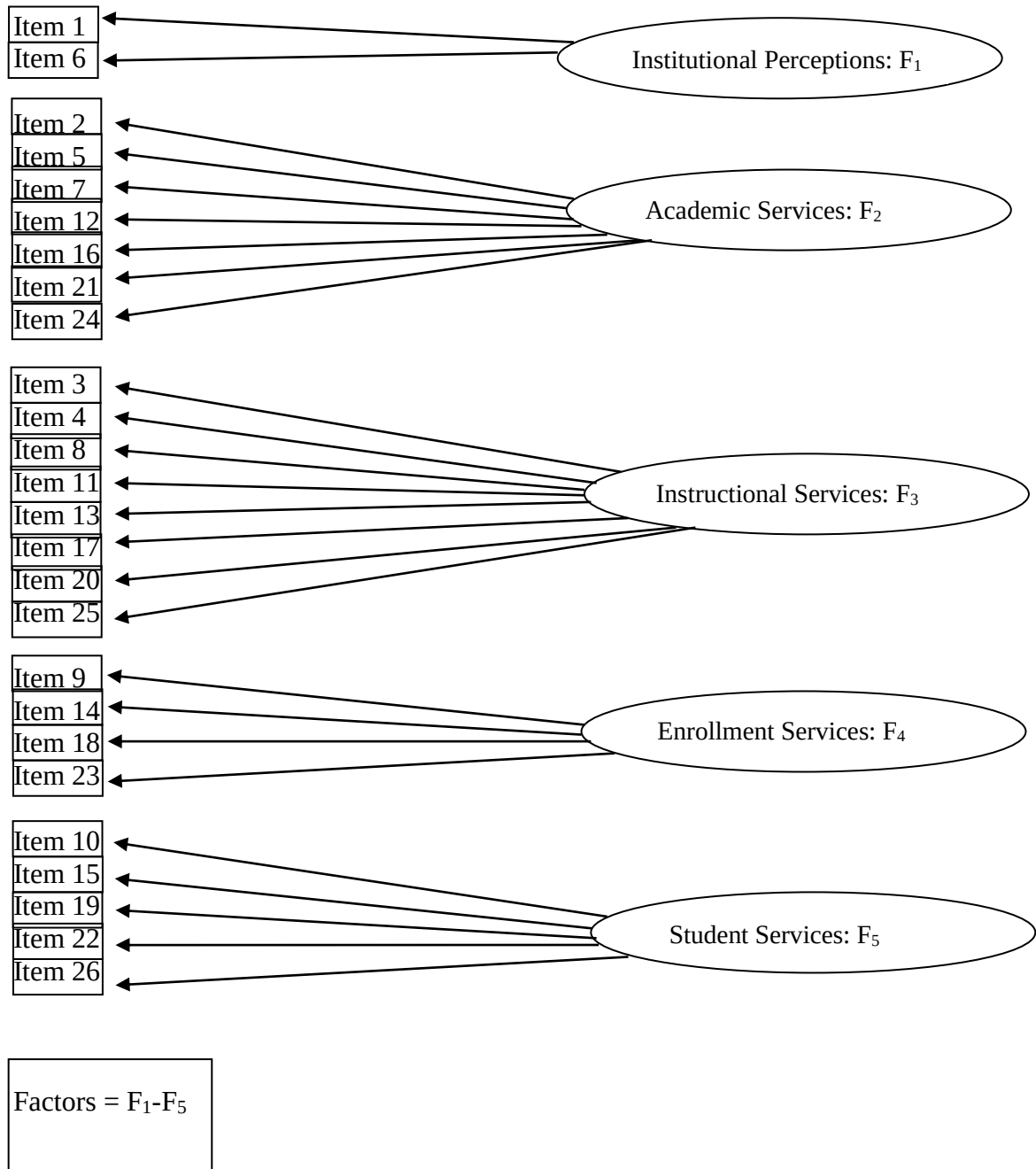
APPENDIX E

VENN DIAGRAM



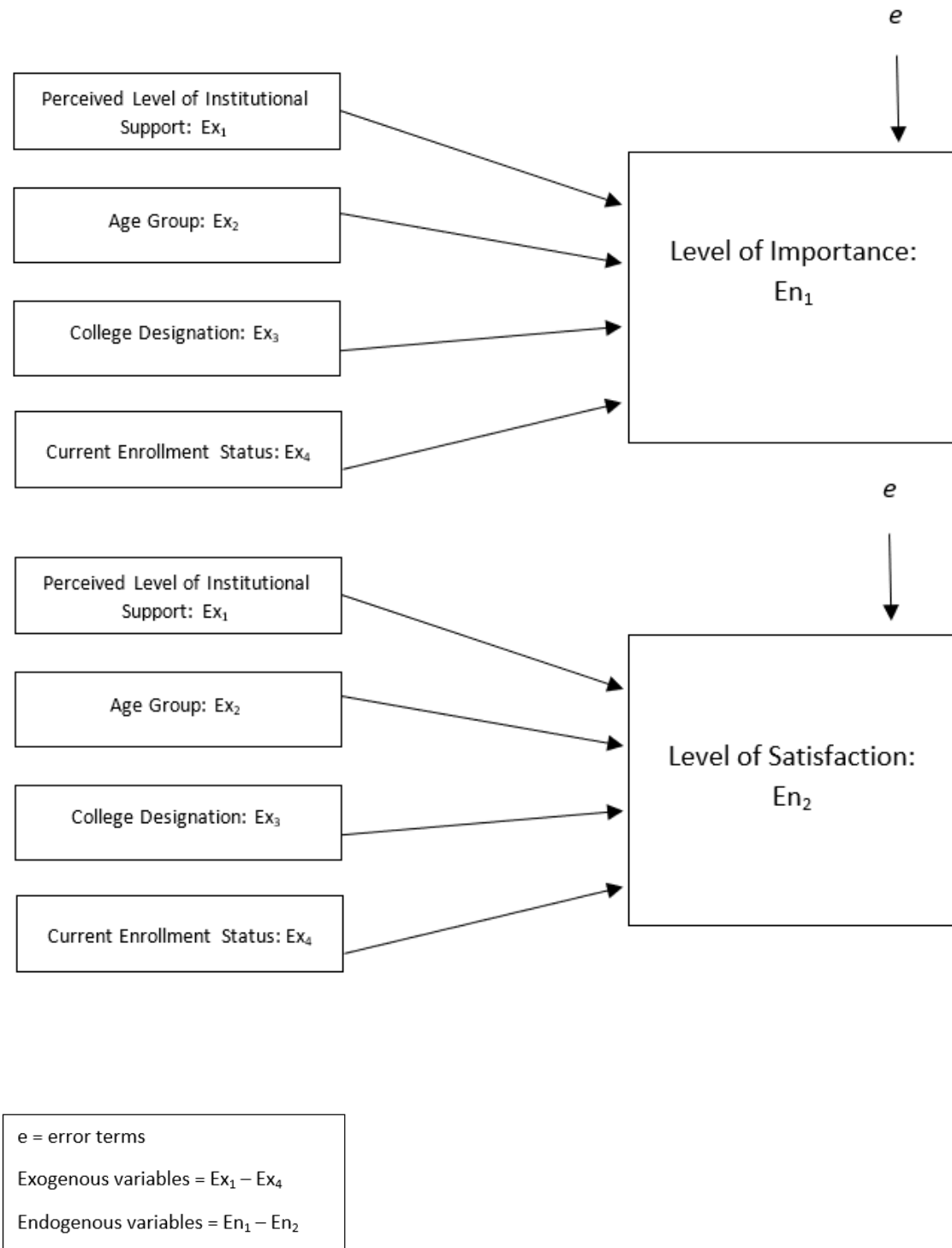
APPENDIX F

STRUCTURAL EQUATION MODELING: CONFIRMATORY FACTOR ANALYSIS



APPENDIX G

STRUCTURAL EQUATION MODELING: PATH ANALYSIS



APPENDIX H

DEFINITION OF TERMS

Institutional Support: Services provided by the university to help reduce school-related stress (Markle, 2015). Institutional support includes academic services, enrollment services, instructional services, and student services.

Adult Students: Non-traditional students, often over the age of 24 (Madden, 2015). “This population defies definition in ways beyond age, for they represent diversity from every perspective” (Madden, 2015, p. 93).

Optimal Learning Methods: Instruction in ways that enhance learning (Vasquez et al., 2015).

Online Learning: Educational courses with at least 50% of instruction and coursework posted online.

Adult Education: Learning programs provided to non-traditional students, often over the age of 24 (Madden, 2015). “Adults enter the educational activity with a greater volume and more varied experiences than do children; adults have a readiness to learn those things that they need to know in order to cope effectively with real-life situations; adults are life-centered in their orientation to learning; and adults are more responsible to internal motivators than external motivators. (Knowles et al., 2014 , p. 70).

Constructivism: “epistemological considerations focusing exclusively on 'the meaning-making activity of the individual mind'” (Crotty, 1998, p. 58). “Schwandt (1994, p. 125) states that ‘constructivists are deeply committed to the contrary view that what we take to be objective knowledge and truth is the result of perspective.

Constructivists, he adds, emphasize the instrumental and practical function of theory construction and knowing” (Crotty, 1998, p. 57)

Constructionism: “. . . all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context” (Crotty, 1998, p. 42). “According to constructionism, we do not create meaning. We construct meaning. We have something to work with. What we have to work with is the world and objects in the world” (Crotty, 1998, pp. 43-44).

Online Graduate Programs: Fully or partially online master’s or doctoral programs in which, at least 50% of instruction and coursework is online. More often than not, enrolled students are over the age of 24.

Online Graduate Students: University students enrolled in at least one online graduate course.

Level of Satisfaction: Students will evaluate how pleased they are with a survey factor. Measurement provided by online learning survey results and quantitative data. Levels will be based off a one through seven Likert scale. Levels of one through three will be considered low, with one being the lowest satisfaction level. Levels of five through seven will be considered high, with seven being the highest satisfaction level.

Level of Importance: Students will evaluate the value they place on each survey factor. Measurement provided by online learning survey results and quantitative data. Levels will be based off a one through seven Likert scale. Levels of one through three will be considered low, with one being the lowest importance level. Levels of five through seven will be considered high, with seven being the highest importance level.

Learning Retention: True learning retention occurs when the adult learner is able to apply information and concepts to her/his situation. Merriam and Bierema (2014) suggested learning retention would result by linking theory to practice.

Structural Equation Model (SEM): “A collection of statistical techniques that allow a set of relationships between one or more independent variables, either continuous or discrete, and one or more dependent variables, either continuous or discrete, to be examined” (Tabachnick & Fidell, 2019, p. 676). “SEM allows questions to be answered that involve multiple regression analyses of factors. When exploratory factor analysis is combined with multiple regression analyses, you have SEM” (Tabachnick & Fidell, 2019, p. 676).

Path Analysis: Connections among correlated variables will be examined through this detailed analysis (Fraenkel et al., 2015). Path analysis looks at both direct and indirect relationships and reveals the strength of such relationships.

Instructional Design: “instructional materials and courses, particularly for digital delivery” (Intentional Futures, 2016, p. 3). Instructional design includes analyzing learner needs and developing a course strategy to meet such needs; it is a critical element in developing an online learning platform. High quality instructional design is believed to increase course effectiveness.

Institutional Perceptions: “Assesses how students perceive the institution” (Noel-Levitz, 2012, p. 2) and if the institution has a good reputation or not. Such perceptions often impact student enrollment and retention at a university.

Academic Services: University support services designed to help students who reside both on and off campus with scholastic assistance. Examples of such services

include “advising, course offerings, technical assistance, online library resources, and tutoring services” (Noel-Levitz, 2012, p. 2).

Instructional Services: University services designed to support a student’s educational experience. Examples include “instructional materials, the faculty/student interactions, evaluation procedures, and the quality of the instruction” (Noel-Levitz, 2012, p. 2).

Enrollment Services: Programs designed to assist students before, during, and after the university enrollment process. Services help to ensure students have accurate and current information on the enrollment process and availability to necessary resources. Examples include “financial aid, registration, and payment procedures” (Noel-Levitz, 2012, p. 2).

Student Services: University services designed to support student needs that fall outside the scope of the other services aforementioned; such services vary according to university. The online survey measures student importance and satisfaction in regard to “responses to student requests, online career services, and the bookstore” (Noel-Levitz, 2012, p. 2).

APPENDIX I
PARTICIPANT EMAILS

Initial email:

To: graduatestudentdistribution
From: rreardon
BCC: kmn
Subject: Online Learning Survey

This email message is an approved request for participation in research that has been approved or declared exempt by the Institutional Review Board (IRB).

Dear Graduate Student,

Kerry M. Elliott, a graduate student at this university, is conducting research about online learning for graduate students. The information gathered will be used to assist the university assess online graduate programs. You are being asked to complete this survey because you are a graduate student. If you are now or have previously been enrolled in at least one online graduate course, I invite you to participate in this study; for the purposes of this study, an online course is defined as a course with at least 50% of instruction and coursework posted online.

Note: please do not consider the remote or alternative delivery that is being done in response to COVID-19 in your survey evaluation. The intent of this survey is to evaluate fully online courses or courses with online components, classified as such in the university graduate catalog.

Participation is voluntary. The survey will take approximately 15 minutes or less to complete. You must be at least 18 years old to take this survey.

This study involves no foreseeable serious risks. We ask that you try to answer all questions; however, if there are any items that make you uncomfortable or that you would prefer to skip, please leave the answer blank. Your responses are anonymous.

Reasonable efforts will be made to keep the personal information in your research record private and confidential. Any identifiable information obtained in connection with this study will remain confidential and will be disclosed only with your permission or as required by law. The members of the research team, and the university may access the data. The ORC monitors research studies to protect the rights and welfare of research participants.

Your name will not be used in any written reports or publications which result from this research. Data will be kept for three years (per federal regulations) after the study is completed and then destroyed.

If you have any questions or concerns, feel free to contact Kerry M. Elliott or her faculty advisor Dr. Robert F. Reardon.

This project #7171 was approved by the university IRB on [insert IRB approval date or date of Exemption]. Pertinent questions or concerns about the research, research participants' rights, and/or research-related injuries to participants should be directed to the IRB chair.

If you would prefer not to participate, please do not fill out a survey.

If you consent to participate, please complete the survey below:

<https://survey.ruffalonl.com/#/entry/sample/sps/mock/50096>

Kerry Elliott

Doctoral Student

Follow up email distributed one week after initial email

APPENDIX J

FACULTY RECRUITMENT EMAIL

Good Evening,

I hope you are doing well. My name is Kerry Elliott and I am a doctoral student. I am currently working with the university on a study to assess online learning for graduate students. This study will be for my dissertation, examining the relationship of institutional support to online graduate learning.

The purpose of this study is to investigate the importance of institutional support on online adult students' satisfaction rates and to determine how institutional support impacts student importance rates in online adult education programs. The study will extend existing knowledge in the area of online adult education programs. It will investigate best practices and identify how universities can better support online graduate learners by identifying gaps between importance rates and satisfaction rates. The research and data collected will identify the factors that matter most to online adult learners and provide a benchmark for assessment.

Research questions include: 1) Is there a positive relationship between Perceived Level of Institutional Support and Level of Satisfaction for online graduate students? 2) Is there a positive relationship between Perceived Level of Institutional Support and Level of Importance for online graduate students?

I have attached information about the survey instrument, the Ruffalo Noel Levitz *Priorities Survey for Online Learners*, and a link to access a sample survey: <https://survey.ruffalonl.com/#/entry/sample/sps/mock/50096> (please select 'Start your survey').

Additional information on the Ruffalo Noel Levitz *Priorities Survey for Online Learners* can be found in the attached document and links below:

<https://www.ruffalonl.com/about-ruffalo-noel-levitz/the-history-of-ruffalo-noel-levitz/>

<https://www.ruffalonl.com/complete-enrollment-management/student-success/student-satisfaction-assessment/priorities-survey-for-online-learners/>

I have more information that I would like to discuss with you and I truly believe this will be a valuable study for the university! Please let me know your thoughts and if you are available to set up a meeting/call to discuss further.

Kind Regards,
Kerry Madsen Elliott

Email attachment provided in Appendix K

APPENDIX K

INSTRUMENT INFORMATIONAL DOCUMENT

The Priorities Survey for Online Learners

The Priorities Survey for Online Learners (PSOL) is appropriate for students in online distance learning programs. The PSOL is similar in structure and design to the Noel-Levitz Student Satisfaction Inventory (SSI) but the items have been modified and crafted to be appropriate for online learners.

The PSOL gives the institution an opportunity to examine the priorities of their online learning students as a unique group. The data help you to identify what matters to your online learners and how satisfied these students are. With this information, institutions can target areas most in need of improvement in order to retain these students.

The Priorities Survey for Online Learners asks students to respond with a level of importance and a level of satisfaction. A performance gap is calculated by subtracting the satisfaction score from the importance score.

Versions of the PSOL

There is only one version of the Priorities Survey for Online Learners. It is appropriate for administration to students who are completing online programs as their primary interaction with an institution, or as a supplement to on-campus courses. The norm group includes online learning students who have completed the PSOL.

Item Structure on the PSOL

There are 26 standard items rated for importance and satisfaction on the PSOL.

The PSOL includes ten items which may be defined by the institution and rated for importance and satisfaction.

The survey includes seven items that assess sources of information for the student. These items only ask for an importance rating and do not include satisfaction or performance gap scores.

The survey includes 11 items that assess pre-enrollment factors. These items only ask for an importance rating and do not include satisfaction or performance gap scores.

Three summary items are included the survey:

- So far, how has your online experience met your expectations?

- 1 - Much worse than I expected
- 2 - Quite a bit worse than I expected
- 3 - Worse than I expected
- 4 - About what I expected
- 5 - Better than I expected
- 6 - Quite a bit better than I expected
- 7 - Much better than I expected

- Rate your overall satisfaction with your online experience here thus far.

- 1 - Not satisfied at all
- 2 - Not very satisfied
- 3 - Somewhat dissatisfied
- 4 - Neutral
- 5 - Somewhat satisfied
- 6 - Satisfied
- 7 - Very satisfied

Reliability and Validity

The PSOL was derived from the Noel-Levitz Student Satisfaction Inventory™, which has shown significant reliability and validity over time. In statistically valid terms, student satisfaction can be associated readily with numerous measures of institution success, including retention, graduation rates, and loan default rates. In a pilot study using 1,315 students, the scales for the PSOL show acceptable reliability, with a Cronbach alpha coefficient of 0.77.

A prior study on the validity of the Student Satisfaction Inventory (SSI) demonstrated convergent validity by correlating satisfaction scores from the SSI with satisfaction scores from the College Student Satisfaction Questionnaire (CSSQ), another statistically reliable satisfaction instrument. The Pearson correlation between these two instruments ($r=.71$; $p<.00001$) is high enough to indicate that the SSI's satisfaction scores measure the same satisfaction construct as the CSSQ's scores, and yet the correlation is low enough to indicate that there are distinct differences between the two instruments.

Because the PSOL is a relatively new instrument, the measures have not yet been associated with any criterion variables. Like its sibling inventories, the PSOL demonstrates significant statistical reliability.

The Inventory Development

The Priorities Survey for Online Learners was modeled on the Student Satisfaction Inventory. The text of the items was modified and crafted by Noel-Levitz to be appropriate for distance learning student responses.

The PSOL was available beginning in 2001. As of 2012, it has been administered by more than 180 institutions and completed by over 230,000 students.

Interpreting Your Results

For guidance on interpreting your results, please refer to the General Interpretive Guide or contact Noel-Levitz for additional assistance.

Noel-Levitz
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Coralville, IA 52241

Phone: 800-876-1117

Fax: 319-626-8380

E-mail: ContactUs@noellevitz.com

Website: www.noellevitz.com

- If you had it to do over, would you enroll in this program again?

1 - Definitely not

2 - Probably not

3 - Maybe not

4 - I don't know

5 - Maybe yes

6 - Probably yes

7 - Definitely yes

There are 13 standard demographic items on the PSOL.

The PSOL includes two optional demographic item with up to six responses (students may only select one response). Consult your survey administrator for details on the items requested by your institution.

The survey also includes an optional demographic item to capture the students' major or program with a four-digit numeric code. Again, consult your survey administrator for details on the corresponding major or programs.

The Scales

The items on the PSOL have been analyzed statistically and conceptually to form comprehensive scales. A description of the scales follows.

PSOL: 5 scales

- Institutional Perceptions
- Academic Services
- Instructional Services
- Enrollment Services
- Student Services

Description of Scales

Institutional Perceptions: assesses how students perceive your institution.

Academic Services: assesses the services students utilize to achieve their academic goals. These services include advising, course offerings, technical assistance, online library resources, and tutoring services.

Instructional Services: measures students' academic experience, the instructional materials, the faculty/student interactions, evaluation procedures, and the quality of the instruction.

Enrollment Services: assesses the processes and services related to enrolling students in the online program, including financial aid, registration, and payment procedures.

Student Services: measures the quality of student programs and services, including responses to student requests, online career services, and the bookstore.

The items which contribute to each scale can be reviewed within your campus report. The HTML electronic report includes the items within the scales on the scale report; when you select the scale name it will expand to show the items. In the paper report, there is a section which provides the scales alphabetically and the list of items within the scale.

APPENDIX L

PROPOSED SCHEDULES AND MILESTONES

2019	
June-August	Research topic; develop draft Literature Review, Ch. 2 Conduct pilot study; distribute online survey
September-December	Complete Ch. 1-3; finalize dissertation proposal Finalize online survey for quantitative SPSS study
2020	
March	Defend dissertation proposal Apply for IRB approval
March-April	Obtain IRB approval
April-May	Distribute online survey to university students Review data/survey responses Utilize SPSS for data analysis
May	Conduct and finalize data analysis Complete Ch. 4 & 5 Finalize dissertation Schedule defense
June	Defend dissertation Revise dissertation as required Complete and submit final dissertation Apply to graduate
August	Graduate

APPENDIX M

RESULTS: PRIORITIES SURVEY FOR ONLINE LEARNERS

Item	Importance	Satisfaction	Satisfaction / SD	Gap Score
1. This institution has a good reputation.	6.14	5.61	5.61 / 1.30	0.53
2. My program advisor is accessible by telephone and e-mail.	6.61	6.2	6.20 / 1.23	0.41
3. Instructional materials are appropriate for program content.	6.61	5.86	5.86 / 1.26	0.75
4. Faculty provide timely feedback about student progress.	6.52	5.61	5.61 / 1.46	0.91
5. My program advisor helps me work toward career goals.	6.3	5.47	5.47 / 1.72	0.83
6. Tuition paid is a worthwhile investment.	6.49	5.36	5.36 / 1.48	1.13
7. Program requirements are clear and reasonable.	6.54	5.82	5.82 / 1.31	0.72
8. Student-to-student collaborations are valuable to me.	5.36	5.37	5.37 / 1.45	-0.01
9. Adequate financial aid is available.	6.23	5.21	5.21 / 1.68	1.02
10. This institution responds quickly when I request information.	6.39	5.67	5.67 / 1.39	0.72
11. Student assignments are clearly defined in the syllabus.	6.59	5.88	5.88 / 1.24	0.71
12. There are sufficient offerings within my program of study.	6.53	5.23	5.23 / 1.53	1.3

Item	Importance	Satisfaction	Satisfaction / SD	Gap Score
13. The frequency of student and instructor interactions is adequate.	6.35	5.84	5.84 / 1.33	0.51
14. I receive timely information on the availability of financial aid.	6.17	5.54	5.54 / 1.49	0.63
15. Channels are available for providing timely responses to student complaints.	6.17	5.17	5.17 / 1.66	1
16. Appropriate technical assistance is readily available.	6.3	6	6.00 / 1.24	0.3
17. Assessment and evaluation procedures are clear and reasonable.	6.46	5.88	5.88/1.26	0.58
18. Registration for online courses is convenient.	6.44	5.98	5.98 / 1.42	0.46
19. Online career services are available.	5.62	5.68	5.68 / 1.31	-0.06
20. The quality of online instruction is excellent.	6.37	5.35	5.35 / 1.51	1.02
21. Adequate online library resources are provided.	6.52	6.25	6.25 / 1.08	0.27
22. I am aware of whom to contact for questions about programs and services.	6.31	5.68	5.68 / 1.56	0.63
23. Billing and payment procedures are convenient for me.	6.43	6.07	6.07 / 1.26	0.36
24. Tutoring services are readily available for online courses.	5.51	4.73	4.73 / 1.73	0.78

26. The bookstore provides timely service to students.	5.64	5.23	5.23 / 1.64	0.41
27. Campus item: I receive excellent institutional support from university services.	6.1	5.38	5.38 / 1.53	0.72
28. Campus item: Online research assistance is readily available.	6.14	5.72	5.72 / 1.36	0.42
29. Campus item: Online career readiness workshops are available.	5.5	5.65	5.65 / 1.49	-0.15
30. Campus item: Opportunities for online peer to peer interactions are plentiful.	5.39	5.28	5.28 / 1.54	0.11
31. Campus item: Virtual conference opportunities with instructors are available.	5.96	5.92	5.92 / 1.34	0.04
32. Campus item: The institution's website is easy to navigate.	6.28	5.24	5.24 / 1.57	1.04
33. Campus item: The institution provided an informative orientation process.	5.96	5.23	5.23 / 1.77	0.73
34. Campus item: Applications to the program were easy to locate and complete.	6.38	5.93	5.93 / 1.25	0.45
35. Campus item: Student involvement opportunities are available.	5.49	5.41	5.41 / 1.52	0.08

36. Campus item: The layout of the online course is easy to understand.	6.47	5.61	5.61 / 1.49	0.86
37. Source of information: Catalog and brochures (printed)	4.17			
38. Source of information: Catalog (online)	6.14			
39. Source of information: College representatives	4.71			
40. Source of information: Web site	6.49			
41. Source of information: Advertisements	3.41			
42. Source of information: Recommendation from instructor or program advisor	5.86			
43. Source of information: Contact with current students and / or recent graduates of the program	5.59			
44. Factor to enroll: Ability to transfer credits	4.69			
45. Factor to enroll: Cost	6.11			
46. Factor to enroll: Financial assistance available	5.77			
47. Factor to enroll: Future employment opportunities	6			
48. Factor to enroll: Reputation of institution	5.81			

49. Factor to enroll:	
Work schedule	6.03
50. Factor to enroll:	
Flexible pacing for	
completing a program	5.91
51. Factor to enroll:	
Convenience	6.06
52. Factor to enroll:	
Distance from campus	5.62
53. Factor to enroll:	
Program	
requirements	6.16
54. Factor to enroll:	
Recommendations	
from employer	4.42

Note: Adapted from Ruffalo Noel Levitz, 2020

APPENDIX N
DEMOGRAPHICS

Sample by Gender

Gender	Number of Students	Percentage of Sample
Female	204	71.33%
Male	82	28.67%
Total	286	100%
No Response	35	

Sample by Educational Goal

Educational Goal	Number of Students	Percentage of Sample
Master's degree	235	75.08%
PhD or professional degree	76	24.28%
Certification/other	2	0.64%
Total	313	100.00%
No Response	8	

Sample by Age

Age	Number of Students	Percentage of Sample
19 to 24	43	15.03%
25 to 34	113	39.51%
35 to 44	66	23.08%
45 to 54	38	13.29%
55 to 64	22	7.69%
65 and over	4	1.40%
Total	286	100.00%
No Response	35	

Sample by Employment

Employment	Number of Students	Percentage of Sample
Full-time	135	43.27%
Part-time	119	38.14%
Not employed	58	18.59%
Total	312	100.00%
No Response	9	

Sample by Ethnicity/Race

Ethnicity/Race	Number of Students	Percentage of Sample
African-American	20	7.04%
American Indian or Alaskan	2	.70%
Native Asian or Pacific Islander	16	5.63%
Caucasian/White	157	55.28%
Hispanic	69	24.30%
Other race	6	2.11%
Race - Prefer not to respond	14	4.93%
Total	284	100.00%
No Response	37	

Sample by Current Enrollment Status

Age	Number of Students	Percentage of Sample
Primarily online	129	40.82%
Primarily on-campus	187	59.18%
Total	316	100.00%
No Response	5	

Sample: Do you read the weekly graduate bulletin?

Weekly Graduate Bulletin	Number of Students	Percentage of Sample
Not sure what this is	18	5.77%
Never	45	14.42%
Once	29	9.29%
Read 2-3 times	97	31.09%
Read 4-5 times	40	12.82%
Read more than 5 times	83	26.60%
Total	312	100.00%
No Response	9	

Sample by Current Online Enrollment

Current Online Enrollment	Number of Students	Percentage of Sample
1-3 credits	102	33.89%
4-6 credits	83	27.57%
7-9 credits	83	27.57%
10-12 credits	21	6.98%
13-15 credits	4	1.33%
More than 15 credits	8	2.66%
Total	301	100.00%
No Response	20	

Sample by Previous Online Enrollment

Previous Online Enrollment	Number of Students	Percentage of Sample
No classes	79	25.73%
1-3 classes	137	44.63%
4-6 classes	30	9.77%
7-9 classes	19	6.19%
10-12 classes	22	7.17%
13-15 classes	4	1.30%
More than 15 classes	16	5.21%
Total	307	100.00%
No Response	14	

Sample: Have you participated in professional development opportunities such as a graduate college shop talk?

Professional Development Opportunities	Number of Students	Percentage of Sample
Not sure what these are	29	9.12%
Never	132	41.51%
Once	62	19.50%
Participated in 2-3	56	17.61%
Participated in 4-5	14	4.40%
Participated in more than 5	25	7.86%
Total	318	100.00%
No Response	3	

Sample by Current Plans

Current Plans	Number of Students	Percentage of Sample
Complete degree online	96	30.87%
Complete degree on campus	186	59.81%
Transfer credits	2	0.64%
Complete this course	27	8.68%
Total	311	100.00%
No Response	10	

Note: All Tables Adapted from Ruffalo Noel Levitz, 2020

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