ONLINE STUDENT ENGAGEMENT: PERCEPTIONS OF THE IMPACT ON STUDENT LEARNING AND EFFECTIVE PRACTICES

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Abstract

In the current environment focused on quality, documenting online program quality has become an imperative for higher education leaders. Student engagement is considered an essential element of effective academic programs, and numerous studies of face-to-face academic programs have documented a connection between student engagement and student learning. There have been few efforts to evidence the relationship between student engagement and student learning in online programs. This mixed methods sequential explanatory study examined the relationship among student perceptions of their levels of engagement in online courses, demographic characteristics, and perceptions of their learning. Participants were online students enrolled in online degrees at a large private institution in the Northeast. The study’s quantitative phase employed a survey based on items from the National Survey of Student Engagement. Correlation analyses showed statistically significant correlations (at $p < .05$) between each of four NSSE-define benchmarks of engagement and three NSSE-defined dimensions of learning; however, $t$-tests and ANOVA showed few significant differences in perceptions between the subgroups within the demographic categories. The qualitative phase involved semi-structured interviews with 10 volunteers from among the survey participants. Five broad themes involving factors and practices that students believe increase their engagement and learning were identified through thematic analysis of the interviews. These themes include faculty relationships with students, student to student connections, course design and functionality, student behavior and characteristics, and academic challenge. These qualitative themes converged significantly with, and therefore reinforce, the four benchmarks of engagement identified in the quantitative phase of the study.
Keywords: online education, student engagement, learning outcomes, accountability, academic challenge, active learning, collaborative learning
# Table of Contents

Chapter 1: Introduction ................................................................................................................. 10
   Statement of the Problem ....................................................................................................... 10
   Significance of Research Problem ......................................................................................... 12
   Positionality Statement .......................................................................................................... 14
   Research Questions ................................................................................................................ 15
   Paper Contents and Organization .......................................................................................... 15
   Definition of Terms ............................................................................................................... 16

Chapter 2: Theoretical Framework and Literature Review .......................................................... 19
   Theoretical Framework .......................................................................................................... 19
   Evolution and Current Context of Online Education ............................................................ 22
      Growth of online education .............................................................................................. 24
      Accountability for quality in higher education ................................................................. 25
   Student Engagement .............................................................................................................. 27
      Student engagement and learning ..................................................................................... 31
   National Survey of Student Engagement ............................................................................... 35
      Level of academic challenge ............................................................................................. 37
      Active and collaborative learning ..................................................................................... 37
      Student-faculty interaction ............................................................................................... 38
      Enriching educational experiences ................................................................................... 38
      NSSE effectiveness as measurement tool. ........................................................................ 38
   Summary ................................................................................................................................ 40

Chapter 3: Methodology ............................................................................................................... 43
   Research Questions, Purpose and Problem ........................................................................... 43
      Research questions ............................................................................................................ 43
      Research purpose and problem ......................................................................................... 44
      Variables ........................................................................................................................... 45
   Research Design .................................................................................................................... 45
      Quantitative phase ............................................................................................................. 46
      Qualitative phase ............................................................................................................. 49
   Population and Sampling ....................................................................................................... 49
Site and participants.......................................................................................................... 49
Sampling – quantitative phase ......................................................................................... 50
Sampling – qualitative phase ............................................................................................ 52
Data Collection .................................................................................................................. 52
Instruments – quantitative phase ....................................................................................... 52
Instrument validity and reliability – quantitative phase .................................................... 55
Instruments – qualitative phase ......................................................................................... 57
Procedures – quantitative phase ........................................................................................ 58
Procedures – qualitative phase .......................................................................................... 59
Data Analysis ....................................................................................................................... 60
Quantitative phase ............................................................................................................. 60
Qualitative phase ............................................................................................................... 61
Validity, Reliability and Generalizability .............................................................................. 61
Protection of Human Subjects ............................................................................................... 63
Ethical Considerations ......................................................................................................... 64
Chapter 4: Research Findings ............................................................................................. 66
Quantitative Phase – Survey .............................................................................................. 66
Survey Respondents’ Demographic Profile .......................................................................... 67
Reliability of Data for Engagement Benchmarks and Dimensions of Learning ................. 69
Survey Descriptive Statistics – Engagement and Learning Items ....................................... 72
Total Engagement Score .................................................................................................... 85
Research Question One ....................................................................................................... 88
Research Question One Summary ....................................................................................... 93
Research Question Two ...................................................................................................... 94
Demographic Tests of Differences ..................................................................................... 95
Research Question Two Summary ..................................................................................... 109
Qualitative Phase – Interviews ........................................................................................ 109
Interviewee Demographics ............................................................................................... 110
Research Question Three and Sub-Questions ..................................................................... 113
Interview Format and Content ......................................................................................... 113
Analysis of Interview Data ............................................................................................... 115
Online Student Engagement Thematic Analysis Network .................................................. 115
Qualitative Findings Summary .......................................................................................... 127
Convergence and Divergence of Findings for Mixed Methods Model ............................... 128
Chapter 5 – Discussion of the Research Findings .............................................................. 133
  Overview of Major Findings ......................................................................................... 134
  Discussion of Findings in Relationship to Problem of Practice .................................. 139
  Discussion of Findings in Relationship to the Theoretical Framework ....................... 140
  Discussion of Findings in Relationship to the Literature Review .............................. 142
  Discussion of Findings in Relationship to Research Design ....................................... 146
  Limitations .................................................................................................................... 148
  Implications for Educational Practice ......................................................................... 150
  Conclusion ................................................................................................................. 152
References ..................................................................................................................... 154
Appendix A ...................................................................................................................... 164
Appendix B ...................................................................................................................... 172
Appendix C ...................................................................................................................... 173
Appendix D ...................................................................................................................... 175
LIST OF TABLES

Table

1  A Conceptual Organizer for Student Engagement........................................ 31
2  Three-Dimensional Approach to Understanding Engagement......................... 34
3  Survey Item Categorization by Question Number......................................... 54
4  Descriptive Statistics of Student Demographics........................................... 68
5  Survey Items – Elements of Benchmarks of Engagement............................... 70
6  Survey Items – Elements of Dimensions of Learning..................................... 70
7  Cronbach’s Alpha for Benchmarks and Dimensions..................................... 71
8  Statistics for Engagement Benchmark: Level of Academic Challenge I.......... 74
9  Statistics for Engagement Benchmark: Level of Academic Challenge II......... 76
10 Statistics for Engagement Benchmark: Active & Collaborative Learning...... 78
11 Statistics for Engagement Benchmark: Student-Faculty Interaction............... 80
12 Statistics for Engagement Benchmark: Enriching Educational Experiences... 82
13 Statistics for Three Dimensions of Perceptions of Learning......................... 84
14 Engagement Scores for Total Group and by Demographic Categories............ 87
15 Correlation – Level of Academic Challenge and Dimensions of Learning...... 89
16 Correlation – Enriching Educational Experiences & Dimensions of Learning 90
17 Correlation – Student-Faculty Interaction & Dimensions of Learning.......... 91
18 Correlation – Active-Collaborative Learning & Dimensions of Learning....... 93
19 t-Tests – Engagement Benchmarks & Learning Dimensions by Gender.......... 97
20 t-Tests – Engagement Benchmarks & Learning Dimensions by Level........... 98
21 ANOVA – Benchmarks & Dimensions by Age Range.................................. 100
<table>
<thead>
<tr>
<th></th>
<th>ANOVA – Benchmarks &amp; Dimensions by Employment Status</th>
<th>102</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>ANOVA – Benchmarks &amp; Dimensions by # of Courses Enrolled</td>
<td>104</td>
</tr>
<tr>
<td>24</td>
<td>ANOVA – Benchmarks &amp; Dimensions by # of Courses Completed</td>
<td>106</td>
</tr>
<tr>
<td>25</td>
<td>ANOVA – Benchmarks &amp; Dimensions by Grades Earned</td>
<td>108</td>
</tr>
<tr>
<td>26</td>
<td>Engagement Scores and Demographic Information – Interviewees</td>
<td>112</td>
</tr>
<tr>
<td>27</td>
<td>Questions for Semi-Structured Interviews</td>
<td>114</td>
</tr>
<tr>
<td>28</td>
<td>Triangulation of Qualitative Themes with Benchmarks of Engagement</td>
<td>129</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>1</td>
<td>Tinto’s Model of Student Departure</td>
<td>21</td>
</tr>
<tr>
<td>2</td>
<td>Sequential Explanatory Design</td>
<td>46</td>
</tr>
<tr>
<td>3</td>
<td>Online Student Engagement Thematic Analysis Network</td>
<td>117</td>
</tr>
<tr>
<td>4</td>
<td>Ranking of Benchmarks and Broad Qualitative Themes</td>
<td>131</td>
</tr>
</tbody>
</table>
Online Student Engagement:
Perceptions of the Impact on Student Learning and Effective Practices

Chapter 1: Introduction

Statement of the Problem

In the current environment of higher education focused on quality and accountability, it has never been more important for institutions to be able to meaningfully assess the quality and effectiveness of their academic programs (Secolsky & Denison, 2012). Nowhere has the quality focus been more intense than within the rapidly growing realm of online higher education, where despite rapid growth in enrollment, skepticism remains on the overall quality and outcomes of online learning (Allen & Seaman, 2014; Public Agenda, 2013). Addressing this skepticism by enhancing and documenting online program quality is imperative for academic leaders and should be a key objective of all institutions offering online programs (Scull, Kendrick, Shearer, & Offerman, 2011). A crucial strategy to validate the quality and effectiveness of an academic program, whether delivered face-to-face or online, is to document and report on the student learning in the program through various forms of assessment (Arum & Roksa, 2011; Judd & Keith, 2012). Based on these and other similar references, it appears to be generally believed that academic programs that can demonstrate that enrolled students have learned by gaining specific knowledge and skills during the course of their studies are high quality programs (Dickeson, 2010; Judd & Keith, 2012; Leveille, 2006; Palmer, 2012; Young & Norgard, 2006).

Student engagement is commonly considered an essential element of effective academic courses and programs (Carini, Kuh, & Klein, 2006), and numerous studies of face-to-face academic courses and programs have documented a connection between student engagement and student learning (Carini, Kuh, & Klein, 2006; Kuh, 2003). However, there have been few
“rigorous efforts to produce compelling evidence of the learning outcomes associated with online courses at the postsecondary level” in general (Lack, 2013, p. 3), and fewer efforts still to evidence the relationship between student engagement in online courses and student learning. One large study in 2008 focused on engagement levels of online students compared to campus-based students (Chen, Gonyea, & Kuh, 2008), and several other modest quantitative studies explored student engagement in online courses (Suttle, 2010; Robinson & Hullinger, 2008), but did not examine the relationship of engagement to learning. Describing and analyzing students’ perceptions of their engagement in online courses and its influence on their learning enhance understanding of the connections between engagement and learning. These insights, augmented by students’ descriptions of specific engaging activities and practices that helped them learn, may contribute to a deeper understanding of the relationship between engagement and learning, and provide the opportunity to enhance and document both the quality and effectiveness of online programs.

Therefore, the purpose of this mixed methods sequential explanatory study was to examine the relationship among student perceptions of their levels of engagement in online courses, student demographic characteristics, and students’ perceptions of their learning in online courses. The quantitative phase of the study investigated the extent to which online students report that specific factors relate to engagement and self-reported learning in online courses. These factors include four benchmarks of engagement defined by the National Survey of Student Engagement (Kuh, 2003): level of academic challenge, active and collaborative learning, student-faculty interaction, and enriching educational experiences. Demographic factors to be considered include: age, gender, level (undergraduate/graduate), employment status, number of credit hours enrolled, number of online courses previously completed, current grade point
average, and expected grade in current course. The subsequent qualitative phase of the study identified key factors and practices that relate to effective engagement and learning by examining how students describe and interpret their engagement and the specific activities and practices they perceive contributed to their engagement and learning.

Audiences that may benefit from this study include academic deans, department chairs, instructional designers, course developers, and faculty responsible for developing, delivering, and managing online academic programs. By identifying the key factors and practices that relate to effective engagement in online settings, the results of the study may be used to improve course delivery and design to enhance the level of engagement for online students. Further, senior academic leaders (provosts, vice presidents of academic affairs) may benefit from gaining an understanding of how to increase the quality and effectiveness of online academic programs and thus ensure such programs’ continued viability in the current accountability-focused environment.

**Significance of Research Problem**

The recent heightened demand for accountability for quality in higher education in general, including online education, has been fueled by the rapidly rising costs of college, poor retention and graduation rates, concerns among employers that graduates lack the knowledge and skills required for success in the workplace, and uncertainty about the learning and value that higher education provides to students (Leveille, 2006). The high-accountability environment has been intensified by the U. S. government’s stated commitment to lead the world in postsecondary degree attainment by 2020, which places pressure on all institutions to enroll and graduate more students from demonstrably high-quality programs that provide the basis for meaningful
employment and careers (New Leadership Alliance for Student Learning and Accountability, 2012).

Online enrollments are providing much of the current growth in higher education enrollment, with the largest growth rate across almost all sectors of higher education when compared to the growth rate of overall degree-granting postsecondary institutions. Enrollment in online learning has grown from 1.6 million students in fall of 2002 to 7.1 million in fall 2012 – a compound annual growth rate of 16.1% (Allen & Seaman, 2014). Postsecondary enrollment overall has increased by just a 2.5% compound annual growth rate over the same period. In this high-growth, high-risk environment, the clear challenge for institutions that offer online programs is to provide high quality programs that can document student learning. The U. S. Department of Education, regional and specialized accrediting bodies, and many state governments and agencies already require or are considering requiring documentation of student learning as a part of their approval and accreditation processes for institutions and programs (Smith, 2011; Stivers & Phillips, 2009).

To comply with accountability criteria, leaders of online institutions and online academic divisions within traditional institutions need to ensure that the students enrolled in online courses are having experiences that “result in effective and enduring learning” (National Survey of Student Engagement, 2013). Much evidence in traditional education points to student engagement as strongly correlated with effective learning and as a significant element in effectively-delivered academic courses, as meaningfully documented within the results of the National Survey of Student Engagement (2013). Far less research has been undertaken to date to assess the role of engagement in online courses and its relationship to learning. Through this
study, the researcher contributes to the current knowledge of effective strategies for engaging and teaching online learners.

**Positionality Statement**

The researcher works at a private, not-for-profit institution in the Northeast with a total enrollment of 16,000 students, where she has been employed for the past 14 years. After working for six years in the Provost’s Office managing academic program review and other quality initiatives, in July 2013, the researcher was appointed as the dean of the School of Online & Continuing Education, a new entity within the organization. In this new role, she has been charged with expanding the university’s online enrollment (currently 150 students enrolled in two academic programs) to over 3,000 students enrolled in 25 online programs by the completion of the current strategic plan in academic year 2017-18. A related goal is to achieve an 82% one-year retention rate for the online programs. In order to achieve these ambitious objectives, the researcher’s focus as dean is on developing and delivering the highest quality online programs that will enhance the university’s reputation, advance its brand, and ensure the ultimate success of the School of Online & Continuing Education and its students. The new role prompted a natural interest in identifying the essential elements of quality in online programs, and student engagement and learning outcomes quickly emerged as potential areas of focus. The researcher’s role as an online education leader at the institution creates the potential for bias which cannot be mitigated by research design. Awareness of this potential bias, as well as stringent documentation processes in data collection and analysis, helped to ensure the researcher’s maintenance of the ethical and legal standards of research.
Research Questions

This is a mixed methods sequential explanatory study with a quantitative survey followed by qualitative interviews. The quantitative research questions that guide this research study are:

1. What is the relationship between student perceptions of engagement in online courses in each of four benchmark constructs of engagement (level of academic challenge, active and collaborative learning, student-faculty interaction, and enriching academic experiences) and student perceptions of learning?

2. What is the relationship between student perceptions of engagement in online courses and student perceptions of learning for each of the following demographic variables: age, gender, level (undergrad/graduate), employment status, number of online courses currently enrolled, number of online courses previously completed, and current grade point average.

The qualitative research question and sub-questions that guide this research study are:

3. How do students describe their experience with online courses relative to engagement?

   3a. How do students interpret the ways in which online learning relates to engagement?

   3b. How do students identify the practices and activities which support engagement within each of the four benchmark dimensions of engagement constructs (level of academic challenge, active and collaborative learning, student-faculty interaction, and enriching academic experiences)?

Paper Contents and Organization

The organization of this research study thesis is structured in five chapters. The first chapter is the introduction, which presents the research problem and its justification and
importance, the researcher’s positionality statement, the organization and contents of the paper, and the research questions. The second chapter starts with discussion of the theoretical framework that focuses the study of the problem, followed by a comprehensive literature review elaborating on how this study is positioned within the existing framework of contemporary research on the current higher education environment, the context and growth of online learning, and student engagement and learning in traditional and online education. The third chapter describes the research methodology of the study, including the research design, population and sampling, data collection and analysis, threats to validity and reliability, and the protection of human subjects.

The fourth chapter reports and discusses the findings from both the quantitative and qualitative phases of the research study that were conducted during the period from October 2014 through January 2015. The chapter includes tables and charts, as well as narrative descriptions of findings. Reference is made in this chapter to additional tables and data included in the appendices to this thesis. The fifth and final chapter provides interpretation of the research findings, a discussion of the practitioner and scholarly significance of the findings, the conclusions drawn from the research findings, and recommendations for changes in educational practice that emerged from the study. This final chapter also includes suggestions for further research by the researcher or other higher educational practitioner/scholars.

**Definition of Terms**

For the purposes of this research study, the following terms are defined.

*Adult Learner.* An adult learner is a student in any form of education or training environment who is at least 18 years of age, who typically works part- or full-time while participating in an education program, and who may be raising a child or children while enrolled.
**Asynchronous learning environment.** An instructional setting in which learners are engaged in learning at different times and in different places and communication occurs in elapsed time between two or more people through email, online discussion forums, message boards, blogs, etc. (iNACOL, 2013).

**Blended or hybrid learning.** Blended or hybrid learning is a type of formal education or informal training delivery in which students participate in both in-class and online learning activities during a course or training session (Bach, Haynes, & Smith, 2007).

**Distance education.** The general term for any type of educational activity in which participants are at a distance from each other (separated in space). Distance education may encompass correspondence education (delivered through the mail) or online education (delivered through Internet). (iNACOL, 2013).

**Learning management system.** This term refers to a proprietary computer-mediated learning environment, used by organizations to deliver online learning, and which combines communication technology, social media, and multimedia technology, and provides a framework within which to deliver course content. Blackboard Learn® is one example of a learning management system (Salamone, 2013).

**Online learning.** Education in which instruction and content are delivered primarily over the Internet (Watson & Kalmon, 2005). The term is often used interchangeably with virtual learning, web-based education, and e-learning.

**Perceptions of student learning.** For the purposes of this study, perceptions of student learning is defined as students’ self-reported gains in learning in online courses and will be quantified through the survey across three outcome areas: gains in general education (sum of
three survey items), gains in personal and social development (sum of three items), and gains in practical competence (sum of three items).

**Student engagement.** Student engagement has been defined as “participation in educationally effective practices, both inside and outside the classroom, which leads to a range of measurable outcomes” (Kuh, Kinzie, Buckley, Bridges, & Hayek, 2007, p. 44) and as “the quality of effort students themselves devote to educationally purposeful activities that contribute directly to desired outcomes” (Hu & Kuh, 2002, p. 555). For purposes of this study, student engagement will be quantified as engagement scores calculated using the same method as that used by Indiana University to calculate NSSE engagement scores (Indiana University, 2009). There are four pre-defined dimensions within the student engagement variable: level of academic challenge; active and collaborative learning; student-faculty interaction; and, enriching educational experiences.
Chapter 2: Theoretical Framework and Literature Review

This chapter first introduces the theoretical framework provided by Tinto’s concept of student academic and social integration, the conceptual lens through which to view this research study. A review of the relevant literature on online learning and student engagement follows, positioning the research study within the existing literature and providing the basis to explore the aforementioned research questions. The review of the literature is structured in three sections covering topics germane to understanding and interpreting the results of the research study: first, the evolution and current context of online education in the United States; second, the conception, exploration, and use of student engagement as a measure of learning and academic program quality in both traditional and online education; and finally, the National Survey of Student Engagement and the application of its student engagement benchmarks and concepts to students enrolled in online education.

Theoretical Framework

In reviewing the literature on student engagement, Vincent Tinto’s (1975, 1993) concept of student integration within his Interactionalist Theory of student persistence (Braxton, Milem & Sullivan, 2000) emerged as a useful framework to examine student engagement and its relationship with student learning and success in online environments. Use of the term “student engagement” had its origins within Astin’s theory of student involvement (Astin, 1984) and was further elaborated in the work of Pace (1984) and Kuh and colleagues (Kuh, Schuh, & Whitt, 1991). Astin defined engagement as “the amount of physical and psychological energy that the student devotes to the academic experience” (Astin, 1984, p. 297). Astin’s theory (1984) could also serve as an appropriate theoretical framework for a study of student engagement and learning. Tinto’s concept of student integration is used as the framework for this study because
of the significant use of his theory as the framework in other research on student engagement and
the alignment between Tinto’s ideas of social and academic integration (Tinto, 1975) and the
benchmarks of student engagement defined in the National Survey of Student Engagement (Kuh,
2001). This study used items from the National Survey of Student Engagement in the survey that
was administered in the quantitative phase of the research.

Expanding on Emile Durkheim’s conception of solidarity, Tinto (1993) defined student
engagement in terms of a student’s social and intellectual integration in an institution, and
posited that students with higher levels of social and academic integration will persist at higher
rates in academic programs. Conversely, students who are lacking in social and academic
integration will be more likely to drop out. Such integration has been shown to be a key
determinant in a range of educational outcomes, including student learning, the outcome of
interest in this study (Astin, 1984; Pascarella & Terenzini, 1983). Researchers have observed that
academic integration is related to academic performance and growth (Pascarella & Terenzini,
1983; Terenzini & Wright, 1987). Carini, Kuh, & Klein (2006) note that “student engagement is
generally considered to be among the better predictors of learning” (p. 2). Tinto states that “the
more students are involved academically and socially, the more likely they are to become
involved in their own learning, and invest time and energy to learn. Involvement, especially
academic involvement, seems to generate heightened student effort. That effort, in turn, leads to
enhanced learning” (Tinto, 1993, p. 131). A simplified version of Tinto’s model of student
departure is shown in Figure 1.
Although the model’s focus is on the ultimate development of departure decisions by college students, the model illustrates that academic and social experiences in college provide for academic and social integration into the institutional community, which leads to increased institutional commitment, reducing the likelihood of student departure and increasing the likelihood of academic and social success at the institution (Tinto, 1993, 1997). Academic and social integration are the major elements of any postsecondary experience that influence a student’s ultimate engagement and learning (Astin, 1984; Tinto, 1993). Identifying the academic and social experiences relevant to a student’s academic and social integration (engagement) within online courses and programs was an objective of this research study.

Student activities in traditional academic programs, such as attending lectures, interacting with faculty and other students, using academic support services, and engaging in college events, are examples of interactions that have been shown to contribute to student engagement and academic success in traditional settings (Astin, 1984; Hu & Kuh, 2002; Kuh, 2001; Pascarella & Terenzini, 2005; Tinto, 1997). Few studies have explored the correlating activities in online
education and their impact on engagement and academic success within online programs. Integration activities and online student engagement are discussed in greater detail in the “Student Engagement” section. Online higher education programs typically attract older adult learners, who are working full- or part-time and who have significant family or other responsibilities (Allen & Seaman, 2014). Some elements of social integration may not be as applicable to these older working adult students, where factors extraneous to the academic experience may preclude their social connection and integration within the academic experience, whether online or face-to-face (Braxton, 2000; Yorke, 1999). This suggests that identifying and adopting engagement practices designed to meet the unique characteristics of adult learners should be a significant priority for quality online programs.

This study examined elements of academic and social engagement as defined by Tinto and others and their connection with student learning among adult working professionals within the online learning environment. Student engagement and academic and social integration have been extensively studied within on-campus student populations through the lens of Tinto’s model (Braxton, Milem, & Sullivan, 2000; Stage, 1989), but only marginally within online student populations. Tinto’s model was used in this study as a framework in extending this work to the non-traditional online student population by assessing engagement and its relationship to learning in online courses and identifying effective practices that contribute to engagement and learning.

**Evolution and Current Context of Online Education**

Online education has its roots in distance education, which is the general term for any type of educational activity in which participants are at a distance from each other (separated in space). Distance education may encompass correspondence education (delivered through the
mail) or online education (delivered through the Internet) (iNACOL, 2013). In its earliest form in the nineteenth century, distance education existed through correspondence courses in Europe which used mail service to send books, assignments, and other documents back and forth between students and faculty (Cyrs, 1997). The advent of radio and television in the U.S. in the middle of the twentieth century brought electronic distance learning into the picture through scheduled television programming and video recordings mailed to students for viewing. Basically, most distance learning up to this point maintained the “talking head” instructional strategy, with the faculty member filmed as he/she delivered lectures. This medium had a number of drawbacks, as it was difficult to maintain the interest of the students with the taped lectures, and there was no communication channel between the teacher and students (Cyrs, 1997).

The launch of the World Wide Web in 1991 enabled the beginnings of Web-based learning in the early 1990s (Perry & Pilati, 2011). The mailed correspondence and instructional television of distance education have been replaced by a range of Web-based communication and pedagogical tools that facilitate today’s online education. Institutions such as the University of Phoenix began offering online degree programs in the early 1990s, and today nearly 85% of all higher education institutions offer some level of online courses and/or programs (Allen & Seaman, 2014). Sophisticated learning management systems used by institutions to deliver online courses and programs provide access to a robust and broad set of technology tools to facilitate communication, assessment, collaboration, and many types of learning. As learning technology has expanded, students and faculty are able to interact with each other in real time (synchronous learning) as well as at different times and places in elapsed time (asynchronous learning).
learning). Most fully online programs today predominately employ asynchronous learning to provide maximum flexibility for students and faculty (Picciano, Seaman, & Allen, 2010).

**Growth of online education.** The dramatic growth of online education is understandable given the broad range of benefits it provides for institutions, faculty, and students (Schiffman, Vignare, & Geith, 2007). Adding online programs provides institutions the opportunity to improve access and broaden their target markets to include new groups of potential students, increasing revenue and enrollment without the need to build costly physical facilities. In many markets, online programs provide a competitive advantage for institutions and are more cost effective than on-ground programs. According to Allen & Seaman (2014), institutional leaders believe online education can improve rates of degree completion, enhance student retention, and provide enhanced learning. In a recent survey, 66% of 2,800 chief academic officers surveyed agree that online learning is “critical to their long-term strategy” (Allen & Seaman, 2014, p. 3).

Online learning also offers opportunities for faculty to be innovative in the use of technology in teaching their online courses, as well as providing flexibility in the time and place that faculty work in delivering their courses (Schiffman, Vignare, & Geith, 2007). Online methodology gives faculty members the opportunity “to be more purposeful in their teaching and to offer students more opportunities to interact with course materials” (Perry & Pilati, 2011). While online methodologies provide opportunities for faculty, there is still considerable skepticism on the part of some faculty members about the overall effectiveness and quality of online courses. In a recent Gallup survey of 2,251 faculty members, just 7% of faculty strongly agreed that online courses can achieve student learning outcomes that are at least equivalent to those of on-ground courses (Jaschik & Lederman, 2013). Part of these negative faculty perceptions are undoubtedly related to the comfort levels of faculty who do not currently engage
in online teaching, as faculty attitudes about online learning are most positive among those who teach online and most negative among those who do not (Jaschik & Lederman, 2013; Picciano, Seaman, & Allen, 2010).

Online education provides a host of benefits for students, with the most valued benefits being those of the convenience and flexibility it provides for adult students with jobs and family obligations (Perry & Pilati, 2011; Young & Norgard, 2006). Students can access course materials at any time and place convenient to them, and they have the opportunity to enroll in online courses at institutions anywhere in the United States and around the world, significantly expanding the available range of courses and programs. A number of studies have found student perceptions of online education to be generally positive (Rodriguez, Ooms, & Montanez, 2008; Somenarain, Akkaraju, & Gharbaran, 2010; Young & Norgard, 2006). However, nearly 50% of students with experience with online learning cited the lack of face-to-face contact in online courses as a drawback (Rodriguez, Oooms, & Montanez, 2008), and 71% of online students in another study cited a lack of community as a major source of dissatisfaction with online courses (Song, Singleton, Hill, & Koh, 2004). This evidence of dissatisfaction among online students makes it imperative that institutions ensure that online learning experiences provide meaningful opportunities for student engagement and connection.

**Accountability for quality in higher education.** Over the past 20 years, at the same time that enrollment in online learning has grown to 7.1 million students (Allen & Seaman, 2014), an important element of the higher education environment has been external pressure for accountability from federal and state regulatory agencies and accrediting bodies (Council for Higher Education Accreditation, 2012; Dickeson, 2010; Palmer, 2012). Accountability is defined by Palmer (2012) as “the process of publicly documenting institutional practices and effects” (p.
57), and is one of the major ways that higher education institutions sustain the support of U.S. society. The pressures for accountability stem from decreasing retention and graduation rates, increasing tuition costs, and concern about the true economic return on a college degree (Klein, Kuh, Chun, Hamilton, & Shavelson, 2005; Leveille, 2006).

Over the past several years, notions of accountability have expanded as colleges and universities are being asked to provide evidence of the value of their academic programs not only in terms of the economic value added, but also in terms of the specific gains in the knowledge and skills of graduates developed over their period of enrollment (Bers, 2011; Judd & Keith, 2012). In this high-growth, high-risk environment, the clear challenge for institutions that offer online programs is to provide high quality online programs that can document student learning. The significant and dramatic growth of online learning, coupled with these consistent calls for accountability and quality across all of higher education, renders it vital that institutions meaningfully assess and document the quality and effectiveness of their online academic programs. No longer a new delivery medium, online education in the U.S. today is mainstream education, with one-third of the 21.3 million postsecondary students in the U.S. enrolled in online education in some form (Allen & Seaman, 2014). According to Scull, Kendrick, Shearer, & Offerman (2011), “the ultimate measure of quality is the degree to which students can demonstrate learning outcomes at the level deemed appropriate for the course and the degree regardless of delivery mode” (p. 140).

While many traditional indicators of quality in higher education have focused on inputs such as qualified faculty, motivated students, sound academic resources, plentiful student services, and adequate financial resources, today both internal and external stakeholders are focusing more on learning outcomes data to assess institutional and programmatic quality. The
National Survey of Student Engagement (NSSE), which examines student trajectories and engagement throughout their college years through self-assessment of student learning and personal development, is one robust tool for assessing educational outcomes of academic programs (Kuh, 2003). A survey instrument focused on engagement in online learning originally developed in 2006 from the NSSE survey instrument was used in the quantitative phase of this study to examine the relationship between student engagement in online courses and student learning.

**Student Engagement**

The current application of the concept of student engagement originally evolved from Alexander Astin’s 1984 developmental theory of student involvement (Astin, 1984). Astin defined student engagement as “the amount of physical and psychological energy that the student devotes to the academic experience” (Astin, 1984, p. 297). The theory of student engagement has been expanded upon by a range of researchers, including Chen, Gonyea and Kuh (2008); Krause and Coates (2008); Kuh, Schuh, Witt, and Associates (1991); Pace (1984); and Pike and Kuh (2005). More contemporary definitions of student engagement are provided by Kuh, et al. (2007), who define engagement as “participation in educationally effective practices, both inside and outside the classroom, which leads to a range of measurable outcomes” (p. 44), and by Krause and Coates (2008), who define engagement as “the extent to which students are engaging in activities that higher education research has shown to be linked with high-quality learning outcomes” (p. 493). Student engagement in traditional higher education programs has been positively associated with a range of outcomes, including gains in general abilities and critical thinking, grades, and persistence (Astin, 1984; Kuh, 2001; Klein, et. al, 2005; National Survey of Student Engagement, 2013; Pace, 1984; Pike & Kuh, 2005).
Student engagement encompasses a number of factors, including interactions with faculty and peers, investment in academic experiences, and involvement in co-curricular activities (Kuh, 2009; Pascarella & Terenzini, 2005). These factors connect strongly with Tinto’s concepts of academic and social integration as driving forces in maintaining interest and achieving success in college (Tinto, 1993). Tinto (1993) theorized that students increase their level of satisfaction and their likelihood of persistence in an academic program when they feel involved in the institutional community and develop relationships with other community members, including peer students, faculty, and staff. There is a wide range of existing research on student engagement, particularly within traditional undergraduate education, with the majority of studies focused on improving student learning (Trowler, 2010). Research has shown correlations between traditional student engagement and critical thinking (Kuh, 2003; Pike, Kuh & Gonyea, 2003); between engagement and cognitive development (Astin, 1993; Kuh, 1993; Pascarella & Terenzini, 2005); between engagement and student satisfaction (Kuh, Kinzie, Schuh, & Witt, 2005; Kuh et al., 2007; Kuh & Vesper, 1997); and, between engagement and persistence, in support of Tinto’s ideas about the importance of academic and social integration (Astin, 1984, 1993; Braxton, Millem, & Sullivan, 2000; Pascarella & Terenzini, 2005; Tinto, 1993, 1997).

Many of the foundations of student engagement are found in the *Seven Principles for Good Practice in Undergraduate Education* developed by Chickering and Gamson (1987). These principles represent core indicators of engagement and have been used as the basis for engagement research and measurement (Kuh, 2009). In 1996, Chickering and Erhmann published updated guidelines for delivering effective online undergraduate education, in which they redefined the seven principles to optimize and leverage the use of technology in learning,
including the use of computers, the Internet, video, and telecommunications technologies. These principles are:

1) Good practice encourages contact between students and faculty. Technology facilitates more timely and consistent connections between students and faculty, with multiple feedback loops and ongoing dialogs about learning.

2) Good practice develops reciprocity and cooperation among students. Learning is enhanced with team-based efforts, and technology facilitates increased contact among students, collaborative team-based projects, discussion of assignments, and group problem-solving.

3) Good practice uses active learning techniques. Technology offers a myriad of opportunities for active learning, including simulations, research, and apprentice-like activities.

4) Good practice gives prompt feedback. Technology provides for giving timely feedback in a variety of ways – email, shared documents, discussion boards, electronic portfolios, learning management system grade book and grading functionality, and virtual presentations.

5) Good practice emphasizes time on task. Technology can improve time on task for both students and faculty, affording flexibility and convenience by providing the means to work wherever and whenever it is most convenient.

6) Good practice communicates high expectations. High expectations yield positive results and technology can communicate high expectations efficiently and explicitly, providing the basis for optimal academic performance.
7) Good practice respects diverse talents and ways of learning. Technology provides for
delivering content in a wide range of ways, and for individual students to work at varying
paces based upon their time and capabilities (Chickering & Ehrmann, 1996).

Chickering and Ehrmann (1996) note that technology alone is not enough to ensure the
effectiveness of online learning; their seven principles must be embraced by faculty, students,
instructional designers, and others assisting with the development and support of online courses.
Further, institutional policies about learning resources and technology support need to be
structured to give high priority to user-friendly hardware, software, and communication tools that
will help faculty and students use technology efficiently and effectively (Chickering & Ehrmann,
1996, p. 5). Kuh (2009) proposed that following the seven principles will directly influence
engagement, and used these principles in the development of the National Survey of Student
Engagement. He further states that applying the principles not only leads to desirable outcomes,
but that engagement is a valuable end in itself (Kuh, 2003).

Student engagement is a complex concept. In an effort to better understand the concept,
Zepke and Leach (2010) synthesized results of 93 research studies on the impact of student
engagement from ten countries to develop a “conceptual organizer” (p. 169) for student
engagement, identifying four broad perspectives from across the literature, as shown in the table
below. These researchers then defined ten proposals for action to ensure student engagement,
also summarized in Table 1 below.
The key findings and proposals from Zepke & Leach’s 2010 work align well with Chickering and Gamson’s (1987) seven principles and provide a meaningful basis for efforts to enhance student engagement in both traditional and online settings.

**Student engagement and learning.** Research making the connection between traditional student engagement and student learning includes a study by Carini, Kuh, & Klein (2006) that involved 1,058 students across 14 four-year institutions and used the NSSE survey instrument. The study assessed the extent to which student engagement is associated with measures of academic performance. Results showed that the lowest-ability students benefit more from engagement than their peers, and that some institutions were more effective at converting student engagement into higher academic performance (Carini, Kuh, & Klein, 2006). In a study...
published in 2011 exploring the connections between engagement, learning outcomes, and institutional expenditures, Pike, Kuh, McCormick, Ethington, & Smart (2011) found that all five NSSE measures of engagement were “significantly and positively related to students’ cognitive and non-cognitive gains in learning and development” (p.100).

The research discussed thus far has related to the study of student engagement in traditional undergraduate classroom settings. Overall, this research has shown that student engagement in traditional settings is perhaps the single best predictor of students’ learning and academic performance (Klein, et. al, 2005; Kuh, 2001; National Survey of Student Engagement, 2013; Pascarella & Terenzini, 2005). While this correlation has been well established for education in traditional settings, there has been relatively little research on the connection between student engagement and learning in online education.

The most substantial study appears to be 2008 research by Chen, Gonyea, and Kuh, which compared the engagement of distance learners in various educational practices with that of campus-based students at U.S. four-year degree-granting colleges and university. Using the NSSE 2006 survey modified with 14 additional questions for online learners, a total of 3,894 online students responded to the survey, and were compared to the nearly 186,000 campus-based students who completed the 2006 NSSE survey. These researchers found that online and campus-based learners are different in terms of both their demographic and academic characteristics; most notably, online learners were older, more likely to have family responsibilities, much more likely to be working full-time, and more focused on their studies. Generally, the online learners’ scores on student engagement measures compared favorably to those of the campus-based learners, leading the researchers to conclude that online learning is comparable to campus-based learning in terms of student engagement in effective educational
practices (Chen, Gonyea, & Kuh, 2008). The one exception to this conclusion was in the area of active and collaborative learning, where online students scored lower than their campus-based counterparts. The researchers note that further research is needed on active and collaborative learning in online settings, as well as in the other engagement areas, “to study the effects on distance learners’ college outcomes in terms of intellectual gains, persistence, and personal and social development” (Chen, Gonyea, & Kuh, 2008, p. 3). While the researchers suggested additional research in these areas and noted that they might pursue such research in these areas of online student engagement, it does not appear that such research has been undertaken to date.

A small study by Robinson & Hullinger (2008) used the modified NSSE instrument to survey 225 online students enrolled in both undergraduate and graduate programs across three institutions, finding that online students were modestly engaged across major benchmarks of engagement and, similar to the Chen, Gonyea, & Kuh study, that online students have different engagement patterns than on-campus students. The researchers suggest further study on “what promotes engagement in the online environment and what relations exist between engagement data and other valid measures of student learning in online settings” (Robinson & Hullinger, 2008, p. 107).

A study of 203 students enrolled in online courses at a large research university was conducted in 2008 by Sun & Rueda and explored how motivational and learning factors may influence specific types of engagement in online students. These researchers found that situational interest and self-regulation were significantly correlated with three types of engagement (behavioral, emotional, and cognitive), but that computer self-efficacy was not associated with any of these engagement variables (Sun & Rueda, 2012). Sun & Rueda suggested further research to address other variables that may be involved with online student engagement.
engagement. The three types of engagement discussed in the Sun & Rueda study are defined by Fredericks, Blumenfeld, and Paris (2004) as shown in Table 2.

Table 2

*Three-Dimensional Approach to Understanding Engagement* (Fredericks, Blumenfeld, & Paris, 2004)

<table>
<thead>
<tr>
<th>Type of Engagement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral engagement</td>
<td>Students who are behaviorally engaged typically comply with behavior norms, such as attendance and involvement, and demonstrate the absence of disruptive or negative behavior.</td>
</tr>
<tr>
<td>Emotional engagement</td>
<td>Students who engage emotionally experience affective reactions such as interest, enjoyment, or a sense of belonging.</td>
</tr>
<tr>
<td>Cognitive engagement</td>
<td>Cognitively engaged students are invested in their learning, seek to go beyond the requirements, and relish challenge.</td>
</tr>
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</table>

According to Fredericks, Blumenfeld, and Paris (2004), who studied school engagement in primary and secondary education, all three types of engagement are necessary for optimal learning, and engagement is “a multidimensional construct that unites the three components in a meaningful way” (p. 60). These researchers noted that there are qualitative differences in the level and degree of engagement within each dimension that suggest that overall engagement can vary in intensity and duration, from short-term situation specific to long term and stable, providing the potential for evolution in intensity and meaningful growth in engagement over time. Fredericks, Blumenfeld, and Paris (2004) concluded that engagement is malleable, and that the paths to student engagement may be social or academic and stem from opportunities within classes, interpersonal relationships, and intellectual endeavors.

Dixson (2010) studied 186 online students across six campuses of a public institution in the Midwest using a self-designed instrument to try to discover what activities and interaction channels lead to more highly engaged students. The results indicate that there is no particular activity or practice that students in this study identified that will automatically help increase
online student engagement, although multiple communication channels and student-student and instructor-student communication clearly play meaningful roles in engagement (Dixson, 2010). Dixson urged further research to define specific practices and activities that impact engagement of online students.

There has been limited research on online student engagement and learning, and as noted in several of the studies discussed above, there appears to be a need for further research to assist in understanding the engagement of students in fully online environments and the connection of that engagement with student learning. There is also a clear need to more completely describe the types of activities and practices that are most likely to enhance engagement and learning in online students. As documented in the literature, extensive research has been undertaken on student engagement in higher education, much of it based upon results from the National Survey of Student Engagement. This comprehensive annual survey is a natural starting point for considering additional research on the engagement of online students and its connections to student learning.

National Survey of Student Engagement

Student engagement is one of the most widely researched topics in recent higher education literature, in part due to the development and launch of the National Survey of Student Engagement in early 2000. The NSSE is conducted annually by the Indiana University Center for Postsecondary Research, and since 2000, more than 1,500 institutions and four million students have participated in the survey (National Survey of Student Engagement, 2014). With its advent, the visibility of the concept of student engagement increased dramatically, as institutions began to assess student engagement in more intentional and empirical ways (Kuh, 2009). Use of the NSSE to assess student engagement has grown, and in 2014, NSSE was
administered to more than 355,800 students attending 622 U.S. bachelor’s degree-granting institutions (National Survey of Student Engagement, 2014). The NSSE focuses primarily on the student behaviors that are indicative of engagement and the effective educational practices that support those behaviors (Kuh, 2003). NSSE was developed based on indexes of effective educational practice derived from Chickering and Gamson’s *Seven Principles of Good Practice in Undergraduate Education* (Kuh, 2001).

The survey is specifically designed to assess the extent to which students are engaged in empirically-derived sound educational practices that fall within five Benchmarks of Effective Educational Practice developed by NSSE: level of academic challenge; active and collaborative learning; student-faculty interactions; enriching educational experiences; and, supportive campus environment (Kuh, 2001). These benchmarks define what student engagement is and are frequently used to summarize engagement scores in a way that is understandable, to establish baselines for the tracking of progress over time, and to compare engagement scores across academic institutions (Kuh, 2001).

According to Kuh (2009), the NSSE was developed with three central purposes in mind: first, to provide institutions with actionable data for use in improving students’ educational experiences; second, to identify and document the most effective educational practices; and third, to generate public advocacy for the use of empirically-driven indicators of institutional quality. Four of the five NSSE benchmarks have been deemed applicable for the purposes of assessing student engagement in online settings. The fifth benchmark of “supportive campus environment” has been interpreted to be focused on the actual physical campus environment that is not an element of most online academic programs, and it is therefore excluded from assessments of
online student engagement using NSSE (Robinson & Hullinger, 2008). The four benchmarks used in this study are discussed below.

**Level of academic challenge.** As described by Kuh (2009), the first benchmark of “level of academic challenge” assesses students’ perceptions of the level of challenge within their academic coursework, and is based on the premise that the setting of high expectations for performance and academic effort will promote high levels of achievement. Effective learning takes place when students are academically challenged and take the initiative to invest adequate time and effort into learning (Kuh, 2003). Critical thinking is an important component of academic rigor which is measured in the NSSE through specific questions regarding students’ perceptions of how often they engage in critical thinking activities, including memorizing, applying, analyzing, and synthesizing knowledge (Kuh, 2001).

**Active and collaborative learning.** The second benchmark of “active and collaborative learning” assesses student behaviors and whether students are actively involved in their learning individually and in collaboration with others. Active learning is the process of learning through exploration, experimentation, and other active experiences (Dixson, 2010). Active learning is facilitated in online environments through writing, discussion boards, simulations, open-ended questioning, presentations, and peer-to-peer networking (Chickering & Ehrmann, 1996). Collaboration is essential to learning processes and is achieved through noncompetitive team efforts (Chickering & Gamson, 1987). The sharing of multiple perspectives through technology-enabled group discussions and projects contributes to learning through verbalization, enhanced complexity of thinking, and cognitive restructuring. Collaborating with others on difficult assignments prepares students for real-world situations and builds a sense of connection between students (Kuh, 2009).
**Student-faculty interaction.** The third benchmark of “student-faculty interaction” assesses student and faculty behaviors, and describes how often students interrelate with faculty members both within and outside of courses. Prompt feedback from faculty on assignments and course activities is vital in the online environment, as students must rely on such feedback to ensure that they learn and grow in their knowledge and skills (Chickering & Ehrmann, 1996). This vital feedback assists students in reflecting on what they are learning, and assists students in achieving course outcomes (Kuh, 2009). Through interpersonal communication with individual students, faculty can also serve as important mentors and role models for students.

**Enriching educational experiences.** The fourth benchmark of “enriching educational experiences” assesses students’ behaviors and involvement in complementary learning experiences, providing the opportunity to integrate and apply knowledge in their courses (Kuh, 2009). Examples of enriching experiences include interaction with those of different backgrounds (racial, ethnic, values, political opinions); use of information technology; and, participation in internships, community service, study abroad, and other co-curricular activities (Pascarella, Seifert, & Blaich, 2010). These types of experiences require students to work with their peers outside of the classroom environment, to test what they are learning, and to apply their learning to real-world situations.

**NSSE effectiveness as measurement tool.** The Indiana University Center for Postsecondary Research publishes the NSSE results annually, along with detailed analyses of key findings, and the NSSE has become a vital tool in assessing and defining quality education. As noted by Mary Corbett Broad, president of the American Council of Education and a former member of the National Survey of Student Engagement Advisory Board, in the annual report for 2012 (National Survey of Student Engagement, 2013), “In the face of many new and novel
means of assessing academic quality, this one has withstood scrutiny, making a lasting contribution to American higher education and becoming the gold standard in our field” (p. 3). The conceptual framework, psychometric properties, and development of scales in the NSSE have been thoroughly documented (Kuh, 2003; Kuh, 2009; Nelson-Laird, Shoup, & Kuh, 2005; Pascarella, Seifert, & Blaich, 2010).

One of the major assumptions of the NSSE is that when measuring the extent to which students engage in these practices, the students’ cognitive and personal development are also being indirectly assessed (Pascarella, Seifert, & Blaich, 2010). In a 2010 study designed to help validate this assumption, Pascarella, Seifert, and Blaich found that institution-level NSSE benchmark scores had a significant overall positive association with seven broad liberal arts outcomes, leading them to conclude that “NSSE results related to educational practices and student experiences are good proxy measures for growth in important educational outcomes” (p. 21). Further, research in 2009 by NSSE as part of the NSSE Psychometric Portfolio reflects a positive connection between levels of engagement and higher freshman and senior grade point averages, as well as a positive impact of engagement on freshman student retention to the sophomore year of college (NSSE, 2014).

**NSSE and online education.** In 2006, NSSE researchers modified a range of questions on the NSSE instrument to investigate the nature of student engagement in online learning environments (Chen, Lambert, & Guidry, 2010). The instrument’s modification was based on a review of research on the use of the Internet and other technologies in teaching and learning, as well as the guidelines set forth by Chickering and Ehrmann (1996) in “Implementing the Seven Principles: Technology as Lever.” As discussed earlier, the modified NSSE instrument has been used by several researchers to explore levels of student engagement in online learning (Chen,
Gonyea, & Kuh, 2008; Robinson & Hullinger, 2008; Suttle, 2010). The modified instrument has not been used to any large extent to specifically assess the relationship between student engagement in online courses and student learning, as it was used in this current doctoral study. The history and success of the NSSE in helping higher education leaders understand the vital role of student engagement in learning and student success substantiates and supports the use for this study of the NSSE instrument modified to accommodate online education environments.

Summary

Online learning has evolved from its roots in distance education and is transforming higher education today. With one third of all postsecondary students in the United States now involved in online learning, online education is a significant trend that is unlikely to be reversed. Online learning offers many benefits for postsecondary institutions, faculty, and students, providing for flexibility in the times and places that faculty teach and students learn, and eliminating the need for physical classrooms on campuses. The increased visibility and prevalence of online learning, coupled with the significant recent focus on accountability for academic program quality and learning outcomes, renders it vital that institutions of higher education providing online education be able to document the quality and effectiveness of their online programs. Internal and external stakeholders in higher education today are focusing on student learning as the most meaningful measure of institutional and programmatic quality.

Student engagement is a major concept in understanding and assessing student learning and success in higher education programs, with the National Survey of Student Engagement serving as the most commonly used tool to assess engagement. The concept of engagement connects strongly with Tinto’s model of academic and social integration as positive forces in maintaining interest and achieving success in college. Student engagement has been positively
connected with critical thinking, cognitive development, personal growth, student satisfaction, and persistence. Student engagement has been connected with learning, but most of the research in this area to date has focused on engagement and learning in face-to-face courses in traditional college settings. This research has shown that student engagement in traditional settings is perhaps the single best predictor of students’ learning and academic performance.

This review of the literature reveals that there has been limited research on online student engagement and learning. With the significant accountability focus on documenting academic quality through demonstrations of the learning taking place in academic programs, there is a clear need for further research to assist in understanding the engagement of students in fully online environments and the connection of that engagement with student learning. There is also a need to more specifically identify the types of activities and practices that are most likely to enhance engagement and learning for online students. Given this evidence of the need for further research, the researcher conducted this mixed methods study to address the existing open questions about online student engagement. The mixed methods approach is ideal to gain an understanding of both the relationship between online student engagement and student learning, and the perspectives of online students on specific activities and practices that contribute to engagement and learning.

The proposed sequential explanatory study used a modified version of the National Survey for Student Engagement to address quantitative research questions focused on identifying the relationship between online students’ perceptions of engagement and perceptions of student learning. Qualitative research questions sought to identify how online students interpret the ways in which online learning relates to engagement and to identify the practices and activities that support online student engagement and learning. This study adds to the current body of literature
on the connections between online student engagement and student learning. This research may provide for enhanced awareness and understanding of the connections between online student engagement and learning and the practices to ensure engagement within online populations. This enhanced knowledge may therefore be of potential benefit to every institution offering online education to its students today.
Chapter 3: Methodology

The focus of this chapter is to provide a comprehensive description of the research design and methodology for this mixed methods study, including detailed explanations of the research design, sampling strategy, data collection, data analysis, threats to validity and reliability, and measures to protect human subjects.

Research Questions, Purpose and Problem

**Research questions.** This mixed methods study (QUAN/qual) sought to examine the relationship between student perceptions of their levels of engagement and perceptions of their learning in online courses, and the extent to which these students report that specific practices and activities relate to their engagement and learning in online courses. The quantitative research questions that guided this research study are:

1. What is the relationship between student perceptions of engagement in online courses in each of four benchmark constructs of engagement (level of academic challenge, active and collaborative learning, student-faculty interaction, and enriching academic experiences) and student perceptions of learning?

2. What is the relationship between student perceptions of engagement in online courses and student perceptions of learning for each of the following demographic variables: age, gender, level (undergrad/graduate), employment status, number of online courses currently enrolled, number of online courses previously completed, and current grade point average.

The qualitative research question and sub-questions that guided this research study are:

3. How do students describe their experience with online courses relative to engagement?
3a. How do students interpret the ways in which online learning relates to engagement?

3b. How do students identify the practices and activities which support engagement within each of the four benchmark dimensions of engagement constructs (level of academic challenge, active and collaborative learning, student-faculty interaction, and enriching academic experiences)?

**Research purpose and problem.** The purpose of the first and second research questions was to determine the relationship between students’ perceptions of their engagement and their learning in online courses across four benchmarks of engagement, as well as across a number of demographic characteristics. Student engagement has been determined to be an essential element of effective, high quality academic programs (Carini, Kuh, & Klein, 2006), and numerous studies of face-to-face academic courses and programs have documented a connection between student engagement and student learning (Carini, Kuh, & Klein, 2006; Kuh, 2003; Pascarella & Terenzini, 2005; Pike, Kuh, McCormick, Ethington, & Smart, 2011; Tinto, 1997). However, there have been few rigorous studies of this connection within fully online academic programs. Analysis of the data related to questions one and two provided a better understanding of the connection between student engagement and learning in online courses and programs.

The purpose of the third qualitative question and sub-questions was to document and understand how students describe and interpret their engagement in online courses and to identify those practices and activities that students believe contribute to their engagement. Previous research has provided significant information on effective engagement practices and activities in face-to-face courses (Dixson, 2010; Krause & Coates, 2008; Pike & Kuh, 2005; ), but few studies have identified effective engagement practices and activities for online courses
and programs. The analysis of data collected in relation to question three helped to identify engaging practices for online learning and served to help fill this gap in the literature.

**Variables.** In the quantitative phase of this study, there were three variables: 1) student perceptions of their engagement in online courses; 2) student demographic characteristics; and, 3) student perceptions of learning in online courses. In the first question, the concept of engagement was measured as the independent variable and was quantified as total engagement scores calculated using the same method as that used by Indiana University to calculate NSSE engagement scores (Indiana University, 2009). There were four pre-defined dimensions within the student engagement variable: level of academic challenge; active and collaborative learning; student-faculty interaction; and, enriching educational experiences. Student demographic variables included age range, gender, level (undergraduate/graduate), employment status, number of online courses currently enrolled, number of online courses previously completed, and current grade point average. Student perceptions of their learning were measured as the dependent variable and quantified in scores across each of three dimensions of learning gains as defined in the NSSE: gains in general education, gains in personal and social development, and gains in practical competence (Carini, Kuh, & Klein, 2006).

**Research Design**

Based on the research questions defined above, this study employed a mixed methods sequential explanatory design with a dominant quantitative method informing a subsequent qualitative method to supplement the quantitative findings. Mixed methods designs leverage the benefits of both quantitative and qualitative research and provide a more complete understanding of a research problem and question than either method provides alone (Creswell, 2012). The sequential explanatory research design is illustrated in Figure 2.
In mixed methods research, the strengths of the quantitative and qualitative methods can be viewed as compensating for each of the method’s limitations (Fraenkel, Wallen, & Hyun, 2012). This is a quantitative-dominant mixed methods study, described by Johnson, Onwuegbuzie, & Turner (2007) as the “type of mixed research in which one relies on a quantitative post-positivist view of the research process, while concurrently recognizing that the addition of qualitative data and approaches are likely to benefit most research projects” (p. 124). Few studies of student engagement in postsecondary education have used mixed methods approaches. This dearth of mixed methods research is particularly evident in the areas of student engagement and learning in online education. The mixed methods approach provided for the quantitative and qualitative elements to corroborate and supplement the different findings. The major disadvantage of a mixed methods study is that it typically involves significant time, resources, and expertise, often well beyond that of a single-method study (Creswell, 2012). Throughout this research study, the researcher devoted the time and resources and developed the expertise to successfully complete the mixed methods study.

**Quantitative phase.** Based on the research questions defined above, the quantitative phase of this mixed methods sequential research study was correlational and employed a cross-sectional survey to gain information on students’ perceptions of engagement and learning in online courses and the relationship between perceptions of engagement and perceptions of
learning. A quantitative correlational research design was selected for the quantitative phase of the study as it is ideally suited to examine relationship questions. The major purpose of correlational research is to “clarify the understanding of important phenomena by identifying relationships among variables” (Fraenkel, Wallen, & Hyun, 2012, p. 332), in this case, seeking a clearer understanding of the relationship between student engagement and learning in online education.

While correlational design was appropriate to address the quantitative research questions in this study, it has several disadvantages. The most significant downside of correlational research is captured in the well-known phrase “correlation does not imply causation.” While it can be helpful in suggesting a relationship between variables, results of correlational research must be interpreted with caution because while they may suggest causation, they cannot clearly establish it (Fraenkel, Wallen, & Hyun, 2012). While correlation does not imply causation, this type of research remains a useful tool for identifying predictive relationships among variables and providing insight into the relationships among variables.

The use of a survey design provided for effectively and economically collecting data at one point in time on the perceptions of online students enrolled in online academic programs at the site institution in the Northeast and living in many diverse locations across the United States (Creswell, 2012). The quantitative research design was selected for the first phase of this two-phase sequential study as the most appropriate and time/cost-effective approach to address the quantitative research questions in this study, which were focused on identifying students’ perceptions of their engagement and learning in online courses and the relationship between their engagement and learning. Survey designs are ideal for collecting data on perceptions and practices, as well as for evaluating programs (Creswell, 2012). Surveys are also very effective at
describing the current state of a particular phenomenon or group of phenomena (Krathwohl & Smith, 2005), which was an objective of this study. The survey design also provides the opportunity to gather data from a relatively large number of respondents (Muijs, 2011), which may add to the generalizability of the findings, and provides a broader perspective in addressing the research questions than a strictly qualitative approach would provide.

Research designs that use surveys have some drawbacks, an obvious one being that surveys are not well-suited to address issues of causality (Muijs, 2011, p. 39). This was not an issue in this study, as it did not seek to identify causation between its variables. A further limitation to survey design is that responses are subjective and self-reported, providing information about each participant’s perception of reality rather than objective, tangible measures (Miller & Salkind, 2001). For this study, the perceptions collected were those of online postsecondary students of their own experiences in online courses. As discussed further in the Validity & Reliability section of this chapter, significant evidence has shown that students are “accurate, credible reporters of their activities and how much they have benefited from their college experience, provided that items are clearly worded and students have the information required to accurately answer the questions” (Kuh, 2001, p. 4). The National Survey of Student Engagement (NSSE) survey instrument adapted for use in this study has been used extensively since 2000 with several million students, and was intentionally designed to meet the conditions to encourage valid self-reports (Kuh, 2001). An additional drawback of survey research is that surveys generally use standardized answers, which may limit the nature and depth of responses (Miller & Salkind, 2001). While the survey in this study uses standardized answers, the qualitative phase of the study was used to gather additional information and provide for deeper
analysis and insight in understanding the relationship between engagement and learning in online education.

**Qualitative phase.** The qualitative phase of this study involved semi-structured interviews with 10 individual students who indicated a willingness to be interviewed in their response to the quantitative survey that comprised the first phase of the study. Interviews were conducted in a virtual format using Bluejeans web-based communications software, as student interviewees were geographically dispersed. Interviewing provided a means for the researcher to check the accuracy and expand on the findings of a quantitative survey, and has been described as the most important data collection technique for qualitative researchers (Fraenkel, Wallen, & Huyn, 2012). For this study, the researcher developed an interview protocol that was followed for all of the interviews (Appendix C). In alignment with the sequential explanatory design, the interview instrument and protocol were finalized after the quantitative data was collected and analyzed.

**Population and Sampling**

**Site and participants.** The site for this study was a large private non-profit institution of higher education with its main campus in the Northeast region of the United States and with a total of 16,000 students enrolled across four separate campuses in four states, including approximately 180 students enrolled in fully online programs within the School of Online & Continuing Education. The population of interest was adult (age 18 and over) undergraduate and graduate students who were enrolled at the time of the study in a fully online degree program at the site institution. The study participants were comprised of the School’s online students, and the study focused on collecting information about the perceptions of these students on student engagement and student learning in online courses and the relationship between the two.
This population of online students was enrolled in either an undergraduate Bachelor of Science in food service management degree completion program or a Master’s of Business Administration (MBA) program. The majority of the participants were early and mid-career professionals working full-time across a range of academic, socio-economic, and experiential backgrounds. As students enrolled in fully online degree programs, these students were key stakeholders in their success with online education and were a representative population of students enrolled in postsecondary online education in the United States at the time of the study. Individuals within the sample population were invited to participate in the web-based study that comprises the quantitative phase of the research through an instrument electronically distributed through email.

**Sampling – quantitative phase.** Due to the relatively small number of enrolled fully online students in the School of Online & Continuing Education, the sampling method for the initial quantitative phase of the study was a criterion-based sample including all of the fully online students at the institution who had completed one full term of study at the time of survey administration (October 2014). Invitations to participate in the quantitative survey phase of the study were sent on October 1, 2014, to all 177 of the actively enrolled fully online students who met this requirement. To increase response rate, the survey timeframe of 30 days was extended once by seven days, from October 31 to November 7, 2014. Potential participants were sent an email on October 31, 2014, notifying them of the extension of the survey deadline to November 7, 2014. The survey was conducted under the supervision of the university’s institutional research office, which provided access to appropriate data and helped to ensure student confidentiality. The necessary sample size for the identified population of 177 students yielded a desired minimum sample size of 121 to provide for a 95% confidence level with a 5%
confidence interval (Creative Research Systems, 2014). The actual final sample size for the survey was 112 respondents. There were 117 total respondents to the survey, but five of these submitted incomplete responses and were removed from the data. A sample size of 108 is required for a 90% confidence level with a 5% confidence interval. The sample of 112 yields an approximate 91% confidence level with a 5% confidence interval. The achieved level of 112 valid responses to the 177 surveys is an adequate number for correlational studies according to Fraenkel, Wallen & Hyun (2012), who recommend a sample of at least 50 to establish the existence of a relationship in correlational studies.

The web-based survey instrument that was sent to all participants requested demographic information (age range, gender, enrollment level, employment status, number of credit hours enrolled, number of online courses previously completed, and current grade point average). Through a range of questions, the survey requested information on participants’ perceptions of various aspects of student engagement and student learning. The survey included a question about the participant’s willingness to be interviewed in follow-up to the survey. Respondents indicating a willingness to participate in a follow-up interview were asked to provide their name, email address, and phone number. All survey responses were confidential. To encourage completion of the survey, participants were informed through the survey invitation email that their participation in the survey was voluntary and may contribute to enhanced understanding and resources related to student engagement and student learning in online courses. To help ensure the significant response rate required for this small population, participants were informed in the invitation email that all of those who completed and returned the survey and provided a name and email address were entered into a drawing for one of three each $100 Amazon.com gift cards.
**Sampling – qualitative phase.** The sampling method for the qualitative phase of the study was purposive non-probability sampling among the 70 survey respondents who indicated a willingness to participate in the interview process. In purposive sampling, the researcher selects individuals for study because they can “purposefully inform an understanding of the research problem and central phenomena in the study” (Creswell, 2013, p. 156). In order to identify a broad and diverse group of interview participants, the type of purposeful sampling used was maximum variation sampling. According to Creswell (2013), maximum variation sampling consists of determining in advance “some criteria that differentiate the sites or participants, and then selecting sites or participants that are quite different on the criteria” (p. 157). Participants who indicated a willingness to participate in an interview on the survey phase of the study were purposively identified to ensure a maximum variation in response profiles based on their survey responses. The objective for the sampling strategy was to confirm and conduct a minimum of ten focused interviews with students who are representative of the population surveyed. The actual results of the implementation of the maximum variation sampling for the ten interviews is discussed further in the Qualitative Results – Interviews section in Chapter 4 of this thesis.

**Data Collection**

**Instruments – quantitative phase.** This study sought to identify and analyze the perceptions of students enrolled in online education on student engagement, student learning, and the relationship between these two elements. The researcher reviewed the research literature to identify an existing survey instrument that addressed the research questions in this study. The National Survey of Student Engagement (NSSE), developed and overseen by the Indiana University Center for Postsecondary Research, was identified as the most prevalent survey tool used to study student engagement in higher education (Carini, Kuh, & Klein, 2006; Kuh, 2009).
The NSSE historically had been used primarily to study face-to-face undergraduate student engagement and had not been used broadly for research on online education at the time of the study.

Further research identified a modification to the NSSE instrument made in 2006 involving an analysis of the applicability of each survey question to the online learning environment. A total of 34 questions from the original 55-item NSSE questionnaire were redefined for applicability to online environments. The items eliminated from the original instrument focused on on-campus activities and services that are not typically available to online students such as sporting events, residence halls, and dining facilities. The modified survey items for online environments have been used in a dissertation study on online student engagement by Robinson (2006) and in a separate study by Suttle (2010). The researcher used this modified instrument in this study (see Appendix A). The researcher requested and received written permission to use items 1 through 34 from the modified NSSE survey from *The College Student Report*, National Survey of Student Engagement, Copyright 2001-2014 The Trustees of Indiana University. This permission was received June 4, 2014 (see Appendix F).

The survey instrument addressed the four benchmarks of student engagement (level of academic challenge, active/collaborative learning, student-faculty interaction, enriching educational experiences) and three dimensions of student learning (gains in general education, gains in personal and social development, and gains in practical competence). In addition, the instrument included items on a range of demographic variables and student characteristics germane to the study. Details on the specific item numbers that related to the four benchmarks of engagement, three dimensions of learning, and seven demographic characteristics are shown in Table 3.
Table 3

*Survey Item Categorization by Question Number*

<table>
<thead>
<tr>
<th>Benchmarks, Dimensions, Demographic Data</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Academic Challenge</td>
<td>Questions 5, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30</td>
</tr>
<tr>
<td>Active/collaborative learning</td>
<td>Questions 6, 7, 12, 13, 32</td>
</tr>
<tr>
<td>Student-faculty interaction</td>
<td>Questions 1, 2, 3, 4</td>
</tr>
<tr>
<td>Enriching educational experience</td>
<td>Questions 8, 9, 10, 11, 14, 26, 31, 33, 34</td>
</tr>
<tr>
<td>Gains in general education</td>
<td>Questions 27, 28, 29</td>
</tr>
<tr>
<td>Gains in personal and social development</td>
<td>Questions 29, 32, 33</td>
</tr>
<tr>
<td>Gains in practical competence</td>
<td>Questions 30, 31, 32</td>
</tr>
<tr>
<td>Age</td>
<td>Question 35</td>
</tr>
<tr>
<td>Gender</td>
<td>Question 36</td>
</tr>
<tr>
<td>Employment status</td>
<td>Question 37</td>
</tr>
<tr>
<td>Level (undergraduate, graduate)</td>
<td>Question 38</td>
</tr>
<tr>
<td>Number of online courses enrolled this term</td>
<td>Question 39</td>
</tr>
<tr>
<td>Number of online courses completed to date</td>
<td>Question 40</td>
</tr>
<tr>
<td>Current grade point average</td>
<td>Question 41</td>
</tr>
<tr>
<td>Willingness to participate in future interview</td>
<td>Question 42</td>
</tr>
<tr>
<td>Willingness to be entered in drawing for an Amazon.com electronic gift certificate</td>
<td>Question 43</td>
</tr>
</tbody>
</table>

The adapted NSSE instrument in this study used a number of different scales of measurement offering from 4 to 7 answer options, which might have confounded data analysis and interpretation. Following data collection to standardize the scoring and data analysis, the
ratings on responses to all of the non-demographic questions (Questions 1 to 34) were recoded to a numerical format in ascending order from least emphasis to greatest emphasis. These questions were treated as ordinal variables in the data analysis. All demographic items (Questions 35 to 42) were treated as nominal data.

**Instrument validity and reliability – quantitative phase.** The validity of an instrument is assessed through three different measurements – content validity, criterion validity, and construct validity (Muijs, 2011). Reliability is defined as the extent to which a measurement is consistent and can be validated through Cronbach’s alpha internal consistency tests to assess the correlation between subscale items (Muijs, 2011). The survey instrument incorporated multiple questions on each subscale to enhance internal consistency. Since 2000, the NSSE instrument has been subjected to ongoing assessment, the results of which are made publicly available through the NSSE Psychometric Portfolio, a framework for presenting studies of the validity, reliability, and other indicators of quality of NSSE’s data, including analysis of data subsets defined by a variety of student and institutional characteristics (National Survey of Student Engagement, 2014).

Content validity assessments determine if an instrument’s content is appropriate to measure the research concept in the study (Muijs, 2011). Criterion validity addresses the extent to which a survey instrument correlates with other established measures (Muijs, 2011). Construct validity is assessed as the extent to which a survey’s subscales measure their intended effect (Muijs, 2011). George D. Kuh (2001), the primary researcher in the development of the NSSE instrument, noted that “validity is arguably the most important property of an assessment tool” (p. 5). Since its development and launch in 2000, psychometric analyses have been conducted following each annual administration of the NSSE survey to ensure high validity of the
instrument in all respects. Minor editing and item submissions are made regularly as an element of these analyses (Kuh, 2001).

The reliability of the instrument in survey research relates to the stability and consistency of results over time when used by different researchers on different populations (Creswell, 2012). NSSE takes many steps to ensure the instrument’s reliability, including the test-retest procedure in which the survey is administered at two different times to the same group of people. A statistical correlation calculation determines how close the scores on the test-retest are to the perfect score of 1. Creswell (2012, p. 347) defines a score of .66 or greater as reasonably high. Test-retest procedures in 2002 and again in 2005 with 1,226 and 1,536 respondents respectively resulted in correlation scores across the four benchmarks of engagement of between 0.69 and 0.75 (Kuh, 2009). These findings suggest limited variation in student responses from one administration to the next and support the reliability of the NSSE instrument (Creswell, 2012).

An additional analysis of an instrument’s reliability is the Spearman-Brown formula, which reports a Cronbach’s alpha coefficient for items that are within a variable range (Muijs, 2011), with a coefficient alpha closer to 1 validating higher internal consistency. NSSE researchers have conducted several stability analyses to measure the strength of associations and the internal consistency between the benchmarks of effective educational practice. Kuh (2003) reports a Cronbach’s alpha of .85 overall for all NSSE questions assessed together. Indiana University’s 2009 analysis reports correlation scores of .78 (student-faculty interaction), .86 (level of academic challenge), 0.78 (active and collaborative learning), and .92 (enriching educational experiences) for the four benchmarks. These results of these assessments confirm the internal consistency and reliability of the NSSE instrument. To reduce the potential for measurement error and enhance internal consistency, the survey instrument incorporates multiple
questions on each subscale as shown in Table 3. To further ensure the validity and reliability of
the data from the instrument for the modified version for use in this study, the researcher had the
revised instrument reviewed by two well-qualified faculty members in her institution’s Ed.D.
program, as well as by the institution’s director of institutional research. Feedback from these
experts was used to make several minor modifications to the survey instrument.

The NSSE instrument relies upon student self-reports of engagement and gains in
learning. The validity of self-reports have been examined extensively (Pace, 1985; Pike 1995),
and self-reports have been deemed likely to be valid under five general conditions: 1) when the
information requested is known to the respondents; 2) the questions are phrased clearly and
unambiguously; 3) the questions refer to recent activities; 4) the respondents think the questions
merit a serious and thoughtful response; and 5) answering the questions does not threaten,
embarrass, or violate the privacy of the respondent or encourage the respondent to respond in
socially desirable ways (Pace, 1985; Pike, 1995). According to Kuh (2001), the NSSE instrument
was “intentionally designed to satisfy all of these conditions” (p. 4).

**Instruments – qualitative phase.** After data were collected and analyzed for the
quantitative phase of the study, the researcher identified 22 potential interview participants from
among the 70 survey respondents who indicated willingness to be interviewed. The researcher
selected interviewees purposefully to encompass a balanced range of total engagement scores
from low to high and to provide for the minimum of 10 interviewees. Emails with the Informed
Consent information (Appendix D) were sent by the researcher to the 22 selected interviewees
asking them to review the Informed Consent information and sign and return the consent form
via fax or email (Appendix D). The researcher’s phone number was provided in case
interviewees had any questions about the Informed Consent form or interview procedures. Only
two students responded to this first outreach. Email invitations were subsequently sent to all 70 of the survey respondents indicating a willingness to participate in an interview. Interviews were ultimately scheduled and conducted with 10 participants as required. The researcher developed and used an interview protocol (Appendix C) in conducting the focused interviews to collect additional information about the area(s) of interest. The interview protocol defined the interview procedure and the open-ended questions that were asked of all interviewees, as recommended by Fraenkel, Wallen & Hyun (2012), to facilitate the organization and analysis of the data.

**Procedures – quantitative phase.** The researcher applied and received Institutional Review Board (IRB) approval from her institution to conduct the study on June 9, 2014 (see Appendix F), and subsequently filed for similar approval from the Northeastern University Institutional Review Board. Final approval from the Northeastern University Institutional Review Board was received on September 9, 2014 (see Appendix F). The finalized survey instrument was entered into the web-based survey platform Survey Monkey by the researcher, and a cover email for the survey was sent to the study population by email by the institutional research office and student communications at the researcher’s institution on October 1, 2014. The cover email (Appendix B) included a link to the web-based survey. The cover email to the study participants explained the purpose of the survey, and emphasized the voluntary nature of students’ participation. The email also noted that submission of the survey electronically would constitute voluntary consent to participate. The confidentiality of the data was also emphasized.

Students were initially given a 30-day timeframe in which to complete the survey. The first email yielded only 22 responses to the survey. Five additional follow up emails were sent to the sample population by student communications during the month of October, 2014. In addition, a link to the consent form and survey was posted in the university’s student portal.
JWULink, viewable only by continuing online students, the target population for the study. By the anticipated date of survey closure (October 31, 2014) only 82 responses had been received. The date of survey closure was extended to November 7, 2014, and one final email outreach was made. The survey was closed on November 7, 2014, with 117 total survey responses received.

To encourage participation in the survey, participants were entered into a drawing for one of three each $100 electronic gift cards to Amazon.com. A question in the survey (#43) asked survey participants for their consent to participate in the drawing, as well as for their name and email address to facilitate sending the electronic gift cards to the drawing winners. When the survey was closed on November 7, 2014, the researcher and the director of institutional research used Microsoft Excel’s random number drawing capability to randomly select three participants from the pool of 93 participants who responded positively to question #43 of the survey. On November 8, 2014, the researcher purchased three electronic $100 e-gift certificates from Amazon.com and had them sent by Amazon.com to the email address provided by each of the three drawing winners.

Procedures – qualitative phase. The researcher contacted and scheduled interviews with ten participants as discussed in the “Instruments – qualitative phase” section above. Interviewees were asked to acknowledge receiving and reading the informed consent form by email prior to the interviews (Appendix D). The interviews were conducted by the researcher by telephone using the Bluejeans teleconferencing system. Interviews were conducted following the guidelines and script set forth in the Interview Protocol (Appendix C). Interviews were scheduled for 30 minutes each and were audio-taped by the Bluejeans teleconferencing system and then sent electronically to Rev.com, a commercial transcription company, for transcription.
Transcribed interview content was then entered into the HyperRESEARCH qualitative research software to facilitate thematic analysis.

**Data Analysis**

**Quantitative phase.** Data collected through the survey instrument were analyzed using statistical software to describe students’ perceptions and to identify relationships between the variables. Statistical Package for Social Sciences software (SPSS) version 22.0 was used for all quantitative data analysis. Survey results data were retrieved in an electronic file from Survey Monkey and loaded into SPSS for analysis. Descriptive statistics (frequencies, percents, means, and standard deviation, where appropriate) were used to report on each of the survey items and frequencies were determined to cleanse the data by eliminating any missing responses. Five of the 117 total responses were eliminated from the data set as a result of this process, leaving 112 complete responses. Demographic items with nominal responses were analyzed by the percentage per response, as well as by measures of central tendency (where appropriate), specifically the mode, to identify the most frequent response and the mean for each item. Reverse coding was used as necessary with scale items to ensure that all variables were scaled in the same direction (from lowest to highest). Results of the survey and analyses were captured in narrative form in Chapter 4, as well as in charts and tables as appropriate to provide a clear visual representation of the data.

Average inter-item correlation was used to examine Cronbach’s alpha internal consistency reliability. This statistical test compares the correlations between all of the possible pairs of questions within a benchmark or dimension by calculating the mean of all of the paired correlations (Trochim, 2006). Simple linear correlation is a measure of the degree to which two
continuous variables vary together or are related to one another (Muijs, 2011). Pearson’s product-moment correlation coefficients were calculated to address Research Question One, assessing each of the four benchmark engagement scores against each of the three dimensions of learning to identify correlations. Cohen’s conventions to interpret correlation effect sizes were used to qualify the practical importance of the correlation (.20 = small; .30 = moderate; .50 = large). For Research Question Two, tests of differences were conducted for each of the demographic categories (ANOVA for multivariate demographics, t-tests for bivariate demographics).

**Qualitative phase.** The researcher employed thematic analysis as the qualitative data analysis strategy to better understand the phenomenon of online student engagement as presented in the content of the focused interviews. Thematic analysis is a process for encoding qualitative information and involves the identification of themes or patterns found in information that “at minimum describes and organizes the possible observations and at maximum interprets aspects of the phenomenon” (Boyatzis, 1998, p. 4). The transcribed interview content was entered into HyperRESEARCH, a qualitative research software product. The software assisted in identifying themes within and across the interviews and coding them to facilitate the analysis. Themes were identified and explored through the qualitative data from the interviews and were then triangulated with the quantitative results and findings through a thematic network diagram (see Figure 3) and a triangulation matrix (Table 28).

**Validity, Reliability and Generalizability**

There were several potential threats to the validity, reliability, and generalizability of this mixed methods research study. For the quantitative phase of the study, there were three types of evidence to address the validity of the survey instrument – content-related evidence, criterion-
related evidence, and construct-related evidence of validity (Fraenkel, Wallen, & Huyn, 2012; Muijs, 2011). For this study the researcher identified and used an existing survey instrument developed for the National Survey of Student Engagement and specifically modified by the developers to accommodate assessing student engagement in the online environment (NSSE, 2014). The NSSE instrument has been extensively tested and refined to ensure its validity and reliability, as discussed in greater detail in the Instrument Validity and Reliability section of this thesis.

Non-response bias is a potential threat to survey research and is the extent to which excluded responses of those who do not respond to the survey impacts the results of the survey (Creswell, 2012). The researcher took a number of steps to ensure a high response including an introductory invitation email, multiple follow-up emails, a web-based survey instrument that is simple and quick to complete, a delineation of the benefits of participating in the survey, and the entry of respondents into a drawing for $100 electronic gift cards to Amazon.com (three total gift cards were distributed to drawing winners). The actual response rate for the survey was 63.3% (112 complete responses from population of 177).

A potential threat to the generalizability of the quantitative findings was the method used to select the population for the study. The criterion-based sampling strategy employed for the study identified all of the 177 continuing students enrolled in online degree programs at the site institution in the Northeast as the population to which the survey was sent. The results of the research study are not generalizable to any population other than online students enrolled at the site institution. This is not a significant issue for the researcher, as the study was undertaken, in part, to identify the level of engagement and its relationship with learning, as well as effective engagement practices and activities, at the site institution where the researcher is employed.
For the qualitative phase of the study, it is common to discuss the trustworthiness of qualitative research, which involves establishing the credibility, dependability, and transferability of the research. Lincoln and Guba (1985) posit that trustworthiness is essential in evaluating qualitative research. Establishing the credibility of qualitative findings is a key aspect of trustworthiness. According to Lincoln and Guba (1985), there are a number of techniques for establishing credibility. In this study, the researcher used peer debriefing, member-checking, and methods triangulation to validate the credibility of the qualitative findings.

In the peer debriefing, the researcher sought feedback from a qualitative researcher at her institution who is a doctoral faculty member holding an Ed.D. from Vanderbilt University and who regularly conducts scholarly research and advises doctoral students on qualitative research. The peer researcher reviewed all aspects of the qualitative phase of this study and provided feedback to the researcher, which was incorporated into the qualitative findings. In the member-checking for the qualitative phase of the study, the researcher sent the ten student interviewees an email asking them to review the thematic network diagram that describes the broad themes that emerged from the interviews (see Figure 3, page 115) to assess whether the findings as represented in the network diagram were reflective of what they had expressed to the researcher in the interviews. To further establish the trustworthiness of the qualitative phase of the study, methods triangulation was employed to assess the consistency of the findings generated between the quantitative and qualitative phases of the study.

**Protection of Human Subjects**

This research involves human subjects in both the quantitative and qualitative phases of the study, so the researcher submitted the Doctoral Research Proposal to the Institutional Review Boards at both the site institution and Northeastern University for their review and approval prior
to conducting the study. Approval for the study was received from the site institution on June 9, 2014 (Appendix F). Approval from the Institutional Review Board at Northeastern University was received on September 9, 2014 (Appendix F). To fully inform potential survey participants prior to participation, the email invitation to participate in the survey included a brief description of the purposes of the study, a statement of the extent to which answers are protected with respect to confidentiality, assurance that participation in the survey is voluntary and there are no negative consequences for not participating, and clarification that it is acceptable to skip any question in the survey (Fowler, 2009). Survey participants were required to electronically acknowledge having received and read the invitation email contents prior to proceeding to the first question in the survey. Data for the survey was collected in collaboration with the site institution’s Institutional Research Office.

Participants in the qualitative focused interviews were provided with a detailed Informed Consent document (Appendix D) prior to participating in interviews. Interview participants were required to acknowledge having read the Informed Consent document by email prior to the interview. The consent form assured potential participants that participation was voluntary, that confidentiality of the interview data collected was strictly maintained and no clues to any participant’s identity appeared in the thesis document, that data were coded and stored on a computer that is locked and protected by a password known only to the researcher, and that interview data was maintained by the researcher for six months after successful completion of the Doctorate in Education program and then destroyed.

**Ethical Considerations**

The researcher had no consistent established relationships with the potential participants in this research study at the time the study was conducted, and no research relationship was
established outside of the electronic survey invitations for the participants in the quantitative phase of the study. The survey invitation was constructed to ensure that participants understood that participation in the survey is voluntary and that all responses will remain confidential. However, as the senior administrator managing online programs at the site institution, it is possible that the focused interviews with students in the qualitative phase of the study might be perceived as promoting a relationship. To help ameliorate this possibility, the researcher followed carefully designed procedures for the interviews as described in the Interview Protocol (Appendix C) to ensure that each interviewee was provided the same information and asked the same questions during the interviews.

The role of the researcher in any study is important, and all researchers must maintain a delicate balance between their own knowledge and experience and the data they collect in their research to avoid injecting personal bias into the process. The researcher in this study has considerable experience and knowledge in higher education administration and focused throughout this research process on using that knowledge only to understand the results of the study, not to shape or influence the results.
Chapter 4: Research Findings

The purpose of this mixed methods research study was to examine the relationship among student perceptions of their levels of engagement in online courses, student demographic characteristics, and their perceptions of their learning in online courses. As discussed previously, a modification to an existing survey instrument, the National Survey of Student Engagement published by the University of Indiana, was used to measure student perceptions of their engagement and learning in online courses among continuing online students at the site institution. Survey data were collected and analyzed through a number of statistical methodologies.

As part of the survey data analysis, a total engagement score was calculated for each respondent to the survey. Using maximum variation sampling and the engagement score as a guide, ten total interviewees were then contacted and ultimately confirmed for focused interviews. Interviews were conducted and audiotaped with all ten interviewees using teleconferencing services provided by www.bluejeans.com, and verbatim transcripts were prepared from the audiotapes. Themes were identified and coded within and across the interviews with HyperResearch software. These themes were then explored by triangulation with the quantitative data through a thematic analysis network diagram. Results of these quantitative and qualitative analyses are described below.

Quantitative Phase – Survey

Emails inviting students to participate in the survey were sent on October 1, 2014, to all 177 continuing online students at the site institution. The original survey data collection period was October 1st through October 30th, 2014. To help increase the survey response rate, the survey data collection period was extended once by seven days on October 31, 2014, changing the final
date for submission of completed surveys to November 7, 2014. All potential survey respondents were sent an email on October 31, 2014, notifying them of the seven day extension. Upon conclusion of the data collection period on November 7, 2014, 117 surveys had been submitted through the web-based survey tool SurveyMonkey.com. This represents a survey response rate of 66.1%. Five of the 117 responses were identified as incomplete and were deleted from the survey data, representing a complete survey response rate of 63.3% (112 out of 177 possible). A previously conducted a priori power analysis of the target population of 177 students defined that 121 responses were needed for a 95% confidence level with a 5% confidence interval. Although this response rate was not achieved, the 112 complete responses that were received represent a 91% confidence level with a 5% confidence interval (Creative Research Systems, 2014).

Survey Respondents’ Demographic Profile

Questions 35 through 41 requested demographic data from respondents. Demographic data (see Table 4) revealed that the majority of survey respondents are female (66.4%) and that most respondents are under the age of 45 (83.6%). A very high percentage of respondents are working either full-time (77.3%) or part-time (13.6%) while pursuing their online degrees. Respondents to the survey were almost evenly divided between the undergraduate (50.5%) and graduate (49.5%) levels, and over half of the respondents were taking two courses in the current term, which corresponds to part-time enrollment status for undergraduate and full-time enrollment status for graduate students. The largest percent of students were in their second term of online study with one to three courses completed (43.6%) with a much smaller percent having completed 10 or more courses (18.2%). The grades seem exceptionally high for the respondent group, with only 7 students (6.3%) claiming to earn grades below a B.
## Table 4

**Descriptive Statistics of Student Demographics**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (35)</strong></td>
<td>&lt; 25</td>
<td>28</td>
<td>25.0</td>
<td>25.5</td>
<td>25.5</td>
</tr>
<tr>
<td></td>
<td>25 – 34</td>
<td>39</td>
<td>34.8</td>
<td>35.5</td>
<td>60.9</td>
</tr>
<tr>
<td></td>
<td>35 – 44</td>
<td>25</td>
<td>22.3</td>
<td>22.7</td>
<td>83.6</td>
</tr>
<tr>
<td></td>
<td>45 – 54</td>
<td>17</td>
<td>15.2</td>
<td>15.5</td>
<td>99.1</td>
</tr>
<tr>
<td></td>
<td>55 or older</td>
<td>1</td>
<td>0.9</td>
<td>0.9</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>110</td>
<td>98.2</td>
<td>100.0</td>
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<td>System</td>
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<td>1.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>112</td>
<td>100.0</td>
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<td></td>
</tr>
<tr>
<td><strong>Gender (36)</strong></td>
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<td>37</td>
<td>33.0</td>
<td>33.6</td>
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<tr>
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<td>73</td>
<td>65.2</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td>110</td>
<td>98.2</td>
<td>100.0</td>
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<tr>
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<td>System</td>
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<tr>
<td><strong>Total</strong></td>
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</tr>
<tr>
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<td>75.9</td>
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<td>98.2</td>
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<td>1.8</td>
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<tr>
<td><strong>Total</strong></td>
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<tr>
<td><strong>Level (38)</strong></td>
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<td></td>
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<td>99.1</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td>System</td>
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<td>.9</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td>112</td>
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<tr>
<td><strong>Courses/term (39)</strong></td>
<td>One course</td>
<td>24</td>
<td>21.4</td>
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<td>Two courses</td>
<td>62</td>
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<td>Three courses</td>
<td>24</td>
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<td>Four+ courses</td>
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<td>.9</td>
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<td><strong>Total</strong></td>
<td></td>
<td>111</td>
<td>99.1</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td>System</td>
<td>1</td>
<td>.9</td>
<td></td>
<td></td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td>112</td>
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</tr>
<tr>
<td>Characteristic</td>
<td>Description</td>
<td>Frequency</td>
<td>Percent</td>
<td>Valid Percent</td>
<td>Cumulative Percent</td>
</tr>
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<td>------------------</td>
<td>-----------</td>
<td>---------</td>
<td>---------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Courses</td>
<td>1 to 3 courses</td>
<td>48</td>
<td>42.9</td>
<td>43.6</td>
<td>43.6</td>
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<tr>
<td>Completed (40)</td>
<td>4 to 6 courses</td>
<td>31</td>
<td>27.7</td>
<td>28.2</td>
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<td>7 to 9 courses</td>
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</tr>
<tr>
<td></td>
<td>10+ courses</td>
<td>20</td>
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<td>18.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>110</td>
<td>98.2</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>System</td>
<td>2</td>
<td>1.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>112</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grades (41)</td>
<td>A</td>
<td>45</td>
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<td>40.5</td>
<td>40.5</td>
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<td>A-, B+</td>
<td>47</td>
<td>42.0</td>
<td>42.3</td>
<td>82.9</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>12</td>
<td>10.7</td>
<td>10.8</td>
<td>93.7</td>
</tr>
<tr>
<td></td>
<td>B-, C+</td>
<td>6</td>
<td>5.4</td>
<td>5.4</td>
<td>99.1</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>1</td>
<td>.9</td>
<td>.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>111</td>
<td>99.1</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
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<td></td>
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<tr>
<td>Total</td>
<td></td>
<td>112</td>
<td>100.0</td>
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</tr>
</tbody>
</table>

**Reliability of Data for Engagement Benchmarks and Dimensions of Learning**

The NSSE instrument used for the survey incorporated four benchmark dimensions of student engagement and three dimensions of student perceptions of learning that were defined by the developers of NSSE for use in the survey. Scores for each of the benchmarks and dimensions were calculated through student responses to a series of from three to 16 questions in the survey as shown in Tables 5 and 6 below.
Table 5  
*Survey Items – Elements of Benchmarks of Engagement*

<table>
<thead>
<tr>
<th>Benchmarks of Engagement (CODE)</th>
<th>Questions Included in Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Academic Challenge (LAC)</td>
<td>Questions 5, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30</td>
</tr>
<tr>
<td>Active/collaborative learning (ACTV-LRN)</td>
<td>Questions 6, 7, 12, 13, 32</td>
</tr>
<tr>
<td>Student-faculty interaction (STDT-FAC)</td>
<td>Questions 1, 2, 3, 4</td>
</tr>
<tr>
<td>Enriching educational experience (EDUC-EXP)</td>
<td>Questions 8, 9, 10, 11, 14, 26, 31, 33, 34</td>
</tr>
</tbody>
</table>

Table 6  
*Survey Items – Elements of Dimensions of Learning*

<table>
<thead>
<tr>
<th>Dimensions of Learning (CODE)</th>
<th>Questions Included in Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gains in general education (GEN-ED)</td>
<td>Questions 27, 28, 29</td>
</tr>
<tr>
<td>Gains in personal and social development (PERS-SOC)</td>
<td>Questions 29, 32, 33</td>
</tr>
<tr>
<td>Gains in practical competence (PRCT-COMP)</td>
<td>Questions 30, 31, 32</td>
</tr>
</tbody>
</table>

In seeking to analyze the relationship between these four benchmarks of engagement and the three dimensions of learning, it is important that each of these sets of responses have internal consistency reliability. Cronbach’s alpha is an index of internal consistency, also known as reliability. In calculating Cronbach’s alpha one is able to determine the reliability of a psychometric instrument, or how closely related a set of items are as a group. Internal consistency reliability is expressed as a coefficient of between 0 and 1 that identifies the degree of reliability, with values near 1 expressing the highest degree of reliability. Cronbach’s alpha
scores were calculated for each of the four defined benchmarks of engagement and three dimensions of learning. The results of these calculations are shown in Table 7 below.

Table 7

*Cronbach’s Alpha for Benchmarks and Dimensions*

<table>
<thead>
<tr>
<th>Benchmark/Dimension</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Benchmarks of Engagement:</strong></td>
<td></td>
</tr>
<tr>
<td>Level of Academic Challenge (Items 5, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 27, 28, 29, 30)</td>
<td>.801</td>
</tr>
<tr>
<td>Student-Faculty Interaction (Items 1, 2, 3, 4)</td>
<td>.594*</td>
</tr>
<tr>
<td>Active and Collaborative Learning (Items 6, 7, 12, 13, 32)</td>
<td>.634*</td>
</tr>
<tr>
<td>Enriching Educational Experience (Items 8, 9, 10, 11, 14, 25, 31, 33, 34)</td>
<td>.719</td>
</tr>
<tr>
<td><strong>Dimensions of Learning:</strong></td>
<td></td>
</tr>
<tr>
<td>Gains in General Education (Items 27, 28, 29)</td>
<td>.843</td>
</tr>
<tr>
<td>Gains in Personal and Social Development (Items 29, 32, 33)</td>
<td>.767</td>
</tr>
<tr>
<td>Gains in Practical Competence (Items 30, 31, 32)</td>
<td>.823</td>
</tr>
</tbody>
</table>

Within the NSSE-defined benchmarks of engagement, the benchmarks Level of Academic Challenge (alpha = .858) and Enriching Educational Experience (alpha = .719) indicate the necessary internal consistency (alpha > .70) to function as a reliable scale or benchmark. For the benchmarks Student-Faculty Interaction and Active & Collaborative Learning (indicated by * in Table 7), the reliability of the data at the dimension level was too low (alpha < .70) to accurately calculate a mean for the dimension. Therefore item-level analyses were conducted for these two benchmarks of engagement. The three NSSE-defined dimensions
of learning, including Gains in General Education (.843), Gains in Personal and Social Development (.767), and Gains in Practical Competence (.823), reflect adequate internal consistency to be treated as three reliable dimensions in the statistical analyses.

Survey Descriptive Statistics – Engagement and Learning Items

The students’ responses on the individual questions relating to engagement and learning (survey items 1 to 34) are discussed and described below. Discussion of the descriptive statistics are grouped under each of the four NSSE-defined benchmarks of engagement (Level of Academic Challenge, Active and Collaborative Learning, Student-Faculty Interaction, and Enriching Educational Experiences) and the three NSSE-defined dimensions of learning (Gains in General Education, Gains in Personal and Social Development, and Gains in Practical Competence).

Benchmark-Level of Academic Challenge. The 15 questions that make up this benchmark address student’s perceived level of effort in courses; the skills emphasized in courses (memorizing, analyzing, synthesizing, making judgments, applying theories); how the online experience helped students develop job-related skills, writing and speaking skills, and critical thinking skills; and the number of textbooks, articles, papers, and problems in online courses. Response results are displayed in two tables (Tables 8 and 9) due to the difference in the number of possible response choices within the questions related to this benchmark. Descriptive statistics (see Tables 8 and 9) reflect participant responses to the 15 items in the engagement benchmark Level of Academic Challenge.

Table 8. The results in this area indicate that students perceive that the top three activities/skills emphasized in their online coursework are analyzing of an idea or theory (Item 16, \( M = 3.32 \)), applying theories or concepts to practical problems (Item 19, \( M = 3.16 \)), and
thinking critically and analytically (Item 29, $M = 3.15$). The mode for seven of the ten questions in Table 8 is 3.00, corresponding to the answer “3 (Quite a bit),” indicating that many students perceive that their online learning experience positively impacts them in a range of ways on a frequent basis. Responses to item 28 relating to how much the online learning experience helped students to speak clearly and effectively had the broadest range of responses (Item 28, $Mo = 2.00$), corresponding to the answer “2 (Some),” and a standard deviation of 1.01 (Item 28, $SD = 1.01$). In looking at frequencies, only 2 students (1.8%) responded with “1 (Very little)” and 8 (7.2%) responded with “2 (Some)” to item 15 relating to how much online work emphasized analyzing an idea, experience, or theory. On this item, over 90% of students agreed that analyzing ideas is a regular component of their online coursework. The response scale for survey item 5 is: 1 (Never), 2 (Sometimes), 3 (Often), 4 (Very Often) (Table 8). The response scale for survey items 5, 16, 17, 18, 19, 27, 28, 29, and 30 is: 1 (Very little), 2 (Some), 3 (Quite a bit), 4 (Very Much). Shortened references to each of the survey items are shown in Table 8. Please see Appendix A for the full text of each survey item.
Table 8

Descriptive Statistics for Engagement Benchmark: Level of Academic Challenge 4-Option Questions (N = 112)

<table>
<thead>
<tr>
<th>Item</th>
<th>Very little</th>
<th>Some</th>
<th>Quite a bit</th>
<th>Very Much</th>
<th>M</th>
<th>Mode</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LAC 4-option questions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q5 Worked Harder*</td>
<td>f</td>
<td>5</td>
<td>30</td>
<td>51</td>
<td>26</td>
<td>2.28</td>
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<tr>
<td>%</td>
<td></td>
<td>4.5</td>
<td>26.8</td>
<td>45.5</td>
<td>23.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q15 Memorizing**</td>
<td>f</td>
<td>14</td>
<td>52</td>
<td>30</td>
<td>13</td>
<td>2.39</td>
<td>2.00</td>
</tr>
<tr>
<td>%</td>
<td></td>
<td>12.8</td>
<td>47.7</td>
<td>27.5</td>
<td>11.9</td>
<td></td>
<td></td>
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<tr>
<td>Q16 Analyzing**</td>
<td>f</td>
<td>2</td>
<td>8</td>
<td>53</td>
<td>48</td>
<td>3.32</td>
<td>3.00</td>
</tr>
<tr>
<td>%</td>
<td></td>
<td>1.8</td>
<td>7.2</td>
<td>47.7</td>
<td>43.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q17 Synthesizing**</td>
<td>f</td>
<td>8</td>
<td>30</td>
<td>41</td>
<td>32</td>
<td>2.88</td>
<td>3.00</td>
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<tr>
<td>%</td>
<td></td>
<td>7.2</td>
<td>27.0</td>
<td>36.9</td>
<td>28.8</td>
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<td></td>
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<tr>
<td>Q18 Make Judgments**</td>
<td>f</td>
<td>3</td>
<td>23</td>
<td>54</td>
<td>30</td>
<td>3.01</td>
<td>3.00</td>
</tr>
<tr>
<td>%</td>
<td></td>
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<td>20.9</td>
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<tr>
<td>Q19 Apply Theories**</td>
<td>f</td>
<td>2</td>
<td>21</td>
<td>45</td>
<td>43</td>
<td>3.16</td>
<td>3.00</td>
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<td>%</td>
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<td>18.9</td>
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<td>38.7</td>
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<td>Q27 Write Clearly**</td>
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<td>35</td>
<td>30</td>
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<td>27.0</td>
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<td></td>
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<td>Q28 Speak Clearly**</td>
<td>f</td>
<td>23</td>
<td>39</td>
<td>29</td>
<td>20</td>
<td>2.41</td>
<td>2.00</td>
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<tr>
<td>%</td>
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<td>35.1</td>
<td>26.1</td>
<td>18.0</td>
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<td></td>
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<tr>
<td>Q29 Think Critically**</td>
<td>f</td>
<td>4</td>
<td>17</td>
<td>46</td>
<td>41</td>
<td>3.15</td>
<td>3.00</td>
</tr>
<tr>
<td>%</td>
<td></td>
<td>3.7</td>
<td>15.7</td>
<td>42.6</td>
<td>38.0</td>
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<td>Q30 Analyze Quant.**</td>
<td>f</td>
<td>7</td>
<td>31</td>
<td>47</td>
<td>24</td>
<td>2.81</td>
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<td>28.4</td>
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<td>22.0</td>
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<td></td>
</tr>
</tbody>
</table>

Note. Numbered survey items (Q5-Q30) correspond to the numbered survey questions in Appendix A. *Item responses were: 1 = Never, 2 = Sometimes, 3 = Often, 4 = Very Often. **Item responses were 1 = Very little, 2 = Some, 3 = Quite a bit, 4 = Very much.
Table 9. Items 20, 21, 22, 24, and 15 relate to the number of textbooks, articles, and papers required for an online course, as well as the number of problem sets taking more than one hour to complete and the number taking less than one hour in a course each week. There is a consensus among 95.5% of respondents that most online courses require between 1 and 3 textbooks (Item 20, $M = 2.07$), and little consensus on the number of articles that are required reading in a course (Item 21, $M = 3.68$) and in the number of papers required in a course (Item 22, $M = 3.25$). The mode on item 21 relating to the number of articles assigned in a course (Item 21, $Mo = 5.00$), correlating to the answer “5 (10 or more),” shows that 40 students (36%) agreed on this item. This item also had the broadest range of answers as reflected in its mean and standard deviation ($M = 3.68$, $SD = 1.19$). Shortened references to each of the survey items are shown in Table 9. Please see Appendix A for the full text of each survey item. The response scale for these items is 1 (None), 2 (Between 1 and 3), 3 (Between 4 and 6), 4 (Between 7 and 9), and 5 (10 or more).
Table 9

*Descriptive Statistics for Engagement Benchmark: Level of Academic Challenge (5-Option Questions) (N = 112)*

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>None</th>
<th>Between 1-3</th>
<th>Between 4-6</th>
<th>Between 7-9</th>
<th>10 or More</th>
<th>M</th>
<th>Mode</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAC 5-Option Questions</td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>Q20 # of Textbooks</td>
<td>f</td>
<td>1</td>
<td>106</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2.07</td>
<td>2.00</td>
<td>.46</td>
</tr>
<tr>
<td>%</td>
<td>.9</td>
<td>95.5</td>
<td>.9</td>
<td>.9</td>
<td>1.8</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q21 # of Articles</td>
<td>f</td>
<td>2</td>
<td>20</td>
<td>29</td>
<td>20</td>
<td>40</td>
<td>3.68</td>
<td>5.00</td>
<td>1.19</td>
</tr>
<tr>
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<td>18.0</td>
<td>26.1</td>
<td>28.0</td>
<td>36.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q22 # of Papers</td>
<td>f</td>
<td>1</td>
<td>35</td>
<td>33</td>
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<td>24</td>
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<td>1.16</td>
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<td>%</td>
<td>.9</td>
<td>32.1</td>
<td>30.3</td>
<td>14.7</td>
<td>22.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q24 Problems &gt;1 hour</td>
<td>f</td>
<td>3</td>
<td>60</td>
<td>37</td>
<td>9</td>
<td>2</td>
<td>2.52</td>
<td>2.00</td>
<td>.76</td>
</tr>
<tr>
<td>%</td>
<td>2.7</td>
<td>54.1</td>
<td>33.3</td>
<td>8.1</td>
<td>1.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q25 Problems &lt;1 hour</td>
<td>f</td>
<td>26</td>
<td>46</td>
<td>27</td>
<td>1</td>
<td>0</td>
<td>2.03</td>
<td>2.00</td>
<td>.72</td>
</tr>
<tr>
<td>%</td>
<td>23.4</td>
<td>51.4</td>
<td>24.3</td>
<td>.9</td>
<td>.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Numbered survey items (Q20-Q25) correspond to the numbered survey questions in Appendix A. Item responses were: 1 = None, 2 = Between 1 and 3, 3 = Between 4 and 6, 4 = Between 7 and 9, 5 = 10 or More.
**Benchmark-Active and Collaborative Learning.** The five questions in this benchmark area address students’ perception of how often they have worked with or tutored other students, made presentations, and used the library for course-related assignments, and how much their online experience has helped them to work effectively with others (see Table 10). The majority of students (66.1%) indicate they never tutored or taught other students (Item 7, $M = 1.50$) and half of students (50.5%) had never made a presentation in an online course (Item 12, $M = 1.86$). Three items (6, 7, 12) have a mode of 1.00 ($Mo = 1.00$) corresponding to the answer “1 (Never)” to the questions about working with others, tutoring others and making online presentations. These appear to be activities in which many students do not engage in the course of their online studies. The largest percentage of students (54.5%) indicate that they regularly use the library for assignments (Item 13, $M = 2.76$) either often or very often. Ten students (8.9%) indicated that they never use the library.

Descriptive statistics (see Table 10) reflect participant responses to the five items in the engagement benchmark Active and Collaborative Learning (survey items 6, 7, 12, 13, 32). The response scale for these survey items is: 1 (Never), 2 (Sometimes), 3 (Often), 4 (Very Often). Shortened references to each of the survey items are shown in Table 10. Please see Appendix A for the full text of each survey item.
Table 10

Descriptive Statistics for Engagement Benchmark: Active and Collaborative Learning (N = 112)

<table>
<thead>
<tr>
<th>Item</th>
<th>Never</th>
<th>Sometimes</th>
<th>Rating</th>
<th>Very Often</th>
<th>M</th>
<th>Mode</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Often</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>ACTV-LRN</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Q6 Work with Others</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Q7 Tutor Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Q12 Presentations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q13 Library Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q32 Help Work Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>Sometimes</td>
<td>Rating</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
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</tr>
</tbody>
</table>

Note. Numbered survey items (Q6-Q32) correspond to the numbered survey questions in Appendix A. Item responses were: 1 = *Never*, 2 = *Sometimes*, 3 = *Often*, 4 = *Very Often.*
**Benchmark-Student-Faculty Interaction.** The four questions in this benchmark area address students’ perception of how often they have had discussions with faculty about ideas from readings and class notes, grades and assignments, and career plans, as well as how often they have received prompt feedback from faculty on their course performance. Responses in this benchmark area (see Table 11) show that the most frequent element in online interaction between students and faculty is prompt feedback on course performance (Item 3, $M = 3.14$, $Mo = 3.00$). On item 3 relating to prompt feedback, four students (3.6%) indicate that they have never received prompt feedback from faculty and 15 (13.4%) indicate they receive it only sometimes.

As shown in the data for item 4, the least frequent interaction students have with faculty is discussing career plans (Item 4, $M = 1.62$, $Mo = 1.00$). A total of 56 students (50.9%) indicate they have never discussed career plans with faculty, while 17 (15.2%) indicated never having discussed ideas from class content, and 15 (13.4%) indicated never having discussed grades with faculty.

Descriptive statistics (see Table 11) reflect participant responses to the four items in the engagement benchmark Student-Faculty Interaction (survey items 1, 2, 3, 4). The response scale for these survey items is: 1 (*Never*), 2 (*Sometimes*), 3 (*Often*), 4 (*Very Often*). Shortened references to each of the survey items are shown in Table 8. Please see Appendix A for the full text of each survey item.
Table 11

Descriptive Statistics for Engagement Benchmark: Student-Faculty Interaction (N = 112)

<table>
<thead>
<tr>
<th>Item</th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
<th>M</th>
<th>Mode</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 Discuss Ideas</td>
<td>17</td>
<td>58</td>
<td>26</td>
<td>11</td>
<td>2.28</td>
<td>2.00</td>
<td>.84</td>
</tr>
<tr>
<td>Q2 Discuss Grades</td>
<td>15</td>
<td>58</td>
<td>30</td>
<td>9</td>
<td>2.29</td>
<td>2.00</td>
<td>.80</td>
</tr>
<tr>
<td>Q3 Prompt Feedback</td>
<td>4</td>
<td>15</td>
<td>54</td>
<td>39</td>
<td>3.14</td>
<td>3.00</td>
<td>.78</td>
</tr>
<tr>
<td>Q4 Discuss Career</td>
<td>56</td>
<td>43</td>
<td>8</td>
<td>3</td>
<td>1.62</td>
<td>1.00</td>
<td>.74</td>
</tr>
</tbody>
</table>

Note. Numbered survey items (Q6-Q32) correspond to the numbered survey questions in Appendix A. Item responses were: 1 = Never, 2 = Sometimes, 3 = Often, 4 = Very Often.
**Benchmark-Enriching Educational Experiences.** The nine questions in this benchmark area address students’ perception of how often they have communicated with other students on matters not related to the course, participated in online class discussions, used computer technology to analyze data, developed a web page, and used the library for purposes unrelated to online courses. Questions also address how much students’ online learning experience helped them acquire work-related skills, use information technology, learn effectively on their own, and solve complex real-world problems. Table 12 shows that the most frequent enriching educational experiences are participation in online class discussions (Item 9, $M = 3.60$) and using computer technology to analyze data (Item 10, $M = 2.95$). Item 33 also indicates that a majority of students feel that their online learning experience has often (23.4%) or very often (69%) helped them to learn effectively on their own (Item 33, $M = 3.45$, $SD = .81$, $Mo = 4.00$). Item 8 results indicate that students never (46.8%) or only sometimes (38.7%) communicate with other students about things unrelated to their online courses (Item 8, $M = 1.73$, $SD = .84$, $Mo = 1.00$).

Descriptive statistics (see Table 12) reflect participant responses to the nine items in the engagement benchmark Enriching Educational Experiences (survey items 8, 9, 10, 11, 14, 26, 31, 33, 34). The response scale for these survey items is: 1 (*Never*), 2 (*Sometimes*), 3 (*Often*), 4 (*Very Often*). Shortened references to each of the survey items are shown in Table 12. Please see Appendix A for the full text of each survey item.
Table 12

*Descriptive Statistics for Engagement Benchmark: Enriching Educational Experiences (N = 112)*

<table>
<thead>
<tr>
<th>Item</th>
<th>Rating</th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
<th>M</th>
<th>Mode</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EDUC-EXP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q8 Communication*</td>
<td>f</td>
<td>52</td>
<td>43</td>
<td>10</td>
<td>6</td>
<td>1.73</td>
<td>1.00</td>
<td>.84</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>46.8</td>
<td>38.7</td>
<td>9.0</td>
<td>5.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q9 O/L Discussions*</td>
<td>f</td>
<td>5</td>
<td>6</td>
<td>18</td>
<td>82</td>
<td>3.60</td>
<td>4.00</td>
<td>.79</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>4.5</td>
<td>5.4</td>
<td>16.2</td>
<td>73.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q10 Used Technology*</td>
<td>f</td>
<td>13</td>
<td>26</td>
<td>26</td>
<td>46</td>
<td>2.95</td>
<td>4.00</td>
<td>1.06</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>11.7</td>
<td>23.4</td>
<td>23.4</td>
<td>41.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q11 Develop webpage*</td>
<td>F</td>
<td>42</td>
<td>39</td>
<td>15</td>
<td>15</td>
<td>2.03</td>
<td>1.00</td>
<td>1.03</td>
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<tr>
<td></td>
<td>%</td>
<td>37.5</td>
<td>34.8</td>
<td>13.4</td>
<td>13.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q14 Library Unrelated*</td>
<td>f</td>
<td>46</td>
<td>42</td>
<td>11</td>
<td>13</td>
<td>1.92</td>
<td>1.00</td>
<td>.99</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>41.1</td>
<td>37.5</td>
<td>9.8</td>
<td>11.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q26 Work Knowledge**</td>
<td>f</td>
<td>15</td>
<td>38</td>
<td>34</td>
<td>24</td>
<td>2.60</td>
<td>2.00</td>
<td>.97</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>13.5</td>
<td>34.2</td>
<td>30.6</td>
<td>21.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q31 Use Info Tech**</td>
<td>f</td>
<td>16</td>
<td>28</td>
<td>33</td>
<td>34</td>
<td>2.77</td>
<td>4.00</td>
<td>1.04</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>14.4</td>
<td>25.2</td>
<td>29.7</td>
<td>30.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q33 Learn Effectively**</td>
<td>f</td>
<td>3</td>
<td>13</td>
<td>26</td>
<td>69</td>
<td>3.45</td>
<td>4.00</td>
<td>.81</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>2.7</td>
<td>11.7</td>
<td>23.4</td>
<td>62.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q34 Solve Problems**</td>
<td>f</td>
<td>11</td>
<td>34</td>
<td>40</td>
<td>26</td>
<td>2.73</td>
<td>3.00</td>
<td>.93</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>9.9</td>
<td>30.6</td>
<td>36</td>
<td>23.4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Numbered survey items (Q8-Q34) correspond to the numbered survey questions in Appendix A. *Item responses were: 1 = Never, 2 = Sometimes, 3 = Often, 4 = Very Often. **Item responses were 1 = Very little, 2 = Some, 3 = Quite a bit, 4 = Very much
**Dimensions of Learning.** The three dimensions of learning defined by NSSE and captured in the survey for this research are students’ perceived Gains in General Education, Gains in Personal and Social Development, and Gains in Practical Competence. Student perceptions for these three dimensions of learning are assessed through nine survey items. The response scale for these survey items is: 1 (*Never*), 2 (*Sometimes*), 3 (*Often*), 4 (*Very Often*). The nine survey items address how much students’ online learning experience helped them to write clearly and effectively, speak clearly and effectively, and think critically and analytically. Additionally, items address how much the online learning experience has helped students to work effectively with others, learn on their own, analyze quantitative problems, and use information technology.

Among the three items related to perceived Gains in General Education, 87 students (80.6%) indicated in item 29 that their online learning experience helped them to think critically and analytically either “quite a bit” (42.6%) or “very much” (38.0%). Only four students (3.7%) indicated that their experience had helped them “very little.” Under Gains in Personal and Social Development, 95 students (85.6%) indicated that their online experiences had helped them learn effectively on their own either “quite a bit” (23.4%) or “very much” (62.2%) (Item 33, \(M = 3.45, SD = .81, Mo = 4.00\)). Under Gains in Practical Competence, 71 students (65.1%) cited that their online learning experiences helped them to analyze quantitative problems either “quite a bit” (43.1%) or “very much” (22.0%). Descriptive statistics (see Table 13) reflect participant responses to the nine items in the three dimensions of learning. Shortened references to each of the survey items are shown in Table 13. Please see Appendix A for the full text of each survey item.
Table 13


<table>
<thead>
<tr>
<th>Perceived Gains in….</th>
<th>Rating</th>
<th></th>
<th></th>
<th></th>
<th>M</th>
<th>Mode</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very little</td>
<td>Some</td>
<td>Quite a bit</td>
<td>Very Much</td>
<td></td>
<td></td>
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<tr>
<td>1) General Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Q27 Write Clearly</td>
<td>f</td>
<td>13</td>
<td>33</td>
<td>35</td>
<td>30</td>
<td>2.74</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>11.7</td>
<td>29.7</td>
<td>31.5</td>
<td>27.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q28 Speak Clearly</td>
<td>f</td>
<td>23</td>
<td>39</td>
<td>29</td>
<td>20</td>
<td>2.41</td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>20.7</td>
<td>35.1</td>
<td>26.1</td>
<td>18.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q29 Think Critically</td>
<td>f</td>
<td>4</td>
<td>17</td>
<td>46</td>
<td>41</td>
<td>3.15</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>3.7</td>
<td>15.7</td>
<td>42.6</td>
<td>38.0</td>
<td></td>
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</tr>
<tr>
<td>2) Personal and Social Development</td>
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<td></td>
</tr>
<tr>
<td>Q29 Think Critically</td>
<td>f</td>
<td>4</td>
<td>17</td>
<td>46</td>
<td>41</td>
<td>3.15</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>3.7</td>
<td>15.7</td>
<td>42.6</td>
<td>38.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q32 Help Work Other</td>
<td>f</td>
<td>22</td>
<td>31</td>
<td>26</td>
<td>30</td>
<td>2.59</td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>19.6</td>
<td>27.7</td>
<td>23.2</td>
<td>26.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q33 Learn Effectively</td>
<td>f</td>
<td>3</td>
<td>13</td>
<td>26</td>
<td>69</td>
<td>3.45</td>
<td>4.00</td>
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<td></td>
<td>%</td>
<td>2.7</td>
<td>11.7</td>
<td>23.4</td>
<td>62.2</td>
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<td></td>
</tr>
<tr>
<td>3) Practical Competence</td>
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<td></td>
</tr>
<tr>
<td>Q30 Analyze Quant.</td>
<td>f</td>
<td>7</td>
<td>31</td>
<td>47</td>
<td>24</td>
<td>2.81</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>6.4</td>
<td>28.4</td>
<td>43.1</td>
<td>22.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q31 Use Info Tech</td>
<td>f</td>
<td>16</td>
<td>28</td>
<td>33</td>
<td>34</td>
<td>2.77</td>
<td>4.00</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>14.4</td>
<td>25.2</td>
<td>29.7</td>
<td>30.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q32 Help Work Other</td>
<td>f</td>
<td>22</td>
<td>31</td>
<td>26</td>
<td>30</td>
<td>2.59</td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>19.6</td>
<td>27.7</td>
<td>23.2</td>
<td>26.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Numbered survey items (Q8-Q34) correspond to the numbered survey questions in Appendix A. Item responses were: 1 = *Very little*, 2 = *Some*, 3 = *Quite a bit*, 4 = *Very Much*. 
Total Engagement Score

A total engagement score was determined for each respondent solely for the purpose of identifying and engaging a maximum variation sample for the interviews in the qualitative phase of the study. The total engagement score was calculated following the process used by Indiana University to determine engagement scores for the National Survey of Student Engagement (NSSE) benchmarks (Indiana University Center for Postsecondary Research, 2009) which converts all survey items to a 100-point scale. The sum total of the actual reported responses for all 34 of the engagement survey questions for each respondent was divided by the maximum sum total possible for all 34 questions. Questions that were not answered by a student were removed from the calculation. Using this methodology, the mean overall engagement score for all respondents is 52.21, with a range of 16.91 to 78.79, and a standard deviation of 13.80. Theoretically, the range of possible engagement scores for the 34-question instrument using this methodology was 0.00 to 100.00.

It should be noted that NSSE’s calculation of engagement scores includes survey items related to a fifth benchmark of engagement – Supportive Campus Environment – that is not applicable to online students, so the engagement scores calculated for this study are not directly comparable to NSSE’s calculated engagement scores. The engagement scores calculated were used only to identify a maximally varied potential sample population for the qualitative interviews. The only meaning that can be drawn from the engagement scores calculated for the individual participants in the study are that the higher the calculated engagement score of a student, the higher the overall level of engagement of the student compared to students with lower scores as measured by responses to the NSSE survey questions used in the study.
The information in Table 14 shows that students under the age of 25 ($M = 53.27$) were more engaged as measured by the NSSE instrument that those in the other age ranges ($M < 53.20$). Female students ($M = 52.83$) indicate higher engagement levels on average than male students ($M = 51.07$) and a wider range of engagement levels. Graduate students ($M = 55.58$) indicate higher engagement levels than undergraduate students ($M = 49.26$). Students taking two courses in the term have the highest level of engagement ($M = 53.92$) compared to students taking one course ($M = 49.55$) and those taking three or more courses ($M = 51.38$). An interesting result is that students who have completed seven to nine courses to date have the highest engagement scores ($M = 55.29$), but students who have complete ten or more courses had the lowest engagement scores ($M = 49.53$). Students with mostly A grades ($M = 55.47$) indicate higher engagement scores than students with lower grades ($M < 50.58$). The breakdown in total engagement scores across the demographic categories in questions 35 through 41 is shown in Table 14 below.
Table 14

*Engagement Score for Total Group and by Demographic Characteristics*

<table>
<thead>
<tr>
<th>Category</th>
<th>Mean</th>
<th>N</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Students</td>
<td>52.21</td>
<td>110</td>
<td>13.80</td>
<td>16.91</td>
<td>78.79</td>
</tr>
<tr>
<td>Age (Q35)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 25</td>
<td>53.87</td>
<td>28</td>
<td>12.32</td>
<td>24.26</td>
<td>75.98</td>
</tr>
<tr>
<td>25-34</td>
<td>52.49</td>
<td>39</td>
<td>13.97</td>
<td>19.85</td>
<td>74.51</td>
</tr>
<tr>
<td>35-44</td>
<td>49.49</td>
<td>25</td>
<td>14.29</td>
<td>16.91</td>
<td>78.79</td>
</tr>
<tr>
<td>45-54</td>
<td>53.19</td>
<td>17</td>
<td>15.38</td>
<td>20.83</td>
<td>75.00</td>
</tr>
<tr>
<td>Gender (Q36)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>51.07</td>
<td>37</td>
<td>13.07</td>
<td>27.94</td>
<td>72.79</td>
</tr>
<tr>
<td>Female</td>
<td>52.83</td>
<td>73</td>
<td>14.08</td>
<td>16.91</td>
<td>78.79</td>
</tr>
<tr>
<td>Employment (Q37)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>52.38</td>
<td>85</td>
<td>13.81</td>
<td>16.91</td>
<td>78.79</td>
</tr>
<tr>
<td>Part-time</td>
<td>49.29</td>
<td>15</td>
<td>12.30</td>
<td>24.26</td>
<td>71.57</td>
</tr>
<tr>
<td>Not Employed</td>
<td>55.45</td>
<td>10</td>
<td>15.36</td>
<td>27.94</td>
<td>72.06</td>
</tr>
<tr>
<td>College Level (Q38)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate</td>
<td>49.26</td>
<td>56</td>
<td>14.56</td>
<td>16.91</td>
<td>76.72</td>
</tr>
<tr>
<td>Graduate</td>
<td>55.58</td>
<td>55</td>
<td>12.18</td>
<td>19.85</td>
<td>78.79</td>
</tr>
<tr>
<td>Courses/Term (Q39)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One course</td>
<td>49.55</td>
<td>24</td>
<td>15.34</td>
<td>16.91</td>
<td>78.79</td>
</tr>
<tr>
<td>Two courses</td>
<td>53.92</td>
<td>62</td>
<td>13.74</td>
<td>19.85</td>
<td>76.72</td>
</tr>
<tr>
<td>Three+ courses</td>
<td>51.38</td>
<td>24</td>
<td>12.30</td>
<td>24.26</td>
<td>72.79</td>
</tr>
<tr>
<td>Courses Complete (Q40)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 3 courses</td>
<td>52.29</td>
<td>48</td>
<td>12.49</td>
<td>19.85</td>
<td>76.72</td>
</tr>
<tr>
<td>4 to 6 courses</td>
<td>54.08</td>
<td>31</td>
<td>13.26</td>
<td>16.91</td>
<td>78.79</td>
</tr>
<tr>
<td>7 to 9 courses</td>
<td>55.29</td>
<td>11</td>
<td>16.35</td>
<td>29.17</td>
<td>75.98</td>
</tr>
<tr>
<td>10+ courses</td>
<td>49.53</td>
<td>20</td>
<td>15.65</td>
<td>20.83</td>
<td>75.00</td>
</tr>
<tr>
<td>Grades Earned (Q41)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A grades</td>
<td>55.47</td>
<td>45</td>
<td>12.95</td>
<td>27.94</td>
<td>78.79</td>
</tr>
<tr>
<td>A-, B+ grades</td>
<td>50.57</td>
<td>47</td>
<td>14.15</td>
<td>16.91</td>
<td>75.98</td>
</tr>
<tr>
<td>B, B-, C+ grades</td>
<td>53.15</td>
<td>7</td>
<td>15.82</td>
<td>35.78</td>
<td>71.08</td>
</tr>
</tbody>
</table>
Research Question One

Research Question One is “What is the relationship between student perceptions of engagement in online courses in each of four benchmark constructs of engagement (Level of Academic Challenge, Active and Collaborative Learning, Student-Faculty Interaction, Enriching Educational Experiences) and student perceptions of learning?” Pearson product moment correlation analyses were employed to address this question. Cohen’s conventions for interpreting the magnitude of the correlations as reflected in the correlation scores ($r$) were used ($0.10 = \text{small}; 0.30 = \text{moderate}; 0.50 = \text{large}$). Based on the results of Cronbach’s alpha internal consistency reliabilities tests discussed earlier, only Level of Academic Challenge, Enriching Academic Experiences, and the three dimensions of perceptions of learning are reliable scales for use in analysis. Individual item analyses within the three dimensions of learning were used for the items within the benchmarks Student-Faculty Interaction and Active and Collaborative Learning. The results of the correlation analyses are provided in tables and discussed below. Within several of the tables, shortened references to each of the survey items are used. Please see Appendix A for the full text of each survey item.

Level of Academic Challenge and Dimensions of Learning. There is a strong and significant correlation between the benchmark of Level of Academic Challenge and all three of the NSSE-defined dimensions of learning (see Table 15). The correlation between Level of Academic Challenge and Gains in General Education is $r = .82 \ (p<.001)$. The correlation between Level of Academic Challenge and Gains in Social and Personal Development is $r = .70 \ (p<.001)$. The correlation between Level of Academic Challenge and Gains in Practical Competence is $r = .74 \ (p<.001)$. Students’ perceived Level of Academic Challenge has a strong
and significant relationship with students’ perceptions of their learning across the three NSSE-defined dimensions of learning.

Table 15

Correlation of Academic Challenge Benchmark & Three Dimensions of Learning

<table>
<thead>
<tr>
<th>Benchmark/Dimension</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Level of Academic Challenge</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Gains in General Education</td>
<td>.82**</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Gains in Personal and Social Development</td>
<td>.70**</td>
<td>.83**</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>4. Gains in Practical Competence</td>
<td>.74**</td>
<td>.80**</td>
<td>.86**</td>
<td>---</td>
</tr>
</tbody>
</table>

**Correlation is significant at the \( p < .01 \) level.

**Enriching Educational Experiences and Dimensions of Learning.** The relationships between the benchmark of Enriching Educational Experiences and the three dimensions of learning are positive and in the moderate range (see Table 16). The correlation between Enriching Educational Experiences and Gains in General Education is moderate and significant \((r = .65, p<.001)\). The correlations between Enriching Educational Experiences and both Gains in Social/Personal Development and Gains in Practical Competence are also moderate and significant \((r = .69, p<.001)\). Student perceptions of their engagement in Enriching Educational Experiences are moderately related to their perceptions of their learning across the three NSSE-defined dimensions of learning.
Table 16

Correlation of Enriching Educational Experiences Benchmark & Three Dimensions of Learning

<table>
<thead>
<tr>
<th>Benchmark/Dimension</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Enriching Educational Experiences</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Gains in General Education</td>
<td>.65**</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Gains in Personal and Social Development</td>
<td>.70**</td>
<td>.83**</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>4. Gains in Practical Competence</td>
<td>.70**</td>
<td>.80**</td>
<td>.86**</td>
<td>---</td>
</tr>
</tbody>
</table>

**Correlation is significant at the \( p < .01 \) level.

**Student-Faculty Interaction and Dimensions of Learning.** As discussed earlier, based on the lower than required reliability in the calculation of Cronbach’s alpha for the benchmark Student-Faculty Interaction (alpha = .594), dimension-level means were not calculated. Rather, item-level analyses were calculated on the four items comprising the benchmark using the Bonferroni adjustment, which required a \( p \) value of less than .01 (.05/4 items = .012) for significance. There are weak positive relationships between Item 1 – Discuss Ideas with Faculty \( r = .15 \), Item 2 – Discuss Grades with Faculty \( r = .12 \), and Item 4 – Discuss Career with Faculty \( r = .14 \) and all three of the NSSE-defined dimensions of learning (see Table 17). None of these relationships are statistically significant. These results indicate that student discussions of ideas, grades, and/or careers with faculty have weak relationships with student learning. There are modest correlations between Item 3 – Receive Prompt Feedback and the three dimensions of learning, with Item 3 and Gains in General Education at \( r = .25, p = .009 \), Item 3 and Gains in Social/Personal Development at \( r = .37, p < .001 \), and Item 3 and Gains in Practical Competence at \( r = .27, p = .004 \). The practical significance of these results is that receiving prompt feedback from faculty appears to be the one type of student-faculty interaction among those evaluated in
this survey that has a meaningful relationship with student learning. Within Table 17, shortened references to the relevant survey items are used. Please see Appendix A for the full text of each survey item.

Table 17

**Correlation of Student-Faculty Interaction Items & Dimensions of Learning**

<table>
<thead>
<tr>
<th>Benchmark Item/Dimension</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student-Faculty Interaction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Q1 Discuss Ideas with Faculty</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Q2 Discuss Grades with Faculty</td>
<td>.35**</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Q3 Receive Prompt Feedback</td>
<td>.24*</td>
<td>.16</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Q4 Discuss Career with Faculty</td>
<td>.36**</td>
<td>.26**</td>
<td>.22*</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dimensions of Learning</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Gains General Education</td>
<td>.15</td>
<td>.16</td>
<td>.25**</td>
<td>.19*</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Gains Social/Personal Develop</td>
<td>.12</td>
<td>.09</td>
<td>.37**</td>
<td>.12</td>
<td>.83**</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>7. Gains Practical Competence</td>
<td>.14</td>
<td>.07</td>
<td>.27**</td>
<td>.13</td>
<td>.80**</td>
<td>.86**</td>
<td>---</td>
</tr>
</tbody>
</table>

*Correlation is significant at the $p < .05$ level. **Correlation is significant at the $p < .01$ level.

**Active and Collaborative Learning and Dimensions of Learning.** As discussed earlier, based on the lower than required reliability in the calculation of Cronbach’s alpha for the benchmark Active and Collaborative Learning (alpha = .634), dimension-level means were not calculated. Rather, item-level analyses were calculated on the five items comprising the benchmark. The relationships between Item 6 – Worked with Others and Item 7 – Tutored/Taught Others and the three dimensions of learning are weak ($r=.16$) to modest ($r=.30$) with a significant relationship between Item 6 and Gains in Practical Competence ($r = .30, p<.001$). The relationships between Item 12 – Made Presentations and Item 13 – Used Library
for Assignments and the three dimensions of learning are in the modest range ($r=.23$ to $r=.35$). Only the relationships between Item 12 – Made Presentations and the three dimensions of learning are significant at $p < .01$ as required by the Bonferroni adjustment. In contrast, the relationships between Item 32 – Helped in Work with Others and the three dimensions of learning are very strong and significant, with Item 32 and Gains in General Education at ($r=.72$, $p<.001$), Item 32 and Gains in Social/Personal Development at ($r=.87$, $p<.001$), and Item 32 and Gains in Practical Competence at ($r=.88$, $p<.001$). These results indicate that the Active and Collaborative Learning item with the strongest relationship with student learning is how much students perceive the online experience helps them work effectively with others. Table 18 shows the relationship between the five individual items in the Active and Collaborative Learning benchmark of engagement and the three dimensions of learning. Within Table 18, shortened references to the relevant survey items are used. Please see Appendix A for the full text of each survey item.
Table 18

*Correlation of Active-Collaborative Learning Items & Dimensions of Learning*

<table>
<thead>
<tr>
<th>Benchmark Item/Dimension</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active and Collaborative Learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Q6 Worked with Others</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Q7 Tutored/Taught Others</td>
<td>.34**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Q12 Made Presentation</td>
<td>.30**</td>
<td>.41**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Q13 Used Library-Assignments</td>
<td>.23*</td>
<td>.21*</td>
<td>.32**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Q32 Helped Work with Others</td>
<td>.30**</td>
<td>.18</td>
<td>.22*</td>
<td>.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions of Learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Gains General Education</td>
<td>.16</td>
<td>.17</td>
<td>.35**</td>
<td>.30**</td>
<td>.72**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Gains Social/Personal Develop</td>
<td>.23*</td>
<td>.18</td>
<td>.27**</td>
<td>.23*</td>
<td>.87**</td>
<td>.83**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Gains Practical Competence</td>
<td>.30**</td>
<td>.23*</td>
<td>.26**</td>
<td>.23*</td>
<td>.88**</td>
<td>.80**</td>
<td>.86**</td>
<td></td>
</tr>
</tbody>
</table>

*Correlation is significant at the \( p < .05 \) level. **Correlation is significant at the \( p < .01 \) level.

**Research Question One Summary**

Research Question One sought to define the relationship between student perceptions of engagement in online courses in each of four NSSE-defined benchmark constructs of engagement (Level of Academic Challenge, Student-Faculty Interaction, Active and Collaborative Learning, Enriching Educational Experiences) and three dimensions of student perceptions of learning (Gains in General Education, Gains in Personal and Social Development, Gains in Practical Competence). The results of the Pearson’s product moment correlation analyses show that there are statistically significant correlations between each of the benchmarks Level of Academic Challenge and Enriching Educational Experiences and all three of the NSSE-defined dimensions of learning. Individual item analyses for the benchmarks Student-Faculty
Interaction and Active and Collaborative Learning reflect statistically significant correlations between one or more individual items and the three dimensions of learning, as well.

Within these results, the strongest correlations are between the benchmark Level of Academic Challenge and the learning dimension Gains in General Education \( (r = .82, p < .001) \) and between Item 32 – Helped in Work with Others within the benchmark Active and Collaborative Learning and the learning dimensions Gains in Social and Personal Development \( (r = .87, p < .001) \) and Gains in Practical Competence \( (r = .88, p < .001) \). Within the benchmark Student-Faculty Interaction, the only item that has a significant correlation with the three dimensions of learning is Item 3 – Receive Prompt Feedback from faculty. Within the benchmark Active and Collaborative Learning, Item 32 – Helped in Work with Others has the strongest correlations with Gains in General Education \( (r = .72, p < .001) \), Gains in Social and Personal Development \( (r = .87, p < .001) \), and Gains in Practical Competence \( (r = .88, p < .001) \).

**Research Question Two**

Research Question Two is, “What is the relationship between student perceptions of engagement in online courses and student perceptions of learning for each of the following demographic variables: age, gender, level (undergrad/graduate), employment status, number of online courses currently enrolled, number of online courses previously completed, and current grades?” To address this research question, tests of differences were used to determine if there were any statistically significant differences between the survey responses of students on the engagement benchmarks/items and dimensions of learning in the various categories within each demographic variable. For example, one-way analysis of variance (ANOVA) was used to determine if there were any significant differences in the means of the responses of students in each of four age groups (less than 25, 25-34, 35-44, 45-54). A series of \( t \)-tests were conducted on
the engagement benchmarks and items and on the dimensions of learning for the two bivariate demographic variables of gender (Survey Item 36) and college level (Survey Item 38), and one-way ANOVA tests were conducted for the remaining demographic categories of age (Survey Item 35), employment status (Survey 37), number of online courses currently enrolled (Survey Item 39), number of online courses previously completed (Survey Item 40), and current grades (Survey Item 41).

**Demographic Tests of Differences**

Overall, the \( t \)-tests and ANOVA conducted on demographic categories show few significant differences between the subgroups in each demographic category. The few differences that exist are related to differences in perceptions of undergraduates and graduates on the level of academic challenge and the frequency that students tutor others and use the library for assignments.

**\( t \)-Tests on Benchmarks and Dimensions.** The \( t \)-test was used to identify any significant differences between the mean responses of males and females (Survey Item 36) and undergraduate and graduate students (Survey Item 38). For effect size, Cohen’s \( d \) was calculated and reported on significant \( t \)-test results (\( p < .05 \)). Cohen’s \( d \) is the difference between the means of both groups divided by the pooled standard deviation of both groups (which is \( \frac{SD_{1st\,\,\text{group}} + SD_{2nd\,\,\text{group}}}{2} \)). Cohen’s \( d \) effect sizes indicate 0-0.20 = weak effect, 0.21-0.50 = modest effect, 0.51-1.00 = moderate effect, >1.00 = strong effect (Muijs, 2011, p. 121).

The \( t \)-test results for the responses of males and females showed no significant differences across the four benchmarks of engagement and three dimensions of learning (see Table 19). Using the \( t \)-test for independent samples, a significant difference in the response means between undergraduate (\( M = 2.72, SD = .44 \)) and graduate students (\( M = 2.92, SD = .37 \))
was found in the benchmark Level of Academic Challenge where $t = 2.68$, $df = 107$, $p < .01$ (See Table 20). Cohen’s $d$ effect size was .51, indicating a moderate effect. A significant difference was found between mean responses for undergraduate ($M = 1.34$, $SD = .61$) and graduates ($M = 1.67$, $SD = .94$) on the Active and Collaborative Learning benchmark Item 7 – Tutored Others ($t = 2.21$, $df = 109$, $p < .05$). Cohen’s $d$ effect size is modest ($d = .43$). A significant difference was also found between mean responses for undergraduates ($M = 2.55$, $SD = .97$) and graduates ($M = 3.00$, $SD = .94$) on the Active and Collaborative Learning benchmark Item 13 – Used Library for Assignments ($t = 2.46$, $df = 109$, $p < .05$). Cohen’s $d$ effect size is modest ($d = .47$). These significant differences between undergraduate and graduate responses indicate that graduate students perceive the level of academic challenge to be higher than the level of challenge perceived by undergraduate students. Graduate students also report more frequent experiences tutoring other students and using the institution’s library than undergraduate students.
Table 19

*Summary of Results of t-tests for Engagement Benchmarks/Items and Dimensions of Learning by Gender (Q36)*

<table>
<thead>
<tr>
<th>Benchmark/Item/Dimension</th>
<th>Male $(n = 37)$</th>
<th>Female $(n = 73)$</th>
<th>$t$</th>
<th>$p$</th>
<th>$d$</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$SD$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.79</td>
<td>.36</td>
<td>2.83</td>
<td>.45</td>
<td>-.43</td>
</tr>
<tr>
<td>STDT-FAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q1 Discuss ideas</td>
<td>2.30</td>
<td>.88</td>
<td>2.27</td>
<td>.82</td>
<td>.14</td>
</tr>
<tr>
<td>Q2 Discuss Grades</td>
<td>2.24</td>
<td>.76</td>
<td>2.32</td>
<td>.83</td>
<td>-.44</td>
</tr>
<tr>
<td>Q3 Feedback</td>
<td>3.14</td>
<td>.89</td>
<td>3.14</td>
<td>.73</td>
<td>-.01</td>
</tr>
<tr>
<td>Q4 Career Plans</td>
<td>1.62</td>
<td>.76</td>
<td>1.61</td>
<td>.75</td>
<td>.11</td>
</tr>
<tr>
<td>ACTV-LRN</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q6 Worked Others</td>
<td>2.24</td>
<td>1.06</td>
<td>2.32</td>
<td>1.15</td>
<td>-.32</td>
</tr>
<tr>
<td>Q7 Tutor Others</td>
<td>1.59</td>
<td>.93</td>
<td>1.45</td>
<td>.75</td>
<td>.87</td>
</tr>
<tr>
<td>Q12 Presentations</td>
<td>1.84</td>
<td>1.07</td>
<td>1.85</td>
<td>1.00</td>
<td>-.05</td>
</tr>
<tr>
<td>Q13 Library Use</td>
<td>2.68</td>
<td>1.00</td>
<td>2.81</td>
<td>.97</td>
<td>-.67</td>
</tr>
<tr>
<td>Q32 Work Others</td>
<td>2.68</td>
<td>1.07</td>
<td>2.85</td>
<td>.75</td>
<td>.44</td>
</tr>
<tr>
<td>EDUC-EXP</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>2.50</td>
<td>.52</td>
<td>2.61</td>
<td>.50</td>
<td>-1.13</td>
</tr>
<tr>
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<td></td>
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<tr>
<td></td>
<td>2.67</td>
<td>.72</td>
<td>2.81</td>
<td>.87</td>
<td>-.84</td>
</tr>
<tr>
<td>PERSSOC</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.94</td>
<td>.74</td>
<td>3.12</td>
<td>.76</td>
<td>-1.22</td>
</tr>
<tr>
<td>PRCTCOMPT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>2.64</td>
<td>.81</td>
<td>2.76</td>
<td>.90</td>
<td>-.71</td>
</tr>
</tbody>
</table>

Note. Cohen’s $d$ effect sizes indicate 0-.20 = weak effect, 0.21-.50 = modest, 0.51-1.00 = moderate, >1.00 = strong
## Table 20

Summary of Results of t-test for Engagement Benchmarks/Items and Dimensions of Learning by College Level (Q38)

<table>
<thead>
<tr>
<th>Benchmark/Item/Dimension</th>
<th>Undergraduate ((n = 56))</th>
<th>Graduate ((n = 55))</th>
<th>(t)</th>
<th>(p)</th>
<th>(d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAC</td>
<td>(M = 2.72, SD = .44)</td>
<td>(M = 2.92, SD = .37)</td>
<td>-2.68</td>
<td>.01</td>
<td>.51</td>
</tr>
<tr>
<td><strong>STDT-FAC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q1 Discuss ideas</td>
<td>2.21, .82</td>
<td>2.36, .85</td>
<td>-0.94</td>
<td>.35</td>
<td></td>
</tr>
<tr>
<td>Q2 Discuss Grades</td>
<td>2.16, .76</td>
<td>2.44, .83</td>
<td>-1.82</td>
<td>.07</td>
<td></td>
</tr>
<tr>
<td>Q3 Feedback</td>
<td>3.16, .68</td>
<td>3.11, .88</td>
<td>0.35</td>
<td>.73</td>
<td></td>
</tr>
<tr>
<td>Q4 Career Plans</td>
<td>1.54, .66</td>
<td>1.70, .82</td>
<td>-1.14</td>
<td>.28</td>
<td></td>
</tr>
<tr>
<td><strong>ACTV-LRN</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q6 Worked Others</td>
<td>2.13, 1.05</td>
<td>2.49, 1.18</td>
<td>-1.73</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td>Q7 Tutor Others</td>
<td><strong>1.34</strong>, .61</td>
<td><strong>1.67</strong>, .94</td>
<td>-2.21</td>
<td>.03</td>
<td>.43</td>
</tr>
<tr>
<td>Q12 Presentations</td>
<td>1.73, .84</td>
<td>2.00, 1.20</td>
<td>-1.35</td>
<td>.18</td>
<td></td>
</tr>
<tr>
<td>Q13 Library Use</td>
<td><strong>2.55</strong>, .97</td>
<td><strong>3.00</strong>, .94</td>
<td>-2.46</td>
<td>.02</td>
<td>.47</td>
</tr>
<tr>
<td>Q32 Work Others</td>
<td>2.51, 1.17</td>
<td>2.67, 1.03</td>
<td>-0.75</td>
<td>.46</td>
<td></td>
</tr>
<tr>
<td><strong>EDUC-EXP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GENED</td>
<td>2.51, .52</td>
<td>2.64, .49</td>
<td>-1.39</td>
<td>.17</td>
<td></td>
</tr>
<tr>
<td><strong>PERSSOC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRCTCOMPT</td>
<td>2.61, .91</td>
<td>2.85, .81</td>
<td>-1.45</td>
<td>.15</td>
<td></td>
</tr>
</tbody>
</table>

Note. Cohen’s \(d\) effect sizes indicate 0-.20 = weak effect, 0.21-0.50 = modest, 0.51-1.00 = moderate, >1.00 = strong.
**ANOVA on Benchmarks and Dimensions.** Analysis of variance (ANOVA) was conducted on the responses for the multi-group demographic variables of age (Survey Item 35), employment status (Survey Item 37), number of courses enrolled (Survey Item 39), number of courses completed (Survey Item 40), and grades earned (Survey Item 41). While ANOVA identifies whether there are significant differences between the groups analyzed, it does not identify specifically where the significance lies. The post-hoc comparison Scheffé test was used to identify which contrasts are significantly different. The Bonferroni adjustment was calculated on the item-level analyses for the multiple items in the benchmarks Student-Faculty Interaction (four items) and Enriching Educational Experiences (five items). In both cases, the Bonferroni adjustment required that $p$ be less than .01 for statistical significance. The effect size for ANOVA is eta squared ($\eta^2$), which is calculated by dividing the within-group sum of squares by the total sum of squares (calculations provided within the ANOVA calculation results in SPSS). Eta squared is reported for effect size in the ANOVA tables below for statistically significant ANOVA calculations. The scale for eta squared effect size is 0-0.1 = weak effect, 0.1-0.3 = modest effect, and 0.3-0.5 = strong effect (Muijs, 2011, p. 183).

**ANOVA for Item 35 Age.** ANOVA calculations for Item 35 Age (Table 21) showed no significant differences between the groups within each demographic category on any of the engagement benchmarks/items and dimensions of learning.
Table 21

**ANOVA Summary for Engagement Benchmarks/Items and Dimensions of Learning by Age (Q35)**

<table>
<thead>
<tr>
<th>Benchmark/Item/ Dimension</th>
<th>Less than 25 ( (n = 28) )</th>
<th>Age 25-34 ( (n = 39) )</th>
<th>Age 35-44 ( (n = 25) )</th>
<th>Age 45-54 ( (n = 18) )</th>
<th>Summary of Significant Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( M )</td>
<td>( SD )</td>
<td>( M )</td>
<td>( SD )</td>
<td>( M )</td>
</tr>
<tr>
<td><strong>LAC</strong></td>
<td>2.85</td>
<td>.37</td>
<td>2.87</td>
<td>.43</td>
<td>2.72</td>
</tr>
<tr>
<td><strong>STDT-FAC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q1 Discuss ideas</td>
<td>2.21</td>
<td>.79</td>
<td>2.21</td>
<td>.80</td>
<td>2.32</td>
</tr>
<tr>
<td>Q2 Discuss Grades</td>
<td>2.21</td>
<td>.88</td>
<td>2.31</td>
<td>.86</td>
<td>2.40</td>
</tr>
<tr>
<td>Q3 Feedback</td>
<td>3.29</td>
<td>.66</td>
<td>3.23</td>
<td>.74</td>
<td>2.84</td>
</tr>
<tr>
<td>Q4 Career Plans</td>
<td>1.84</td>
<td>.73</td>
<td>1.54</td>
<td>.85</td>
<td>1.48</td>
</tr>
<tr>
<td><strong>ACTV-LRN</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q6 Worked Others</td>
<td>2.54</td>
<td>1.29</td>
<td>2.26</td>
<td>1.07</td>
<td>2.00</td>
</tr>
<tr>
<td>Q7 Tutor Others</td>
<td>1.64</td>
<td>.91</td>
<td>1.41</td>
<td>.68</td>
<td>1.52</td>
</tr>
<tr>
<td>Q12 Presentations</td>
<td>1.85</td>
<td>1.10</td>
<td>1.69</td>
<td>.92</td>
<td>2.04</td>
</tr>
<tr>
<td>Q13 Library Use</td>
<td>2.93</td>
<td>.98</td>
<td>2.56</td>
<td>.97</td>
<td>2.88</td>
</tr>
<tr>
<td>Q32 Work Others</td>
<td>2.51</td>
<td>1.01</td>
<td>2.67</td>
<td>1.11</td>
<td>2.42</td>
</tr>
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<td><strong>EDUC-EXP</strong></td>
<td>2.67</td>
<td>.51</td>
<td>2.51</td>
<td>.51</td>
<td>2.53</td>
</tr>
<tr>
<td><strong>GENED</strong></td>
<td>2.76</td>
<td>.78</td>
<td>2.84</td>
<td>.83</td>
<td>2.55</td>
</tr>
<tr>
<td><strong>PERSSOC</strong></td>
<td>3.1</td>
<td>.63</td>
<td>3.11</td>
<td>.79</td>
<td>2.89</td>
</tr>
<tr>
<td><strong>PRCTCOMPT</strong></td>
<td>2.76</td>
<td>.80</td>
<td>2.73</td>
<td>.94</td>
<td>2.53</td>
</tr>
</tbody>
</table>

*Note. NSD = No Significant Difference.*
ANOVA for Item 37 Employment Status. ANOVA calculations for Item 37 Employment Status (Table 22 showed no significant differences between the groups within each demographic category on any of the engagement benchmarks/items and dimensions of learning.
Table 22

ANOVA Summary for Engagement Benchmarks/Items and Dimensions of Learning by Employment Status (Q37)

<table>
<thead>
<tr>
<th>Benchmark/Item/Dimension</th>
<th>Full-Time ((n = 85))</th>
<th>Part-Time ((n = 15))</th>
<th>Not Employed ((n = 10))</th>
<th>Summary of Significant Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(M)</td>
<td>(SD)</td>
<td>(M)</td>
<td>(SD)</td>
</tr>
<tr>
<td>LAC</td>
<td>2.82</td>
<td>.41</td>
<td>2.69</td>
<td>.37</td>
</tr>
<tr>
<td>STDT-FAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q1 Discuss ideas</td>
<td>2.31</td>
<td>.83</td>
<td>2.00</td>
<td>.85</td>
</tr>
<tr>
<td>Q2 Discuss Grades</td>
<td>2.29</td>
<td>.84</td>
<td>2.20</td>
<td>.67</td>
</tr>
<tr>
<td>Q3 Feedback</td>
<td>3.12</td>
<td>.81</td>
<td>3.27</td>
<td>.59</td>
</tr>
<tr>
<td>Q4 Career Plans</td>
<td>1.58</td>
<td>.73</td>
<td>1.67</td>
<td>.72</td>
</tr>
<tr>
<td>ACTV-LRN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q6 Worked Others</td>
<td>2.29</td>
<td>1.12</td>
<td>2.13</td>
<td>1.19</td>
</tr>
<tr>
<td>Q7 Tutor Others</td>
<td>1.46</td>
<td>.78</td>
<td>1.60</td>
<td>.83</td>
</tr>
<tr>
<td>Q12 Presentations</td>
<td>1.91</td>
<td>1.04</td>
<td>1.60</td>
<td>.83</td>
</tr>
<tr>
<td>Q13 Library Use</td>
<td>2.76</td>
<td>1.03</td>
<td>2.53</td>
<td>.74</td>
</tr>
<tr>
<td>Q32 Work Others</td>
<td>2.62</td>
<td>1.12</td>
<td>2.60</td>
<td>1.06</td>
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<tr>
<td>EDUC-EXP</td>
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</tr>
<tr>
<td>GENED</td>
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<td>.52</td>
<td>2.51</td>
<td>.51</td>
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<td>2.79</td>
<td>.79</td>
<td>2.58</td>
<td>.81</td>
</tr>
<tr>
<td>PRCTCOMPT</td>
<td>3.08</td>
<td>.76</td>
<td>3.11</td>
<td>.65</td>
</tr>
</tbody>
</table>

Note. NSD = No Significant Difference.
ANOVA for Item 39 Number of Courses Enrolled. ANOVA calculations for Item 39 Number of Courses Enrolled (Table 23) showed no significant differences between the groups within each demographic category on any of the engagement benchmarks/items and dimensions of learning.
### Table 23

**ANOVA Summary for Engagement Benchmarks/Items and Dimensions of Learning by Number of Courses Enrolled (Q39)**

<table>
<thead>
<tr>
<th>Benchmark/Item/Dimension</th>
<th>One Course ( (n = 24) )</th>
<th>Two Courses ( (n = 62) )</th>
<th>Three+ Courses ( (n = 24) )</th>
<th>F</th>
<th>p*</th>
<th>Summary of Significant Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>LAC</td>
<td>2.73</td>
<td>.47</td>
<td>2.89</td>
<td>.41</td>
<td>2.74</td>
<td>.38</td>
</tr>
<tr>
<td>STDT-FAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q1 Discuss ideas</td>
<td>2.46</td>
<td>.93</td>
<td>2.26</td>
<td>.75</td>
<td>2.17</td>
<td>.96</td>
</tr>
<tr>
<td>Q2 Discuss Grades</td>
<td>2.33</td>
<td>.92</td>
<td>2.31</td>
<td>.80</td>
<td>2.25</td>
<td>.74</td>
</tr>
<tr>
<td>Q3 Feedback</td>
<td>2.83</td>
<td>1.01</td>
<td>3.21</td>
<td>.75</td>
<td>3.25</td>
<td>.53</td>
</tr>
<tr>
<td>Q4 Career Plans</td>
<td>1.54</td>
<td>.66</td>
<td>1.56</td>
<td>.72</td>
<td>1.82</td>
<td>.91</td>
</tr>
<tr>
<td>ACTV-LRN</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q6 Worked Others</td>
<td>2.21</td>
<td>1.06</td>
<td>2.34</td>
<td>1.19</td>
<td>2.38</td>
<td>1.06</td>
</tr>
<tr>
<td>Q7 Tutor Others</td>
<td>1.46</td>
<td>.89</td>
<td>1.44</td>
<td>.69</td>
<td>1.75</td>
<td>.99</td>
</tr>
<tr>
<td>Q12 Presentations</td>
<td>1.92</td>
<td>1.25</td>
<td>1.82</td>
<td>1.01</td>
<td>1.92</td>
<td>.93</td>
</tr>
<tr>
<td>Q13 Library Use</td>
<td>2.27</td>
<td>.90</td>
<td>2.75</td>
<td>1.04</td>
<td>2.83</td>
<td>.92</td>
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<tr>
<td>Q32 Work Others</td>
<td>2.30</td>
<td>1.18</td>
<td>2.76</td>
<td>1.07</td>
<td>2.48</td>
<td>1.04</td>
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<tr>
<td>EDUC-EXP</td>
<td>2.49</td>
<td>.56</td>
<td>2.61</td>
<td>.51</td>
<td>2.57</td>
<td>.44</td>
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<td>GENED</td>
<td>2.57</td>
<td>.93</td>
<td>2.91</td>
<td>.76</td>
<td>2.62</td>
<td>.85</td>
</tr>
<tr>
<td>PERSSOC</td>
<td>2.80</td>
<td>.92</td>
<td>3.22</td>
<td>.67</td>
<td>2.98</td>
<td>.73</td>
</tr>
<tr>
<td>PRCTCOMPT</td>
<td>2.65</td>
<td>.92</td>
<td>2.80</td>
<td>.87</td>
<td>2.63</td>
<td>.82</td>
</tr>
</tbody>
</table>

Note. NSD = No Significant Difference. *Using the Bonferroni adjustment required significance at the \( p < .01 \) level.
ANOVA for Item 40 Number of Courses Completed. The ANOVA calculation for Item 40 Number of Courses Completed (Table 24) showed a significant difference between those who have completed one to three courses, those who completed four to six courses, and those who have completed seven to nine courses on Survey Item 6, related to how often students worked with other students on projects (F(3, 106) = 10.78, p = .001). Post-hoc Scheffé tests indicated that both those who completed four to six courses (M = 2.84, SD = 1.04) and those who completed seven to nine courses (M = 3.18, SD = 1.25) were found to have statistically different mean responses than those who completed only 1 to 3 courses (M = 1.75, SD = .91). The effect size for this finding of significant differences is 0.23, a modest effect. The results on Survey Item 6 indicate that students who have completed between four and nine courses perceive that they worked more frequently with other students on projects than those who have completed only one to three courses.
Table 24

ANOVA Summary for Engagement Benchmarks/Items and Dimensions of Learning by Courses Completed (Q40)

<table>
<thead>
<tr>
<th>Benchmark/Item/Dimension</th>
<th>1-3 Courses ($n = 48$)</th>
<th>4-6 Courses ($n = 31$)</th>
<th>7-9 Courses ($n = 11$)</th>
<th>10+ Courses ($n = 20$)</th>
<th>Summary of Significant Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
</tr>
<tr>
<td>LAC</td>
<td>2.83</td>
<td>.41</td>
<td>2.83</td>
<td>.38</td>
<td>2.95</td>
</tr>
<tr>
<td>STDT-FAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q1 Discuss ideas</td>
<td>2.40</td>
<td>.76</td>
<td>2.19</td>
<td>.83</td>
<td>2.09</td>
</tr>
<tr>
<td>Q2 Discuss Grades</td>
<td>2.29</td>
<td>.90</td>
<td>2.45</td>
<td>.85</td>
<td>2.18</td>
</tr>
<tr>
<td>Q3 Feedback</td>
<td>3.08</td>
<td>.85</td>
<td>3.29</td>
<td>.69</td>
<td>3.09</td>
</tr>
<tr>
<td>Q4 Career Plans</td>
<td>1.60</td>
<td>.68</td>
<td>1.52</td>
<td>.72</td>
<td>1.80</td>
</tr>
<tr>
<td>ACTV-LRN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q6 Worked with Others**</td>
<td>1.75</td>
<td>.91</td>
<td>2.84</td>
<td>1.04</td>
<td>3.18</td>
</tr>
<tr>
<td>Q7 Tutor Others</td>
<td>1.56</td>
<td>.94</td>
<td>1.55</td>
<td>.81</td>
<td>1.64</td>
</tr>
<tr>
<td>Q12 Presentations</td>
<td>1.79</td>
<td>1.05</td>
<td>1.90</td>
<td>1.03</td>
<td>2.45</td>
</tr>
<tr>
<td>Q13 Library Use</td>
<td>2.98</td>
<td>1.04</td>
<td>2.74</td>
<td>.93</td>
<td>2.36</td>
</tr>
<tr>
<td>Q32 Work Others</td>
<td>2.45</td>
<td>1.06</td>
<td>3.03</td>
<td>1.03</td>
<td>2.64</td>
</tr>
<tr>
<td>EDUC-EXP</td>
<td>2.59</td>
<td>.50</td>
<td>2.60</td>
<td>.46</td>
<td>2.69</td>
</tr>
<tr>
<td>GENED</td>
<td>2.84</td>
<td>.81</td>
<td>2.71</td>
<td>.76</td>
<td>2.92</td>
</tr>
<tr>
<td>PERSSOC</td>
<td>3.06</td>
<td>.70</td>
<td>3.19</td>
<td>.73</td>
<td>3.14</td>
</tr>
<tr>
<td>PRCTCOMPT</td>
<td>2.70</td>
<td>.86</td>
<td>2.87</td>
<td>81</td>
<td>2.79</td>
</tr>
</tbody>
</table>

Note. NSD = No Significant Difference. Post-hoc Scheffé mean difference is significant at the $p = <.05$ level.

**Effect size guidelines indicate $0.0-0.1 = weak; 0.1-0.3 = modest; >0.5 = strong.$
ANOVA for Item 41 Grades Earned. ANOVA calculations for Item 41 Grades Earned (Table 25) showed no significant differences between the groups within each demographic category on any of the engagement benchmarks/items and dimensions of learning.
Table 25

ANOVA Summary for Engagement Benchmarks/Items and Dimensions of Learning by Grades Earned (Q41)

<table>
<thead>
<tr>
<th>Benchmark/Item/Dimension</th>
<th>A Grades ((n = 45))</th>
<th>A-/B+ Grades ((n = 47))</th>
<th>B/B-/C+ Grades ((n = 7))</th>
<th>Summary of Significant Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(M) (SD)</td>
<td>(M) (SD)</td>
<td>(M) (SD)</td>
<td>(F) (p)</td>
</tr>
<tr>
<td>LAC-A</td>
<td>2.94 (.42)</td>
<td>2.74 (.42)</td>
<td>2.74 (.34)</td>
<td>2.95 (.057)</td>
</tr>
<tr>
<td>STDT-FAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q1 Discuss ideas</td>
<td>2.38 (.91)</td>
<td>2.23 (.87)</td>
<td>2.29 (.49)</td>
<td>32  (.730)</td>
</tr>
<tr>
<td>Q2 Discuss Grades</td>
<td>2.49 (.84)</td>
<td>2.21 (.78)</td>
<td>2.29 (.49)</td>
<td>1.41 (.249)</td>
</tr>
<tr>
<td>Q3 Feedback</td>
<td>3.13 (.87)</td>
<td>3.09 (.72)</td>
<td>3.57 (.53)</td>
<td>1.18 (.310)</td>
</tr>
<tr>
<td>Q4 Career Plans</td>
<td>1.71 (.79)</td>
<td>1.64 (.77)</td>
<td>1.29 (.49)</td>
<td>.94  (.395)</td>
</tr>
<tr>
<td>ACTV-LRN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q6 Worked Others</td>
<td>2.38 (1.09)</td>
<td>2.19 (1.10)</td>
<td>3.00 (1.41)</td>
<td>1.66 (.195)</td>
</tr>
<tr>
<td>Q7 Tutor Others</td>
<td>1.49 (.76)</td>
<td>1.64 (.94)</td>
<td>1.43 (.53)</td>
<td>.449 (.639)</td>
</tr>
<tr>
<td>Q12 Presentations</td>
<td>1.84 (.99)</td>
<td>1.85 (1.14)</td>
<td>2.00 (.82)</td>
<td>.07  (.932)</td>
</tr>
<tr>
<td>Q13 Library Use</td>
<td>2.98 (.92)</td>
<td>2.62 (1.02)</td>
<td>2.71 (1.11)</td>
<td>1.49 (.209)</td>
</tr>
<tr>
<td>Q32 Work Others</td>
<td>2.78 (1.09)</td>
<td>2.44 (1.14)</td>
<td>2.71 (1.11)</td>
<td>1.04 (.358)</td>
</tr>
<tr>
<td>EDUC-EXP</td>
<td>2.62 (.43)</td>
<td>2.58 (.55)</td>
<td>2.62 (.66)</td>
<td>.11  (.901)</td>
</tr>
<tr>
<td>GENED</td>
<td>2.92 (.84)</td>
<td>2.68 (.84)</td>
<td>2.76 (.60)</td>
<td>.934 (.396)</td>
</tr>
<tr>
<td>PERSSOC</td>
<td>3.19 (.74)</td>
<td>2.96 (.77)</td>
<td>3.19 (.72)</td>
<td>1.14 (.324)</td>
</tr>
<tr>
<td>PRCTCOMPT</td>
<td>2.84 (.85)</td>
<td>2.67 (.89)</td>
<td>2.57 (.96)</td>
<td>.567 (.569)</td>
</tr>
</tbody>
</table>

Note. NSD = No Significant Difference.
Research Question Two Summary

Research Question Two sought to identify the relationship between student perceptions of engagement in online courses and student perceptions of learning for seven different demographic variables. The research approach used tests of differences ($t$-tests, ANOVA) to identify significant differences in the responses of the various groups within each of the seven demographic variables. Overall, there were very few significant differences identified through these analyses. The most notable differences were between undergraduate and graduate students on the perceptions of the benchmark Level of Academic Challenge, Survey Item 7 related to how often students tutored other students, and Survey Item 12 related to how often students used the library for assignments. In all three cases, graduate students had higher level responses than undergraduate students. The only other statistically significant differences were found in Survey Item 6 related to how often students worked with other students on projects, where both students who had completed four to six courses and students who had completed six to nine courses perceived more frequent tutoring of other students than those students who had completed only one to three courses.

Qualitative Phase – Interviews

In implementing the maximum variation sampling defined for selecting interview candidates, the researcher purposively identified 22 students from the 70 survey respondents who indicated a willingness to participate in an interview and who demonstrated a balanced range of total engagement scores from low engagement to high engagement. An email was sent to these 22 students providing consent information (Appendix D) and inviting them to schedule an interview. Only two students (both with high engagement scores) responded to this initial email and two follow-up emails. An email invitation with consent information was then sent to all 70
of the survey participants who had indicated a willingness to be interviewed. Eighteen students were scheduled for interviews and ultimately ten interviews were conducted as planned. Eight of the scheduled interviewees failed to call in for their scheduled interviews, including all of those scheduled who had engagement scores on the lowest end of the range. The mean engagement score for the total population surveyed was 52.2 and the range of engagement scores for the 70 potential interviewees was 16.9 to 80.7. The ten students who actually participated in an interview had total engagement scores ranging from 46.3 to 79.0. No students with an engagement score of less than 46.3 participated in an interview. Eighteen students with scores under 43.0 who had indicated in the survey that they were willing to participate in an interview were sent numerous emails and several scheduled interviews; however, none of these students ended up participating in an interview.

**Interviewee Demographics**

The demographic characteristics and the total engagement scores for the ten students who were interviewed are shown in Table 26. As noted above, the range of engagement scores for the interviewee group is 46.3 to 79.0. Age ranges are divided among the four age ranges of < 25, 25-34, 35-44, and 45-54. Interviewees are 40% male and 60% female, similar to the gender breakdown of the total survey population (34% male/66% female). All but one participant is working full-time (90% full-time, 10% not working). The college level split is 40% undergraduate, 60% graduate, compared to the 50%/50% split for the survey population. This suggests that in this study graduate students were more likely to schedule and participate in an interview than undergraduate students. In the grades earned category, 70% of the interviewees have mostly A grades and the remaining 30% have A-/B+ grades. In the full survey population, only 40% of students indicated receiving A grades, with 42% indicated A-/B+, demonstrating
that interviewees achieved generally higher grades than the full survey group. The remaining
demographic characteristics were generally similar to those of the broader survey respondent
group.
Table 26

*Engagement Scores and Demographic Characteristics of Interviewees (N = 10)*

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Engagement</th>
<th>Age</th>
<th>Gender</th>
<th>Employment</th>
<th>Level</th>
<th>Course/Term</th>
<th>Course Complete</th>
<th>Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviewee 1</td>
<td>71.6</td>
<td>35-44</td>
<td>Male</td>
<td>Full-Time</td>
<td>GR</td>
<td>One</td>
<td>1-3 Courses</td>
<td>A</td>
</tr>
<tr>
<td>Interviewee 2</td>
<td>55.2</td>
<td>45-54</td>
<td>Male</td>
<td>Full-Time</td>
<td>GR</td>
<td>Two</td>
<td>4-6 Courses</td>
<td>A-/B+</td>
</tr>
<tr>
<td>Interviewee 3</td>
<td>46.3</td>
<td>45-54</td>
<td>Female</td>
<td>Full-Time</td>
<td>GR</td>
<td>One</td>
<td>4-6 Courses</td>
<td>A</td>
</tr>
<tr>
<td>Interviewee 4</td>
<td>49.0</td>
<td>NA</td>
<td>Female</td>
<td>Full-Time</td>
<td>UG</td>
<td>Two</td>
<td>1-3 Courses</td>
<td>A-/B+</td>
</tr>
<tr>
<td>Interviewee 5</td>
<td>66.7</td>
<td>25-34</td>
<td>Female</td>
<td>Full-Time</td>
<td>UG</td>
<td>Two</td>
<td>1-3 Courses</td>
<td>A</td>
</tr>
<tr>
<td>Interviewee 6</td>
<td>79.0</td>
<td>35-44</td>
<td>Female</td>
<td>Full-Time</td>
<td>GR</td>
<td>Two</td>
<td>1-3 Courses</td>
<td>A</td>
</tr>
<tr>
<td>Interviewee 7</td>
<td>67.2</td>
<td>25-34</td>
<td>Male</td>
<td>Not Working</td>
<td>GR</td>
<td>Three</td>
<td>1-3 Courses</td>
<td>A</td>
</tr>
<tr>
<td>Interviewee 8</td>
<td>69.1</td>
<td>35-44</td>
<td>Female</td>
<td>Full-Time</td>
<td>GR</td>
<td>Two</td>
<td>7-9 Courses</td>
<td>A</td>
</tr>
<tr>
<td>Interviewee 9</td>
<td>58.6</td>
<td>45-54</td>
<td>Female</td>
<td>Full-Time</td>
<td>UG</td>
<td>Two</td>
<td>10+ Courses</td>
<td>A-/B+</td>
</tr>
<tr>
<td>Interviewee 10</td>
<td>51.0</td>
<td>&lt; 25</td>
<td>Male</td>
<td>Full-Time</td>
<td>GR</td>
<td>Three</td>
<td>4-6 Courses</td>
<td>A</td>
</tr>
</tbody>
</table>
Research Question Three and Sub-Questions

The qualitative research question and sub-questions that guided this research study are:

3. How do students describe their experience with online courses relative to engagement?
   
   3a. How do students interpret the ways in which online learning relates to engagement?
   
   3b. How do students identify the practices and activities which support engagement within each of the four benchmark dimensions of engagement constructs (level of academic challenge, active and collaborative learning, student-faculty interaction, and enriching academic experiences)?

The purpose of the qualitative research question and sub-questions was to document and understand how students describe and interpret their engagement in online courses and to identify those practices and activities that students believe contribute to their engagement. This information was gathered through interviews with selected survey participants who agreed to be interviewed. Interviews were scheduled using phone and email.

Interview Format and Content

The ten interviews were conducted following a defined interview protocol (Appendix C) that included a semi-structured interview script. All students were asked the same ten open-ended questions, some of which were multi-part questions, as shown in Table 27 below. The questions were specifically designed to address research question three and its sub-questions. Interviewees responded to each question in sequence. Interviews were conducted using Bluejeans.com teleconferencing services and were audiotaped and transcribed by a commercial transcription company, Rev.com.
Table 27

*Questions for Semi-Structured Interviews*

<table>
<thead>
<tr>
<th>Question #</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Please tell me a little about your background and how you came to be an online student at this institution?</td>
</tr>
<tr>
<td>2</td>
<td>Can you describe experiences in your online courses when you felt deeply engaged? When you felt unengaged?</td>
</tr>
<tr>
<td>3</td>
<td>Can you describe an experience in your online courses that stands out to you with respect to engagement? Was this a positive or negative experience? What effect did it have on you?</td>
</tr>
<tr>
<td>4</td>
<td>Can you describe the extent to which your online courses challenge you academically? Are your online classes more or less challenging than you expected prior to starting the online program and why?</td>
</tr>
<tr>
<td>5</td>
<td>Can you describe any collaboration on assignments with other students in your online courses? Have these experiences been positive, neutral, or negative for you and why?</td>
</tr>
<tr>
<td>6</td>
<td>Can you describe your general experience with your professors in your online courses? What has been especially positive? What negative experiences have you had, if any?</td>
</tr>
<tr>
<td>7</td>
<td>To what extent have you applied what you are learning in your program to real-world situations? Can you provide examples?</td>
</tr>
<tr>
<td>8</td>
<td>Can you describe specific activities and practices you have experienced in your online courses that you believe contributed to your engagement and learning?</td>
</tr>
<tr>
<td>9</td>
<td>What barriers, if any, have you faced in being a successful and engaged online student?</td>
</tr>
<tr>
<td>10</td>
<td>If you were in charge of the online programs here, what would you change about any aspects of online courses to enhance student engagement and learning? What current practices would you maintain?</td>
</tr>
</tbody>
</table>
Analysis of Interview Data

The open-ended responses provided by interviewees were analyzed thematically by coding the responses with the assistance of HyperRESEARCH software. Generally, the interview responses described the recurring elements and experiences of the online learning environment that the students interviewed believe impact their engagement and learning. The researcher read through the transcribed text of the ten interviews several times, making notes on patterns, common language, and similar ideas expressed in the interviews. In subsequent readings of the transcribed interviews, the software was used to identify and code these similar items across a broad range of areas in each interview transcript. The results of these activities were then compared across the ten interviews to identify broad common themes evident across the ten interviews. Five broad themes related to the factors that interviewees believe contribute to their engagement and learning were derived and described through this process. These themes are: 1) Above and Beyond: Faculty Behavior and Relationship with Students; 2) Everyone Doing Their Part: Student to Student Interaction; 3) Quality by Design: Course Functionality & Delivery; 4) Overcoming the Barriers: Student Behavior and Characteristics; and, 5) It Shouldn’t be Easy: Academic Challenge.

Online Student Engagement Thematic Analysis Network

As discussed briefly above, five broad themes emerged from this analysis: 1) Above and Beyond: Faculty Behavior and Relationship with Students; 2) Everyone Doing Their Part: Student to Student Interaction; 3) Quality by Design: Course Functionality and Delivery; 4) Overcoming the Barriers: Student Behavior and Characteristics; and, 5) It Shouldn’t be Easy: Academic Challenge. To aid in understanding how these five themes contribute to engagement and learning, these five

...
themes and the recurring elements supporting each are depicted in the Online Student
Engagement Thematic Analysis Network shown in Figure 3 below. As theorized by both
Tinto (1993) and Astin (1985), the recurring elements within these five themes actively
contribute to students’ social and academic engagement and integration, which ultimately
impacts their learning. The information in Figure 3 provides a structure to visually
understand how students describe their online learning experiences relative to
engagement and how they interpret the ways online learning relates to engagement and
learning.

As a means of member checking, Figure 3 was sent to all 10 of the interviewees
along with an email asking them to provide feedback on how well the figure reflects what
they expressed in the interviews. Feedback from interviewees was incorporated into
Figure 3 where appropriate. In addition, peer review of the entire qualitative phase of the
study was conducted by a well-qualified peer at the researcher’s institution and the peer
reviewer’s constructive feedback was integrated into the dissertation document.
Figure 3. Online Student Engagement Thematic Analysis Network
A more detailed discussion of each of the five broad themes, including pertinent quotes from the 10 student interviews, is below.

**Theme #1 – Above and beyond: Faculty behavior and relationships with students.**

This was the theme most commonly identified within the transcripts of the ten student interviews. This theme relates to how faculty members act and interact with students in online courses. Based on the qualitative interviews, faculty behavior and relationships with students are key elements related to students’ perceptions of their engagement and learning. Students clearly appreciate faculty who go above and beyond baseline expectations. The most commonly-mentioned faculty behavior that positively impacts engagement and learning is providing prompt, extensive, and constructive feedback on student coursework. Faculty who fail to provide timely and helpful feedback were mentioned as a significant barrier to engagement by all ten interviewees. Faculty behavior like this seriously irritates online students. For example:

When I get a grade of, let’s say eighteen out of twenty, and no feedback, no rubric, no chance to know where I went wrong or to not go wrong again, that’s discouraging and it makes me feel not engaged. It just makes me feel detached from the experience.

Another example:

When I felt disengaged, I had a Spanish teacher that didn't correct any of the homework, I got no feedback, and then by the last week I still didn't even know what my grade was because the assignments weren't graded so you don't know where you stand or if you're doing the right thing.

The idea of prompt response was also important in that students indicated that faculty accessibility and prompt response to contacts and emails are important faculty behaviors. As one
interviewee noted, “He didn’t grade things for a month. He wouldn’t answer my emails, any 
emails. I must have sent 12 emails. None of them got answered. That really got me mad.”

Students indicated a strong appreciation of faculty who are passionate and engaged in 
online courses as demonstrated by faculty participating in the discussion board, posting of 
personalized videos and other media, and sharing of personal and professional experience and 
ideas. One interviewee noted, “He was very involved in the discussion boards, always had videos 
up. The material was clear, and he was just really…you could tell he was incredibly passionate 
about leadership.” Another stated:

    The bottom line is it’s just the content from the instructor when you feel like they 
really went above and beyond to deliver a great lecture and give you meaningful 
assignments and discussions. It’s like they really care and they’re reminding us 
when stuff is due. They answer the emails 24/7.

Faculty who are not perceived by students as being engaged in an online course were cited as 
significant dis-satisfiers, often creating a decrease in the student’s sense of engagement in the 
course. For example:

    I feel unengaged when material goes up that has no personalization to it. Let’s say 
a PowerPoint goes up but I can tell it’s an instructor resource or something like 
that. All of the responsibility to learn and to answer my own questions are on me. 
That makes me feel really unengaged.

    Students also indicated that they value personalized communications and connections 
with their online instructors. As one student noted, “She was very in touch with us and just, you 
could get an email two times a day from her if necessary. She was very engaging. She made the 
class very interesting and very rewarding.”
Theme #2 – Everyone doing their part: Student to student Interaction and relationships. The next most commonly identified theme across the interviews involved student to student interaction and relationships. Students’ relationships with other students in their online courses are perceived to be a significant source of engagement and learning. Connections made through the discussion board were the most commonly identified positive element within this theme. Well-constructed and managed discussions provide the opportunity for students to engage with their classmates in ways that are similar to a physical classroom. As an interviewee stated:

A second part that helps me, the discussion threads, especially if they put the emphasis on us doing the learning and then coming back and talking about it and challenging each other. That helped me to form connections last semester that I still have this semester with students.

Group work experiences were the next most common area mentioned, with students citing both positive and negative group work situations as affecting their engagement and learning. Positive group experiences engendered a strong sense of engagement and connection and helped some students form lasting relationships with other students. As observed by one interviewee:

Everyone (in the group) is doing their part. Everyone is actively suggesting things and making sure that everyone else is on board and trying to help each other out.

If there's something that may not be done or there's a misunderstanding somewhere, we're each trying to help each other stay on top.

Negative group work experiences were cited more frequently than positive experiences, and these difficult encounters left students feeling frustrated and unmotivated. The failure of other group members to do their part of the group’s assigned
work was the most common issue in the negative group experiences discussed by the interviewees. As expressed by one interviewee:

> I've had where you had to do some writings and you have peer review, and I find it very frustrating, because you will submit the assignment on time, and we all have time-frames where we have to do a peer review so that you can write the final draft or whatever, and I've come into contact twice where I've had two people who didn't respond in my group. One not on time and one not at all, so it was very hard. You're reaching out to them. I'm sending them emails saying, "Are you doing this assignment?"

**Theme #3 – Quality by design: Course functionality and delivery.** Elements within this theme focus on course quality and were mentioned by interviewees as being impactful on engagement and learning nearly as frequently as Student to Student Interaction and Relationships. Effective use of lecture and video was the most commonly cited element in this theme. As noted by one student:

> I think one of the things that's engaged me the most probably aside from the discussion forums, is when the professor takes the opportunity to actually use what they would use for a live student. Their PowerPoint presentations, video of themselves, those kind of things when they post those, so that it's more interactive process for me. I'm actually seeing how they would present to a live class via my computer.

Another common element in this theme was having clear and concise course expectations. Several students observed that having clear and concise expectations is a benefit, such as the student who noted, “It’s always engaging when you have requirements, and I know
the Wednesday, Sunday (regular discussion board assignment) thing helps because people stay engaged.” However, most interviewees cited the negative issues created when expectations are not clear. For example, “So something disengaging was not having any lectures and being provided no information, giving the questions and the answers, but no explanation or material to understand how you get the answers.”

An active and engaging discussion board was another commonly noted attribute of online courses that are engaging to students. As observed by one student:

They (discussion boards) have been really fun. I would say that they've been really positive because mostly with the discussion board, I think that's the best collaboration. Like when you have to post a paper and you get people that give their opinion on it.

Several other elements of this theme noted by interviewees include the importance of well-organized comprehensive course design, functional technology with support, real world assignments and the ability to use what is learned in work and personal settings. On course design, one student noted the need for consistency:

It is always good for the student if the due day-dates are always the same. For example, always have the discussions due on Wednesday. I have missed discussions when the instructor changes from week to week. The best part about online classes is that you can calculate your own schedule around what is due. The week generally ending on Sunday, and the discussions start on Wednesday. Since most of the online students have families and jobs/businesses, it is easier for us to know that we need to watch the Wednesday deadline without opening the schedule up and being surprised.
On functional technology with support, most comments were related to situations where the technology did not work. For example, several interviewees noted difficulty accessing the learning management system and completing assignments on tablets and smartphone devices as a cause of disengagement in their courses.

Relating to real-world assignments, another student positively observed:

The professor had us study the business law and solve real life problems. What would you do if there was this? Or he would have us go out and critique a restaurant from the eyes of a manager that would want to make more money. That was extremely – very good when we did that.

A number of students commented on their ability to use what they learned in their courses in their daily lives. As this interviewee commented:

You know, leadership class was so invaluable for me for this upcoming semester because the things that we learned in there about servant leadership and everything else. I've always had kind of a servant leadership model of management to begin with. So being able to put terminology to it and change my outlook to fit more of the students' needs was very good for me and really is going to be helpful.

Another student relating how often he/she has been able to use what was learned in courses stated, “I would probably say daily, and of course for the cost, I certainly was hoping I was going to be able to use it on a regular basis. I would say the finance and accounting has been rigorous but also very helpful.”

**Theme #4 – It shouldn’t be easy: Academic challenge.** A fourth theme found in the interviews relates to the perceived level of academic challenge and how it compared with the
interviewees’ expectations for the online courses. All interviewees expressed that it was important for engagement and learning that the online program be academically challenging for them, not easy. As one interviewee observed, “As an online (student), I want to be challenged. I don't want it to be easy.” Half of the ten interviewees expressed that they perceived the level of academic challenge to be high. One student observed about courses:

They're challenging. Like I said, I work full-time. I'm active in the community and things, so trying to get everything to fit in, I've actually set my work schedule so that I leave almost an hour early two days a week just to come home and sit in front of my computer and use those two hours to do my work before the rest of the family comes home and that whole dynamic starts.

Four of the interviewees said that the level of academic challenge was moderate; as described by one interviewee, “I guess on a scale from one to ten, ten being like the most challenge, I would say that I'd put it right around seven or eight.” No interviewees stated that they perceived the level of academic challenge to be low. The majority of interviewees expressed that the level of academic challenge was fairly close to their expectations, like this student who said: “They were probably just what I was expecting because of the reputation of (site institution). I was expecting it to be a little more rigorous and it has been.” Several interviewees felt that the level of challenge was higher than they had expected. One student observed:

I think they're more challenging, definitely. That's something that I've actually talked with my advisor and everything about, than I guess the perception of the online forum is. Oh, it's online. Everybody can just dial in and do it. I feel like it's more challenging because in a live classroom there is the natural interaction.

Another student noted the following about academic challenge expectations:
They're more challenging than I thought they would be, which I'm pleased with. I expect to be challenged. Why? I think I had the perception that online learning would just be a big open book experience, which for somebody ... I enjoy a lifelong learning process so I didn't know that the online experience wouldn't just be answering questions from a book that I really didn't have to pay or spend the time to get a degree. Anyway I could've just done that on my own, but I've had a much different experience. The responsibility of learning the material is on me, but in most cases of my online experience so far there have been great resources, there has been instruction where to look for the information that I need to find, how to apply it.

Only one interviewee felt that the perceived level of challenge was less than what was expected, noting: “Well, I'm only in my second class. I would say that, knock on wood, they are less challenging than I expected.”

**Theme #5 – Overcoming the barriers: Student behavior and characteristics.** There were three major areas within the next theme of student behavior and characteristics that interviewees cited as being necessary for successful engagement and learning in online academic programs. The most important one according to the interviewees is the ability to manage time effectively, which was mentioned by the majority of interviewees. As one student observed in answer to a question about the characteristics needed to overcome barriers to success in online learning:

> Time management, clearly. Just finding the time. I mean, initial posting is due by Wednesday and then subsequent repost or replies need to be done by Sunday, so it gives me a day to read and think and then a day to write and to type. Then on top
of that I have my work, I have my family, I have, you know, life that happens, so it's really just time management.

Here’s another student who feels time management is a vital skill, but is not a concern personally:

Time management hasn't been a barrier for me personally, but I think it's because I'm old. Like I said, I'm at a different place in my life. You're interviewing a forty-year-old who's been in the workplace for twenty some years, I have children, I have a marriage. I'm good at balancing at this stage of my life. That hasn't been a barrier.

The second important characteristic for online students according to the interviewees is the commitment and motivation to learn and succeed. Interviewees mentioned the importance of their own drive in staying committed to their education, even when life got in the way, something that happens frequently for working adult professionals learning online. As one interviewee stated, “I thoroughly enjoy school, so I mean every part of it, I'm giving a hundred percent. There wasn't one week that I’ve felt that this is wasting my time or that I was so overwhelmed with other things that I couldn't contribute.”

A final important element cited by interviewees is having access to adequate financial resources to pay for their education. Financial aid has been vital to most of the interviewees. Those who do not have access to adequate financial resources struggle emotionally and can be detracted from the required engagement for successful learning. One interviewee described issues around financial resources and the cost of online programs as follows:
Cost is a barrier. It’s very expensive. I think because of the cost I would consider another program. (Site institution) is expensive relative to other programs. Again, I understand there’s more to what I’m getting. When I’ve got mortgage and things to consider, that money really could go to other things.

**Qualitative Findings Summary**

Research Question Three and its sub-questions sought to document and understand how students describe and interpret their engagement in online courses and to identify those practices and activities that students believe contribute to their engagement. These questions were addressed through semi-structured interviews with ten students who had also participated in the quantitative survey phase of the study. The transcripts of the interviews were analyzed thematically and five broad themes emerged that are related to the factors that interviewees believe contributed to their engagement and learning. In their description and interpretation of their engagement in online courses, interviewees described a wide range of practices and activities that contribute to their engagement and learning.

The most commonly identified broad theme was Theme 1 – Above and Beyond: Faculty Behavior and Relationship with Students, which relates to how faculty members act and interact with students in online courses. Based on the interviewee input in this area, online faculty members need to be responsive, engaged, and connected to the students in their courses. In Theme 2 – Everyone Doing Their Part: Student to Student Interaction, interviewees cited the connections they made with fellow students through discussion boards and positive group work experiences as important to their engagement and learning. Negative group work experiences were cited as a significant barrier to engagement. In Theme 3 – Quality by Design: Course Functionality and Delivery, students cited effective use of lecture and video, active and engaging
discussion boards, clear and concise course expectations, well-organized course design, functional technology with support, and real-world assignments as being important to their engagement and learning. In Theme 4 – It Shouldn’t be Easy: Academic Challenge, all of the interviewees expressed that it was important for engagement that their online courses be academically challenging for them, not easy. The interviewees noted that their online courses were highly or moderately challenging academically and that the level of challenge met or exceeded their expectations coming into the online program. In Theme 5 – Overcoming the Barriers: Student Behavior and Characteristics, the three major elements were the importance of time management skills, the commitment and motivation to learn and succeed, and having access to adequate financial resources to pay for their education.

Convergence and Divergence of Findings for Mixed Methods Model

One of the benefits of mixed methods studies is that the findings of the second phase of the study can be used to corroborate and supplement the findings of the first phase (Creswell, 2012). It is, therefore, important to assess the alignment and convergence of the findings of the quantitative and qualitative phases of the study to identify areas of overlap and concurrence, as well as to identify any divergence in the findings from the two phases. One step in this process is triangulation of the results from the two phases.

Convergence of Findings. In this study, the themes identified from the qualitative interviews that define elements of the online learning environment that contribute to engagement and learning have significant overlap with the four benchmarks of engagement identified in the NSSE survey that contribute to engagement and learning (level of academic challenge, active and collaborative learning, student-faculty interaction, enriching educational experiences). For example, level of academic challenge is both one of the NSSE-defined benchmarks of
engagement and is also one of the broad themes that emerged from the interviews. Specific questions in the interviews asked directly about perceptions of academic challenge, so this is not a surprising outcome. The other relationships that can be identified were not as predictable. The elements of four of the five qualitative themes align with and support one or more of the benchmarks of engagement. For example, the benchmark Student-Faculty Interaction is supported by elements of Theme 1 – Above and Beyond: Faculty Behavior and Relationship with Students and Theme 3 – Quality by Design: Course Functionality and Delivery. The benchmark Enriching Educational Experiences is supported by elements of Theme 2 – Everyone Doing Their Part: Student to Student Interactions and Relationships and Theme 3 – Quality by Design: Course Functionality and Delivery. The benchmark Active and Collaborative Learning is supported by elements of Theme 2 – Everyone Doing Their Part: Student to Student Interaction. These descriptive elements of the broad qualitative themes provide context and definition to each of the major benchmarks of engagement. Only the elements of Theme 5 – Overcoming the Barriers: Student Behavior and Characteristics do not align with any of the four benchmarks of engagement. Table 28 shows the triangulation of the specific elements of each of the five qualitative themes with the four benchmarks of student engagement assessed in the quantitative survey.
Table 28

Triangulation of Elements of Qualitative Themes with Benchmarks of Engagement

<table>
<thead>
<tr>
<th>Theme 1 - Faculty Behavior and Relationship with Students</th>
<th>Benchmark 1 - Level of Academic Challenge</th>
<th>Benchmark 2 – Active-Collaborative Learning</th>
<th>Benchmark 3 - Student-Faculty Interaction</th>
<th>Benchmark 4 - Enriching Educational Experiences</th>
<th>Other - Unrelated to Benchmarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty passion and engagement in course; prompt, extensive feedback; personalized communications and connections with students; faculty engagement in discussion board; accessibility to students; accommodations for student life constraints</td>
<td>Faculty passion and engagement in course; prompt, extensive feedback; personalized communications and connections with students; faculty engagement in discussion board; accessibility to students; accommodations for student life constraints</td>
<td>Faculty passion and engagement in course; prompt, extensive feedback; personalized communications and connections with students; faculty engagement in discussion board; accessibility to students; accommodations for student life constraints</td>
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<td>Faculty passion and engagement in course; prompt, extensive feedback; personalized communications and connections with students; faculty engagement in discussion board; accessibility to students; accommodations for student life constraints</td>
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<td>Connections through discussion board; student to student connections; group work experiences</td>
<td>Connections through discussion board; student to student connections; group work experiences</td>
<td>Connections through discussion board; student to student connections; group work experiences</td>
<td>Connections through discussion board; student to student connections; group work experiences</td>
<td>Connections through discussion board; student to student connections; group work experiences</td>
<td>Connections through discussion board; student to student connections; group work experiences</td>
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<tr>
<td>Clear concise course expectations; effective use of lecture and video; well-organized course design</td>
<td>Clear concise course expectations; effective use of lecture and video; well-organized course design</td>
<td>Clear concise course expectations; effective use of lecture and video; well-organized course design</td>
<td>Clear concise course expectations; effective use of lecture and video; well-organized course design</td>
<td>Clear concise course expectations; effective use of lecture and video; well-organized course design</td>
<td>Clear concise course expectations; effective use of lecture and video; well-organized course design</td>
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<td>Expected level of challenge; perceived level of challenge</td>
<td>Expected level of challenge; perceived level of challenge</td>
<td>Expected level of challenge; perceived level of challenge</td>
<td>Expected level of challenge; perceived level of challenge</td>
<td>Expected level of challenge; perceived level of challenge</td>
<td>Expected level of challenge; perceived level of challenge</td>
</tr>
<tr>
<td>Time management skills; adequate financial resources; commitment and motivation to learn and succeed</td>
<td>Time management skills; adequate financial resources; commitment and motivation to learn and succeed</td>
<td>Time management skills; adequate financial resources; commitment and motivation to learn and succeed</td>
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<td>Time management skills; adequate financial resources; commitment and motivation to learn and succeed</td>
<td>Time management skills; adequate financial resources; commitment and motivation to learn and succeed</td>
</tr>
</tbody>
</table>
In addition to triangulating the elements of the qualitative themes with the quantitative benchmarks of engagement, the quantitative findings related to the correlations between the benchmarks of engagement and student perceptions of learning need to be considered in relation to the qualitative findings. The quantitative phase of the study revealed statistically significant correlations between items in each of the four benchmarks of engagement and student perceptions of learning, with the strongest correlations between Level of Academic Challenge and perceptions of learning and Enriching Educational Experiences and perceptions of learning. Tests of differences conducted across seven different demographic variables revealed very few significant differences among the subgroups in each demographic category in the relationship between student perceptions of engagement and student perceptions of learning. With the strong alignment of the qualitative themes with the benchmarks of engagement, the qualitative results further substantiate and help to define the relationship between the benchmarks of engagement and student perceptions of learning by providing detail on specific elements and practices in the online learning environment that contribute to engagement and learning.

**Divergence of Findings.** An interesting and unexpected result when reviewing the quantitative and qualitative findings together is that the relative ranking or order of significance of the four benchmarks of engagement from the quantitative survey and the ranking or order of magnitude of four of the five broad themes from the qualitative analysis, although similar in scope, are almost completely opposite in the relative ranking of significance and magnitude, as shown in the Figure 4 below. Level of Academic Challenge, the highest scoring of the four benchmarks, was the lowest scoring of the five qualitative themes (Academic Challenge), while the most frequently cited qualitative theme of Faculty Behavior and Relationship with Students was the lowest scoring of the four benchmarks (Student-Faculty Interaction). This is an
interesting result, given the overall similarity of the four benchmarks to the broad qualitative themes. One might have reasonably expected the relative order of importance of the benchmarks and broad themes to be more aligned across the quantitative and qualitative results than they are.

Figure 4. Ranking of Benchmarks by Level of Significance and Broad Qualitative Themes by Magnitude of Responses
Chapter 5 – Discussion of the Research Findings

The purpose of this mixed methods sequential explanatory study was to examine the relationship among student perceptions of their levels of engagement in online courses, student demographic characteristics, and their perceptions of their learning in online courses. The study used Tinto’s Interactionalist Theory of student persistence (Tinto, 1993) as a theoretical framework to examine student engagement and its relationship with student learning and success in online environments. The quantitative phase of the study investigated the extent to which online students report that specific factors relate to engagement and self-reported learning in online courses among four benchmarks of engagement defined by the National Survey of Student Engagement (Kuh, 2003): Level of Academic Challenge, Active and Collaborative Learning, Student-Faculty Interaction, and Enriching Educational Experiences. The subsequent qualitative phase of the study identified key factors and practices that relate to effective engagement and learning by examining how students described and interpreted their engagement and the specific activities and practices they perceive contributed to their engagement and learning.

The study was guided by three research questions – two quantitative questions, and one qualitative question with two sub-questions. The quantitative questions were: 1) What is the relationship between student perceptions of engagement in online courses in each of four benchmark constructs of engagement (Level of Academic Challenge, Active and Collaborative Learning, Student-Faculty Interaction, Enriching Educational Experiences) and student perceptions of learning? and, 2) What is the relationship between student perceptions of engagement in online courses and student perceptions of learning for each of the following demographic variables: age, gender, level (undergrad/graduate), employment status, number of
online courses currently enrolled, number of online courses previously completed, and current grades? The qualitative question was: 3) How do students describe their experience with online courses relative to engagement? The two qualitative sub-questions were: 3a) How do students interpret the ways in which online learning relates to engagement? 3b) How do students identify the practices and activities which support engagement within each of the four benchmark dimensions of engagement?

**Overview of Major Findings**

**Quantitative phase.** In relation to Research Question One, Pearson product moment correlation analyses of survey data provided results which established that for the students in this study there are meaningful and statistically significant positive relationships between the four NSSE-defined benchmarks of engagement and student perceptions of learning in online courses in the study population as defined by the three NSSE-defined dimensions of learning (gains in general education, gains in personal and social development, gains in practical competence). Online students in this study are engaged across all of the four benchmarks and perceive that their engagement contributes to their learning. The tests of differences used to address Research Question Two found very few statistically significant differences in the responses among the various sub-categories in each of seven demographic variables in student perceptions of engagement and student perceptions of learning in online courses. The findings for each benchmark are discussed below.

**Findings for Benchmark Level of Academic Challenge**

- There were strong and statistically significant correlations between the benchmark and student perceptions of all three NSSE-defined dimensions of learning (Gains in General Education, Gains in Social and Personal Development, and Gains in Practical Competence).
• The t-test for this benchmark across demographic variables showed a significant difference only in the response means between undergraduates and graduate students in which graduate students had higher scores than undergraduates.

Based on these results, students in this survey validated that the elements within the Level of Academic Challenge benchmark contribute to engagement and to their perceptions of learning in their online courses. Further, graduate students perceived the level of academic challenge in their courses to be higher than the level of academic challenge perceived by undergraduate students.

Findings for Benchmark Student-Faculty Interaction

• There were modest significant correlations between survey item 3 (how often students reported receiving prompt feedback from faculty on course performance) and all three dimensions of learning.

• There were no other statistically significant correlations within the remaining three items in the Student-Faculty Interaction benchmark and dimensions of learning.

• Tests of differences revealed no statistically significant differences in the responses across the sub-categories of the seven demographic variables.

These results indicate that students perceived that receiving prompt feedback from faculty is positively related to their sense of engagement and their perceptions of learning in online courses.

Findings for Benchmark Active and Collaborative Learning

• The relationships between four of the five survey items and the three dimensions of learning were modest and significant, including survey item 6 (how often a student worked with other students in projects), survey item 7 (how often a student tutored or taught other students), survey item 12 (how often a student made a class presentation online), and between survey
item 13 (how often a student visited the online library resources) and all three dimensions of learning.

- The relationships between survey item 32 (how much the student’s online experience helped the student work effectively with others) and all three dimensions of learning were very strong and significant.

- On the tests of differences, a significant difference was found for the mean responses for undergraduates and graduate students on benchmark item 7 (how often a student has tutored or taught other students) and benchmark item 13 (how often a student used the online library resources for coursework), where graduate students’ results reflect higher mean values.

These results indicate that all five of the Active and Collaborative Learning items have a relationship with students’ perceptions of learning, but the most impactful item in this benchmark is how much students perceive the online experience helps them to work effectively with others, which has a very strong and significant relationship with students’ perceptions of their learning in online courses. The tests of differences results indicate that graduate students perceive that they engage in tutoring others and using the library for coursework more frequently and that these activities have a more significant relationship with their engagement and learning than undergraduate students perceive for these items.

Findings for Benchmark Enriching Educational Experiences

- There were moderate and significant correlations between the benchmark and all three dimensions of learning.

- The $t$-test for this benchmark across demographic variables showed no significant differences in the responses across the sub-categories of the seven demographic variables.
Based on these results, students participating in this research validated that the elements within the Enriching Educational Experiences benchmark contribute to their engagement and to their perceptions of learning in their online courses.

**Qualitative phase.** The qualitative phase of the study, focused on Research Question Three and its sub-questions, which sought to document and understand how students describe and interpret their engagement in online courses and to identify those practices and activities that students believe contribute to their engagement. Five broad themes were identified from the interview data using thematic analysis. Specific elements of each broad theme that describe the specific activities and practices under each are shown in Figure 3 on page 117.

- **Theme 1 – Above and Beyond: Faculty Behavior and Relationship with Students.** This was the most commonly identified broad theme, which relates to how faculty members act and interact with students in online courses. Based on the interviewee input in this area, online faculty members need to be responsive, engaged, and connected to the students in their courses.

- **Theme 2 – Everyone Doing Their Part: Student to Student Interaction.** In this theme, interviewees cited the connections they made with fellow students through discussion boards and positive group work experiences as important to their engagement and learning. Negative group work experiences were cited as a significant barrier to engagement.

- **In Theme 3 – Quality by Design: Course Functionality and Delivery.** In this theme, students cited effective use of lecture and video, active and engaging discussion boards, clear and concise course expectations, well-organized course design, functional technology with support, and real-world assignments as being important to their engagement and learning.
• **Theme 4 – It Shouldn’t be Easy: Academic Challenge.** In this theme, all of the interviewees expressed that it was important for engagement that their online courses be academically challenging for them, not easy. The interviewees noted that their online courses were highly or moderately challenging academically and that the level of challenge met or exceeded their expectations coming into the online program.

• **Theme 5 - Overcoming the Barriers: Student Behavior and Characteristics.** In this theme, the three major elements related to the student behavior and characteristics that help online students overcome the barriers in online learning environments were the importance of time management skills, the commitment and motivation to learn and succeed, and having access to adequate financial resources to pay for their education.

**Implications on Findings from Mixing Methods.** In mixed methods studies, it is important to consider the quantitative and qualitative findings together to assess the alignment across the two methods to identify areas of overlap and convergences, as well as to identify any differences in the findings from the two phases. This study found that the themes identified from the qualitative interviews that define elements of the online learning environment that contribute to engagement and learning have significant overlap with the four benchmarks of engagement identified in the NSSE survey that contribute to engagement and learning. Level of academic challenge is both one of the NSSE-defined benchmarks of engagement and is also one of the broad themes that emerged from the interviews. The elements of four of the five qualitative themes align with and support one or more of the benchmarks of engagement. These similar results across the two research methods add weight to both the quantitative and qualitative findings of the study.
Divergence in the quantitative and qualitative results was found in the relative magnitude of the four benchmarks of engagement in the quantitative phase compared to the frequency or magnitude of the five broad qualitative themes. Level of Academic Challenge, the highest scoring of the four engagement benchmarks, was the lowest scoring of the five qualitative themes (#5 Academic Challenge), while the most frequently cited qualitative theme of Faculty Behavior and Relationship with Students was the lowest scoring of the four benchmarks (Student-Faculty Interaction). This is an interesting result, given the overall similarity of the four benchmarks to the broad qualitative themes. Perhaps it is possible that the narrower, closed-end questions in the quantitative survey constrained students expressing their full range of thoughts on the faculty-student relationship, which had the most detail and most frequent references when students were given open-ended questions and encouraged to share all of their thoughts in the qualitative interviews. Student relationships with faculty clearly go far beyond just receiving feedback on assignments and the qualitative interviews were able to capture that rich detail that a survey-based instrument cannot provide.

**Discussion of Findings in Relationship to Problem of Practice**

The dramatic growth of online learning, coupled with recent heightened demands for accountability for quality in higher education, have placed significant pressure on institutions offering online educational programs to document the quality of their academic programs. Significant evidence in traditional higher education points to student engagement as strongly correlated with effective learning and as a significant element in effectively-delivered academic courses, as meaningfully documented within the results of the National Survey of Student Engagement (NSSE, 2013). Very few studies have been undertaken in the past to meaningfully assess the role of engagement in online courses and its relationship to learning.
This study sought to address the issue of academic program quality as evidenced by student engagement and learning and to contribute to the current knowledge of the relationship between engagement and learning in online environments using the National Survey of Student Engagement. This study’s quantitative findings of significant positive relationships between each of the four NSSE-defined benchmarks of engagement and student perceptions of learning across three dimensions directly address the problem of practice and contribute to the knowledge base on student engagement and learning. The study’s qualitative findings expand further on the problem of practice by providing specific detail on the effective practices and activities that help online students engage and learn in their online courses.

**Discussion of Findings in Relationship to the Theoretical Framework**

The theoretical framework used for this study was Tinto’s (1975, 1993) concept of student integration within his Interactionalist Theory of student persistence (Braxton, Milem & Sullivan, 2000). Tinto (1993) defined student engagement in terms of a student’s social and academic integration in an institution, and posited that students with higher levels of social and academic integration will persist and succeed at higher rates in academic programs. Tinto further stated that “the more students are involved academically and socially, the more likely they are to become involved in their own learning, and invest time and energy to learn. Involvement, especially academic involvement, seems to generate heightened student effort. That effort, in turn, leads to enhanced learning” (Tinto, 1993, p. 131). Academic and social integration have been connected through research to a wide range of educational outcomes, including student learning (Astin, 1984; Pascarella & Terenzini, 1983), although most such studies have focused on students in traditional academic programs, as opposed to students in online learning environments. Many other researchers have used and extended Tinto’s theory in research on
student engagement; notably, George H. Kuh, the original developer of the National Survey of Student Engagement, elements of which were used in the survey for this study. The four benchmarks of engagement that are major elements of the NSSE and which were assessed through the quantitative phase of this study are strongly aligned with Tinto’s ideas of social and academic integration (Kuh, 2001).

The quantitative findings in this study reflecting that elements of each of the four NSSE-defined benchmarks of engagement were significantly and positively related to student perceptions of their engagement (academic and social integration) and their perceptions of their learning align with Tinto’s predictions and provide support to Tinto’s theory (Tinto, 1993). Generally, the higher students’ perceived levels of engagement across the four benchmarks, the higher the perceptions of their learning in their online courses, with the strongest correlations between the benchmark Level of Academic Challenge (which relates mostly to academic integration) and learning. Few studies to date have explored and established these correlations in online learning environments.

Even fewer studies have sought to identify specific activities and practices that support student engagement in online learning environments, where, as in this study, students are older adult learners working full- or part-time while also dealing with significant family or other responsibilities. The qualitative phase of this study moved beyond the quantitative finding of correlations between student engagement and learning, and identified five broad themes that together describe the characteristics, practices, and activities that the online learners in this study believe contributed to their engagement and learning. The two strongest themes of *Above and Beyond: Faculty Behavior and Relationship with Students* and *Everyone Doing Their Part: Student to Student Interaction* both focus on the relationships that build students’ academic and
social integration as defined by Tinto. The identified practices across the five broad themes, which have been defined by the online adult learners in this study and detailed in the qualitative findings in Chapter 4, can be adopted and encouraged in online environments to help ensure that online students are socially and academically engaged in their online courses as envisioned by Tinto (1993), and therefore given the best possible chance to learn the required content and successfully complete their online academic programs.

Discussion of Findings in Relationship to the Literature Review

The literature review for this study provided background on the evolution of online education and its rapid growth and current context, including the public focus on accountability for quality across all of higher education, but particularly on accountability for quality in online education. The review continued with discussion of student engagement and its relationship to learning, an overview of the National Survey of Student Engagement and the four relevant benchmarks of engagement defined that are applicable to online education, and finally addressed the use of NSSE in online education to date.

Within the discussion of the evolution of online education and its rapid growth, the benefits it provides to institutions, faculty, and students are delineated. For students, these benefits include the convenience and flexibility provided for adult students with jobs and family obligations. Although there was no interview question specifically related to the benefits of online study, the discussions with interviewees in the qualitative phase of the study evidenced support of the importance of these benefits to students. For example, one student stated: “That's what I like with online, it's that if I wake up at four in the morning I can log on and do some work. That's one of the greatest benefits is that I can have it twenty-fours a day, seven days a week at my fingertips.” A number of previous studies have found that student perceptions of
online education are generally positive (Rodriguez, Ooom, & Montanez, 2008; Somenarain, Akkaraju, & Gharbaran, 2010; Young & Norgard, 2006). Although not directly addressed in the qualitative interviews, all ten interviewees were enthusiastic about online learning in general and the site institution and its online programs specifically. As noted by one interviewee: “I'm pretty much satisfied with everything that's going on. This is my first online degree. So far, everything is exceeding my expectations.”

The literature review further describes how notions of accountability have expanded as colleges and universities are being asked to provide evidence of the value of their academic programs in terms of the specific gains in the knowledge and skills of graduates developed over their period of enrollment (Bers, 2011; Judd & Keith, 2012). The challenge this presents for institutions that offer online programs is clear – providing high quality online programs that can document student learning. The most common method for validating student learning is through outcomes assessment. The National Survey of Student Engagement (NSSE), which examines student trajectories and engagement throughout their college years through self-assessment of student learning and personal development, is a robust and commonly used tool for assessing educational outcomes of academic programs (Kuh, 2003). This study’s quantitative findings of significant correlations between online student perceptions of engagement and their perceptions of learning provides evidence of engagement and learning in the site institution’s online programs. This evidence could potentially be used as an outcomes assessment approach to demonstrating learning to internal and external constituents and to validating online program quality.

The concept of student engagement is discussed at length in the literature review. Many of the foundations of student engagement are found in the Seven Principles for Good Practice in
*Undergraduate Education* developed by Chickering and Gamson (1987), which were used in the development of the National Survey of Student Engagement (Kuh, 2009). In 1996, Chickering and Erhmann published seven principles redesigned for application in the technology-enabled online environment. There is significant overlap between these seven principles and the five broad themes culled from the qualitative interviews. For example, the first principle, “Good practice encourages contact between students and faculty” is strongly aligned with Theme 1 – Above and Beyond: Faculty Behavior and Relationship with Students. Similarly, the second principle, “Good practice develops reciprocity and cooperation among students” corresponds with Theme 2 – Everyone Doing Their Part: Student to Student Interaction. The principle, “Good practice gives prompt feedback” is reinforced by the element in Theme 1 of the qualitative findings that discussed the importance of faculty providing prompt, extensive, and constructive feedback on assignments.

The literature review revealed that there has been limited research on online student engagement and learning. Within the small number of studies on engagement and learning in online education, a study by Chen, Gonyea, and Kuh (2008), that used extensive NSSE data that included additional questions focused on online learning, found that online and campus-based learners are different in terms of their demographic and academic characteristics – specifically, online learners were older, more likely to have family responsibility, much more likely to be working full-time, and were more focused on their studies. The participants in this study are well aligned with that demographic profile. Online learners’ scores in the 2008 study compared favorably with those of campus-based learners except within the benchmark of *Active and Collaborative Learning*, where online learners’ scores were lower than those of campus-based
students. Similarly, in this study the overall scores on the *Active and Collaborative Learning* items were lower in comparison to scores on the other engagement benchmarks.

In a small study in 2008 that also used the NSSE data with the questions relating to online learning, Robinson and Hullinger found similar results to the Chen, Gonyea, and Kuh study (2008). Those researchers suggested further study on the specific elements of the online learning environment that promote engagement, a suggestion that served as part of the basis for the qualitative phase of this study. In a small study by Dixson (2010) which sought to discover what activities and interaction channels lead to more highly engaged online students, the results indicated that there was no particular activity or practice that students identified that will automatically help increase online student engagement. The Dixson study results emphasized the importance of multiple communication channels, student to student communication, and instructor to student communication to student engagement, and encouraged further research to define specific practices and activities that impact engagement of online students. In defining the activities and practices that online students believe contribute to their engagement and learning, the qualitative phase of this study helped to address this gap in the literature.

The National Survey of Student Engagement has been conducted annually since 2000, and more than 1,300 institutions and four million students have participated in the survey (NSSE, 2013). As the primary tool used in higher education to measure student engagement, it was the natural starting point for the research in this study. The NSSE is specifically designed to assess the extent to which students are engaged in sound educational practices that fall within five benchmarks of effective educational practice, four of which were applicable to, and therefore addressed in, the survey instrument for this study. The findings of the quantitative phase of this study showed statistically significant correlations between online students’ perceptions of their
engagement in their online courses and their learning in those courses across all four relevant benchmarks of engagement – level of academic challenge, active and collaborative learning, student-faculty interaction, and enriching educational experiences. These results are aligned with one of the major assumptions of the NSSE, which is that when measuring the extent to which students engage in benchmark practices, the students’ cognitive and personal development are also being assessed (Pascarella, Seifert, & Blainch, 2010).

Limited research on online student engagement and learning was evident in the review of the literature, at a time when understanding the connections between these two elements is important to validate the quality and effectiveness of online education. Researchers in this area suggested further research to explore the connections between online student engagement and learning and to identify specific practices and activities that online students believe contribute to their engagement and learning (Chen, Gonyea, & Kuh, 2008; Robinson & Hullinger, 2008; Suttle, 2010). This mixed methods study addressed both of the suggestions for further research of these previous researchers.

Discussion of Findings in Relationship to Research Design

This study employed a mixed methods sequential explanatory design with a dominant quantitative method (survey) informing a subsequent qualitative method (semi-structured interviews) to supplement and add context to the quantitative findings. Few studies of student engagement in postsecondary education have used mixed methods approaches, although it is widely acknowledged that the addition of qualitative data and approaches to quantitative-dominant research is likely to benefit most research projects (Johnson, Onwuegbuzie, & Turner, 2007). Mixed method designs leverage the benefits of both quantitative and qualitative research and provide a more complete understanding of a research problem and questions than either
method can provide alone (Creswell, 2012). A quantitative correlational research design with a cross-sectional survey was used for the quantitative phase of the study. The survey design was well-suited to gather the perspectives of the relatively large study population, which consisted of the active adult students who had completed at least one term enrolled in either an online Bachelor’s degree in Food Service Management or online MBA program at a large private institution in the Northeast (N = 177).

Survey proved to be an ideal design to address the two quantitative research questions, as the purpose of such designs is to “clarify the understanding of important phenomena by identifying relationships among variables” (Fraenkel, Wallen, & Hyun, 2012, p. 332), in this case the relationship between student perceptions of their engagement in online courses and their perceptions of learning in those courses. The data collected through the survey and analyzed using SPSS software provided the basis for identifying significant relationships between student perceptions of engagement across the four pre-defined benchmarks of engagement and student perceptions of their learning, as well as to determine that there were no significant differences in these results among various demographic variables except for a few modest variations between undergraduate and graduate students.

The qualitative phase of the study involved semi-structured interviews with 10 individual students from the pool of the 70 respondents to the survey in the quantitative phase who self-identified their willingness to be interviewed. Interviews followed a written protocol (Appendix C) and all 10 students were asked the same 10 open-ended questions. Questions for the interviews were finalized after analyses of the quantitative data were completed, providing the opportunity to refine a few of the questions to aid in understanding some of the findings in the quantitative phase. A significant benefit of the mixed methods design of the study was that
several of the drawbacks with the survey design in the quantitative phase were mitigated by the methods in the subsequent qualitative phase of the study. For example, a drawback of surveys is that they typically use standardized answers, which may limit the nature and depth of responses (Miller & Salkind, 2001). In the qualitative interviews, students were given the opportunity to answer semi-structured open-ended questions, providing more detailed responses for deeper analysis and insight into understanding the relationship between engagement and learning in online education. The open-ended format of the questions provided the opportunity for students to provide rich detail about their experiences in online courses, what they found engaging (and not engaging), and how these experiences helped them learn.

All of this rich detail was transcribed from the audiotapes of the interviews. Thematic analysis of the qualitative interview transcripts was performed using HyperRESEARCH software. This analysis provided the means for capturing the five broad themes across all of the interviewees’ responses and for detailing the elements of each theme. These elements are the specific activities, practices, and characteristics that this group of 10 online students (N = 10) believes contribute to their engagement and to their learning and which are defined in Chapter 4. For the researcher, this information will be invaluable in increasing the levels of student engagement in online courses and programs at her institution.

Limitations

There are limitations to this study. The quantitative findings of the study are not generalizable to other populations beyond the study participants, as the criterion-based sampling strategy identified all of the 177 continuing students at the researcher’s institution enrolled in online degree programs. All of the online students who participated in the study are from a single institution rather than from a range of institutions. A number of previous studies of engagement
and learning in on-campus populations had much larger sample sizes and were drawn from multiple institutions. Having a larger number of participants and participants from more than one institution would have potentially made the results of the quantitative phase of the study more generalizable to other online student populations. However, this study was not intended to be generalizable to other populations. Rather this research was completed to identify the relationship between engagement and learning and to define ways to improve online student engagement and learning among the sample population of online students at the site institution.

As discussed in Chapter 3, the quantitative phase of the study used a well-established survey instrument, the National Survey of Student Engagement. This instrument relies on student self-reports of engagement and gains in learning, as compared to more direct measures of engagement and learning, which creates an inherent limitation in the study results. While there is evidence to support the use of self-reports in research, direct evidence is generally considered stronger and more meaningful.

The qualitative findings were drawn from interviews with 10 students from within the population of 112 quantitative survey participants. Interview recruitment emails were sent to all 70 of the 112 survey respondents who indicated a willingness to participate in an interview. There was an element of self-selection among those 10 who finally participated in interviews, as most of those asked to participate either did not respond to the interview request or agreed to an interview and then did not call in at the scheduled interview time. As noted in Chapter 4, the range of the total engagement scores of the 10 students interviewed were not completely aligned with the range of engagement scores of those in the survey population, as no students with engagement scores in the lowest quartile participated in an interview. Interview participants also had a higher percentage of graduate students and higher grades than the broader survey group,
meaning their responses may not reflect the full range of student experiences with online learning of the total study population.

**Implications for Educational Practice**

**Scholarly significance.** The purpose of this mixed methods research study was to first examine the relationship between student perceptions of their levels of engagement in online courses and their perceptions of their learning in those courses within the study population and across seven demographic categories, and then to subsequently identify those practices and activities that these students believe positively contribute to their engagement and their learning. The literature review identified a gap in the research to date on student engagement and learning in online academic settings. This study helps to address that gap and adds to the body of knowledge about student engagement in online environments by identifying positive and significant relationships between student perceptions of their engagement across four benchmark areas and their perceptions of learning in online programs at the site institution. Further, this study revealed some information that confirms past research, including the confirmation of previous findings that online students have different demographic and academic characteristics than traditional students, that online students were engaged at varying levels across major benchmarks of engagement, and findings of overall student satisfaction with online learning (Chen, Gonyea, & Kuh, 2008; Robinson & Hullinger, 2008).

As noted in earlier sections, very few research studies have used a mixed methods approach to study engagement and learning in general or in online environments. Further, even fewer studies have sought to understand and identify specific practices and activities that positively impact engagement and learning in online courses. The five broad themes of student engagement in online courses defined in the qualitative phase of this study provide insight and
expand on the current understanding of online students and the elements of online environments that support student success.

Given that this was one of the first studies of online student engagement that used a mixed methods design and the benefits of using this design, further research on the topic is warranted using a mixed methods approach. Such studies would further address the gap in the literature identified in this study and help to further define the impact of engagement on learning in online environments and expand on the list of practices and strategies that increase engagement and learning. To enhance the generalizability of the results, future studies should include a significantly larger number of participants across a range of institutions, rather than the relatively small number of participants in this study (N = 112) that were all from a single institution. An experimental design for a study that assessed engagement and learning for online students participating in some of the strategies and practices in this study compared to a control group that did not participate in these practices would also be interesting, although perhaps not entirely fair to the control group.

**Practitioner Significance.** This study involved a relatively small number of participants from one private non-profit institution of higher education – 112 students in the quantitative survey phase and a subset of 10 of these students in the qualitative interview phase. In spite of these numbers, the study provides important detail about the engagement and learning of a group of fairly typical online students at one institution in the northeast. In establishing clear significant relationships between these students’ perceptions of their engagement and their perceptions of learning in online courses, the study validates the importance of focusing on student engagement in online courses to help ensure student learning and success in online programs. The study defines, through the words of the interview participants, a wide range of factors, activities, and
experiences that have contributed to (or detracted from) engagement in online learning. In
detailing the key factors and practices that these students believe relate to their effective
engagement and learning, the study provides meaningful resources to improve course design and
delivery to enhance the engagement and learning of online students. The study’s results should
be of interest to faculty, deans, provosts, and other online administrators as a potential means of
increasing the quality and effectiveness of online academic programs and to thus ensure their
programs’ continued viability in the current accountability-focused environment.

For practitioners, this study not only addressed the gap in the literature, but also provided
specific recommendations for the implementation of practices, activities, and strategies to
enhance engagement and learning in online courses. Those managing and teaching in online
programs may use this information to improve engagement and learning in online courses and
programs, and in the process, potentially increase retention and the reputation of the online
program. High level academic leaders may be able to use this information to devise longer-term
strategies to improve engagement and learning across an entire institution.

Conclusion

This study set out first to examine the relationship among student perceptions of their
levels of engagement in online courses, student demographic characteristics, and their
perceptions of their learning in online courses; and second, to gain information from online
students about key factors, activities, and practices that contribute to their engagement and
learning in online courses. The results of the first quantitative phase of the study revealed
significant correlations between four benchmarks of student engagement (Level of Academic
Challenge, Enriching Educational Experiences, Student-Faculty Interaction, and Active and
Collaborative Learning) and three dimensions of perceptions of learning (Gains in General
Education, Gains in Personal and Social Development, Gains in Practical Competence) These results provide validation and support of the impact that student engagement has in helping students learn in online settings, something that had not been directly assessed in past research. In the interviews of the second qualitative phase of the study, online students identified a wide range of specific factors, activities, and practices that they believe positively contribute to their engagement and learning in their online courses. These elements fall with five broad themes and provide for deeper understanding of engagement and learning in online settings.

The use of the mixed methods approach to this study provided reinforcement of the quantitative findings through the broad themes in the qualitative findings which overlapped the four benchmarks of engagement. Mixing methods also provided significant detail and direction about the types of activities and practices that enhance online student engagement and learning. This information should be very helpful for the researcher at the site institution, as well as for others who manage online education programs at U.S. institutions of higher education. As noted earlier, further mixed methods research should be conducted to add additional detail and substance to the list of practices and activities that actively engage online students. Researchers might also consider including faculty in the survey and interview phases of a mixed methods study to gain their invaluable perspective in understanding online student engagement and learning. Online learning promises to continue to evolve in the coming, with new opportunities to enhance engagement through technology and novel instructional approaches. Research on the impact of these technologies and methods would also contribute to the overall understanding of the role of engagement in online learning.
References


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Appendix A

Student Engagement in Online Learning Survey

Online Consent to Participate in Survey (front page to electronic survey)

The decision to participate in this research project is voluntary. You do not have to participate and you can refuse to answer any questions. Even if you begin the web-based online survey, you can stop at any time.

There are no foreseeable risks or discomforts to you for taking part in this study. There are no direct benefits to you from participating in this study. However, your responses may help us learn more about online student engagement and learning. If you do participate and consent to a drawing by providing your email address in response to Question 43, you will be entered into a drawing for one of 15 each $100 e-gift cards to Amazon.com. There are 180 potential participants in the survey.

Your part in this study is confidential and known only to the researchers. However, because of the nature of web-based surveys, it is possible that respondents could be identified by the IP address or other electronic record associated with the response. Neither the researcher nor anyone involved with this survey will be capturing those data. Any reports or publications based on this research will use only group data and will not identify you or any individual as being affiliated with this project.

If you have any questions regarding electronic privacy, please feel free to contact Mark Nardone, NU’s Director of Information Security via phone at (617) 373-7901, or via email at privacy@neu.edu.

If you have any questions about this study, please feel free to contact Cindy Parker at (401) 575-1681 or by email at parker.cy@husky.neu.edu, the person mainly responsible for the research. You may also contact Joseph McNabb, Ph.D., the Principal Investigator for the research, at j.mcnabb@neu.edu.

If you have any questions regarding your rights as a research participant, please contact Nan C. Regina, Director, Human Subject Research Protection, 960 Renaissance Park, Northeastern University, Boston, MA 02115, telephone at (617) 373-4588, or email at n.regina@neu.edu. You may call anonymously if you wish.

Item 1 through 34 of this study used with permission from The College Student Report, National Survey of Student Engagement, Copyright 2001-14, The Trustees of Indiana University. This study has been reviewed and approved by the Johnson & Wales University Institutional Review Board and by the Northeastern University Institutional Review Board (#CPS14-08-04).

By clicking “I give my consent” below, you will give your consent to participate in this study and will progress to the first question of the questionnaire.

☐ I give my consent.
Student Engagement in Online Learning Survey

Please choose from the answer options following each question. There are 34 questions related to student engagement, plus 9 questions on demographic/enrollment information. Multiple choice answers facilitate quick completion and the survey should take about 15 minutes to complete.

Except where indicated, your answers should be given in consideration of the online course(s) you have taken last term and/or are taking this term.

**Online Interaction with Instructors:**

1. How often have you discussed ideas from your readings or class notes with a faculty member?
   - Very Often
   - Often
   - Sometimes
   - Never

2. How often have you discussed grades or assignments with an instructor?
   - Very Often
   - Often
   - Sometimes
   - Never

3. How often have you received prompt feedback from faculty on your course performance?
   - Very Often
   - Often
   - Sometimes
   - Never

4. How often have you discussed career plans with a faculty member?
   - Very Often
   - Often
   - Sometimes
   - Never

5. How often have you worked harder than you thought you could to meet an instructor’s standards or expectations?
   - Very Often
   - Often
   - Sometimes
   - Never

**Online Interaction with Other Students**

6. How often have you worked with other students in projects?
7. How often have you tutored or taught other students?
   - Very Often
   - Often
   - Sometimes
   - Never

8. How often have you had regular communication with other students on matters unrelated to the course? (May pertain to work, family, race, religion, political beliefs, etc.)
   - Very Often
   - Often
   - Sometimes
   - Never

**Online Learning Activities**

9. How often have you participated in online class discussions (including through email, list-serve, chat groups)?
   - Very Often
   - Often
   - Sometimes
   - Never

10. How often have you used computer technology to analyze data (involving statistics, spreadsheets)?
    - Very Often
    - Often
    - Sometimes
    - Never

11. How often have you developed a web page or multimedia presentation?
    - Very Often
    - Often
    - Sometimes
    - Never

12. How often have you made a class presentation online?
    - Very Often
    - Often
    - Sometimes
    - Never
13. How often have you visited the online library resources (databases, e-books, etc.) for information to meet class assignments?
   - Very Often
   - Often
   - Sometimes
   - Never

14. How often have you visited the online library resources (databases, e-books, etc.) for additional reading materials not related to class assignments?
   - Very Often
   - Often
   - Sometimes
   - Never

Mental Activities

15. How much has your online coursework emphasized MEMORIZING facts, ideas, or methods from your courses and readings?
   - Very much
   - Quite a bit
   - Some
   - Very little

16. How much has your online coursework emphasized ANALYZING the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components?
   - Very much
   - Quite a bit
   - Some
   - Very little

17. How much has your online coursework emphasized SYNTHESIZING and organizing ideas, information, or experiences into new, more complex interpretations and relationships?
   - Very much
   - Quite a bit
   - Some
   - Very little

18. How much has your online coursework emphasized MAKING JUDGMENTS about the value of information, arguments, or methods such as examining how others gathered and interpreted data and assessing the soundness of their conclusions?
   - Very much
   - Quite a bit
   - Some
   - Very little
19. How much has your online coursework emphasized APPLYING theories or concepts to practical problems or in new situations?
- Very much
- Quite a bit
- Some
- Very little

Reading and Writing for each Online Course

20. What is the approximate number of assigned textbooks to read?
- None
- Between 1 and 3
- Between 4 and 6
- Between 7 and 9
- 10 or More

21. What is the approximate number of assigned articles to read?
- None
- Between 1 and 3
- Between 4 and 6
- Between 7 and 9
- 10 or More

22. What is the approximate number of written papers or reports?
- None
- Between 1 and 3
- Between 4 and 6
- Between 7 and 9
- 10 or More

Tests and Evaluations

23. To what extent have the tests, examinations and other evaluations challenged you to do your best work?
- 1 Very little
- 2 A little bit
- 3 A few
- 4 Some
- 5 A lot
- 6 Quite a bit
- 7 Very much
**Homework in a Typical Week**

24. What is the approximate number of problem sets per week that take you more than an hour to complete?
   - None
   - Between 1 and 3
   - Between 4 and 6
   - Between 7 to 10
   - More than 10

25. What is the approximate number of problem sets per week that take you less than an hour to complete?
   - None
   - Between 1 and 3
   - Between 4 and 6
   - Between 7 to 10
   - More than 10

**Online Learning Experience**

26. How much has your online learning experience helped you to acquire job or work-related knowledge or skills?
   - Very much
   - Quite a bit
   - Some
   - Very little

27. How much has your online learning experience helped you to write clearly and effectively?
   - Very much
   - Quite a bit
   - Some
   - Very little

28. How much has your online learning experience helped you to speak clearly and effectively?
   - Very much
   - Quite a bit
   - Some
   - Very little

29. How much has your online learning experience helped you to think critically and analytically?
   - Very much
   - Quite a bit
   - Some
   - Very little
30. How much has your online learning experience helped you to analyze quantitative problems?
   - Very much
   - Quite a bit
   - Some
   - Very little

31. How much has your online learning experience helped you to use computing and information technology?
   - Very much
   - Quite a bit
   - Some
   - Very little

32. How much has your online learning experience helped you to work effectively with others?
   - Very much
   - Quite a bit
   - Some
   - Very little

33. How much has your online learning experience helped you to learn effectively on your own?
   - Very much
   - Quite a bit
   - Some
   - Very little

34. How much has your online learning experience helped you to solve complex real-world problems?
   - Very much
   - Quite a bit
   - Some
   - Very little

**Demographic Data**

35. Enter your age in the appropriate category.
   - Less than 25
   - 25 – 34
   - 35 – 44
   - 45 – 54
   - 55 or older

36. Indicate your gender.
   - Male
   - Female
37. Indicate your current employment status.
   - Employed full-time
   - Employed part-time
   - Not employed

Enrollment Data

38. What is your current classification in college?
   - Undergraduate Student
   - Graduate Student

39. How many online courses are you enrolled in this term?
   - One (4.5 credits)
   - Two (9.0 credits)
   - Three (13.5 credits)
   - Four or more (18.0+ credits)

40. How many online courses have you completed to date in your current program?
   - 1 to 3
   - 4 to 6
   - 7 to 9
   - 10 or more

41. What have most of your grades been up to now at this institution?
   - A
   - A-, B+
   - B
   - B-, C+
   - C
   - C- or lower

42. Would you be willing to participate in a follow-up interview as part of this research study?
   - Yes – I can be contacted by email at ________________________________
     and by phone at ________________________________
   - No

43. Would you like to be entered in the drawing for one of 15 $100 electronic gift cards to Amazon.com? If so, please provide your name and email address.
   - Yes, my name is ________________________________ and I can be contacted by email at ________________________________
   - No
Appendix B

Cover Email to Potential Survey Participants

From: Cindy Parker, Doctoral Student, Northeastern University
To: Online Students at Johnson & Wales University
Subject: Survey on Online Student Engagement and Learning

My name is Cindy Parker. I am a doctoral student at Northeastern University. I am conducting a research study about student engagement and learning in online courses and programs. I am emailing to ask if you would like to participate by completing a survey for this research project. The survey will take about 15 minutes to complete. All questions have multiple choice options for easy completion. I am asking you to participate in this study because you are a current online student at JWU. This survey research will contribute to understanding the experience that you are having as an online student. With your feedback, findings from this study may facilitate enhancement of online education at Johnson & Wales University and other institutions by revealing information that provides for a better understanding of your engagement and learning experiences in online courses.

The decision to participate in this research project is voluntary. You do not have to participate and you can refuse to answer any questions. Even if you begin the web-based online survey, you can stop at any time.

There are no foreseeable risks or discomforts to you for taking part in this study. There are no direct benefits to you from participating in this study. However, your responses may help us learn more about online student engagement and learning. If you do participate and consent to a drawing by providing your name and email address in response to Question 43, you will be entered into a drawing for one of 15 each $100 e-gift cards to Amazon.com.

Your part in this study is confidential and known only to the researchers. However, because of the nature of web-based surveys, it is possible that respondents could be identified by the IP address or other electronic record associated with the response. Neither the researcher nor anyone involved with this survey will be capturing those data. Any reports or publications based on this research will use only group data and will not identify you or any individual as being affiliated with this project.

If you have any questions about this study, please feel free to contact Cindy Parker, the person mainly responsible for the research, at (401) 575-1681 or by email at parker.cy@husky.neu.edu. You may also contact Joseph McNabb, Ph.D., the Principal Investigator for the research, at j.mcnabb@neu.edu. This study has been reviewed and approved by the Johnson & Wales University Institutional Review Board and by the Northeastern University Institutional Review Board (#CPS14-08-04).

Click here to proceed to Consent Form and Survey: https://www.surveymonkey.com/xxxxx

Thank you for your time and participation! Cindy Parker
Appendix C

Interview Protocol

Introduction Script

I want to thank you for taking the time to speak with me today. As I mentioned in my earlier email to you, my name is Cindy Parker and I am conducting research on online student engagement and learning as part of my Doctoral degree in Education at Northeastern University.

Specifically, I am assessing online students’ perceptions of their engagement and learning in online courses in order to identify best practices and meaningful activities in online student engagement.

The interview should take about an hour. I will be taping the session because I don’t want to miss any of your comments. Although I will be taking some notes during the session, I can’t possibly write fast enough to get it all down. Because we are taping, please be sure to speak up so that we don’t miss your comments.

As noted in the consent form you signed, all responses will be kept confidential. This means that your interview responses will only be shared with my faculty advisors at Northeastern University. I will ensure that any information included in my dissertation document does not identify you as the respondent. Remember, you don’t have to talk about anything you don’t want to and you may end the interview at any time.

Are there any questions about what I have just explained?

Are you comfortable moving forward with the interview?

Interview Questions

1. Please tell me a little about your background and how you came to be an online student at Johnson & Wales University.

2. Can you describe experiences in your online courses when you felt deeply engaged? When you felt unengaged?
3. Can you define an experience in your online courses that stands out to you with respect to engagement? Was this a positive or a negative experience? What effect did it have on you?

4. Can you describe the extent to which your online courses challenge you academically? Are your online classes more or less challenging than you expected prior to starting the online program and why?

5. Can you describe any collaboration on assignments with other students in your online courses? Have these experiences been positive, neutral, or negative for you and why?

6. Can you describe your general experience with your professors in your online courses? What has been especially positive? What negative experiences have you had, if any?

7. To what extent have you applied what you are learning in your program to real-world situations? Can you provide any examples?

8. Can you describe specific activities and practices you have experienced in your online courses that you believe contributed to your engagement and learning?

9. What barriers, if any, have you faced in being a successful and engaged online student?

10. If you were in charge of the online programs here, what would you change about any aspects of online courses to enhance student engagement and learning? What current practices would you maintain?

Closing Script

Is there anything more you would like to add?

I will be analyzing the information you and others gave me and drafting the findings section of my dissertation over the coming month. I’ll be happy to send you a copy to review when it is finished if you are interested.

Thank you for your time.
Appendix D

Northeastern University, College of Professional Studies

Name of Investigator(s): Joseph W. McNabb, Principal Investigator; Cynthia L. Parker, Researcher, Doctoral Student

Title of Project: Online Student Engagement: Perceptions of Impact on Learning and Effective Practices

Informed Consent to Participate in a Research Study

We are inviting you to take part in a research study. This form will tell you about the study, but the researcher will explain it to you first if you wish. You may ask this person any questions that you have. When you are ready to make a decision, you may tell the researcher if you want to participate or not. You do not have to participate if you do not want to. If you decide to participate, the researcher will ask you to sign this statement and will give you a copy to keep.

Why am I being asked to take part in this research study?

We are asking you to be in this study because you are a student enrolled in an online degree program. You already participated in the online survey in the first phase of the research. You have been identified as a potential student to be interviewed in follow-up to the online survey based on your positive answer to the question “Would you be willing to participate in a follow-up interview to this survey?”

Why is this research study being done?

The purpose of this research is to obtain firsthand information from online students about engaging activities and experiences in online courses that have helped them learn.

What will I be asked to do?

If you decide to take part in the interview portion of this study, we will ask you to participate in a scheduled telephone or Skype-enabled interview that will be audio-taped and transcribed into a written document. Interview questions will center on your experiences in your online courses.

Where will this take place and how much of my time will it take?

You will be interviewed at a time and place that is convenient for you. The interview can be conducted by phone or via Skype using a computer with webcam capabilities. The interview will take about one hour. A copy of the transcript of the interview will be sent to you upon request.

Will there be any risk or discomfort to me?

There are no foreseeable risks, discomforts, or inconvenience.

Will I benefit by being in this research?

There will be no direct benefit to you for taking part in the study. However, the information learned from this study may help improve the overall quality of online courses and the engagement of students enrolled in online programs at your current and other educational institutions.

Who will see the information about me?

Your part in this study will be confidential. Only the researchers on this study will see the information about you. No reports or publications will use information that can identify you in any way or any individual as being of this project. Your personal information will be kept confidential for the duration of the study on the researcher’s computer, which is both encrypted and password-protected.
completion of her Doctoral degree, the data will be maintained for one year and then researcher will destroy all study data, including audio tapes of interviews.

Can I stop my participation in this study?

Your participation in this research is completely voluntary. You do not have to participate if you do not want to and you can refuse to answer any question. Even if you begin the study, you may quit at any time. If you do not participate or if you decide to quit, you will not lose any rights, benefits, or services that you would otherwise have as a student.

Who can I contact if I have questions or problems?

If you have any questions about this study, please feel free to contact Cynthia L. Parker, the person mainly responsible for the research, by telephone at (401) 575-1681 or by email at parker.cy@husky.neu.edu, You can also contact Joseph W. McNabb at j.mcnabb@neu.edu, the Principal Investigator.

Who can I contact about my rights as a participant?

If you have any questions about your rights in this research, you may contact Nan C. Regina, Director, Human Subject Research Protection, 960 Renaissance Park, Northeastern University, Boston, MA 02115. Tel: 617.373.4588, Email: n.regina@neu.edu. You may call anonymously if you wish.

Will I be paid for my participation?

There is no compensation for participating in the interview element of this study.

Will it cost me anything to participate?

There are no costs for you to participate in the interview element of this study.

I agree to take part in this research.

Signature of person agreeing to take part  Date

Printed name of person above

Signature of person who explained the study to the participant above and obtained consent  Date

Printed name of person above