

Theses and Dissertations

---

2014

## Views of student engagement among students and faculty in online courses

Amy Elizabeth Berger

Follow this and additional works at: <https://digitalcommons.pepperdine.edu/etd>

---

### Recommended Citation

Berger, Amy Elizabeth, "Views of student engagement among students and faculty in online courses" (2014). *Theses and Dissertations*. 503.

<https://digitalcommons.pepperdine.edu/etd/503>

This Dissertation is brought to you for free and open access by Pepperdine Digital Commons. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of Pepperdine Digital Commons. For more information, please contact [bailey.berry@pepperdine.edu](mailto:bailey.berry@pepperdine.edu).

Pepperdine University

Graduate School of Education and Psychology

VIEWS OF STUDENT ENGAGEMENT AMONG STUDENTS AND FACULTY  
IN ONLINE COURSES

A dissertation submitted in partial satisfaction

of the requirements for the degree of

Doctor of Education in Learning Technologies

by

Amy Elizabeth Berger

October, 2014

Eric Hamilton, Ph.D. – Dissertation Chairperson

This dissertation, written by

Amy Elizabeth Berger

under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

Doctoral Committee:

Eric Hamilton, Ph.D., Chairperson

Wendi Kappers, Ph.D.

June Schmieder-Ramirez, Ph.D.

Daryl Watkins, D.M.

© Copyright by Amy Elizabeth Berger. (2014)

All Rights Reserved

## TABLE OF CONTENTS

	Page
LIST OF TABLES.....	vi
LIST OF FIGURES .....	vii
DEDICATION.....	viii
ACKNOWLEDGMENTS.....	ix
VITA.....	x
ABSTRACT.....	xiv
Chapter I: The Problem.....	1
Overview .....	1
Statement of the Problem.....	12
Significance/Purpose of the Study.....	13
Research Questions and Hypotheses.....	14
Summary of Methodology.....	15
Definition of Terms .....	16
Chapter II: Review of Extant Literature.....	17
What is Student Engagement? .....	17
Student Engagement Typologies.....	22
Who is Responsible for Engagement and Learning? .....	24
Why Does Student Engagement Matter?.....	25
Why Does Technology Matter?.....	29
Does Technology Promote Student Engagement? .....	41
Best Practices for Promoting Student Engagement .....	45
Measuring Student Engagement .....	47
Chapter III: Methodology.....	50
Organization of the Study .....	50
Restatement of the Research Questions and Hypotheses.....	50
Research Design and Rationale .....	51
Data Collection.....	52
Summary.....	56

Chapter IV: Findings .....	57
Response Rate.....	57
Demographics of Student Respondents .....	57
Analyses of Student and Faculty Responses to Research Questions.....	60
Summary of Findings.....	72
Chapter V: Recommendations .....	74
Results are from Unidentified Courses .....	74
Evidence of Possible Survey Bias .....	74
Implications and Inspiration for Further Research.....	76
Conclusions.....	88
REFERENCES .....	90
APPENDIX A: NSSE Five Benchmarks of Student Engagement .....	99
APPENDIX B: Sample Student Survey .....	103
APPENDIX C: Sample Faculty Survey.....	113
APPENDIX D: Verbatim Student Survey Responses .....	115
APPENDIX E: Verbatim Faculty Survey Responses .....	125
APPENDIX F: GPS IRB Approval Notice .....	128

## LIST OF TABLES

Table 1. Definition of Engagement Most Preferred by Faculty and Students .....	62
Table 2. Do Faculty and Students Find Online Courses Engaging Based on Their Preferred Definition of Student Engagement (Responses of <i>Somewhat</i> Recoded)?.....	65
Table 3. Do Faculty and Students Find Online Courses Engaging Based on Their Preferred Definition of Student Engagement (Responses of <i>Somewhat</i> Included)? .....	66
Table 4. Views of Student Engagement by Gender.....	79

## LIST OF FIGURES

Figure 1. Student responses when asked about their gender .....	58
Figure 2. Student responses when asked about their age .....	59
Figure 3. Student responses when asked about their standing as an undergraduate or graduate student .....	59
Figure 4. Student responses as to whether they are currently seeking a degree at the university .....	60
Figure 5. Student responses to the question, “Which definition of student engagement do you prefer? .....	61
Figure 6. Faculty responses to the question, “Which definition of student engagement do you prefer? .....	62
Figure 7. Course activities that faculty find most engaging .....	69
Figure 8. Course activities that students find most engaging .....	71



## DEDICATION

*With much love and gratitude to my parents, Katherine and John Berger,  
my grandmother, Katherine Milholland,  
and all the Bergers, Milhollands, Randolphs, Poremskis, Clarkes, Kishes,  
and others who came before me.*

I fear I will never be able to properly thank you for all you've done for me, but I will keep trying.

I would literally be nothing without you.

## ACKNOWLEDGMENTS

My deepest thanks go out to my dissertation chair, Dr. Eric Hamilton, and Dr. Linda Polin, and Dr. Paul Sparks of Pepperdine University for their kind assistance and for the opportunity to complete my education, and to my dissertation committee of Dr. June Schmieder-Ramirez of Pepperdine University and Dr. Wendi Kappers and Dr. Daryl Watkins of Embry-Riddle Aeronautical University. Their time and guidance are greatly appreciated and have been invaluable.

VITA  
AMY ELIZABETH BERGER, ED.D.

---

---

**EDUCATOR ♦ TRAINER ♦ INSTRUCTIONAL DESIGNER**

MEYERS-BRIGGS TYPE: *INFP/INTP* ♦ BUCKINGHAM STRENGTHS: *CONNECTEDNESS, COMMUNICATION, IDEATION, MAXIMIZER, LEARNER* ♦ LEADERSHIP STYLE: *SERVANT LEADER*

---

---

- Background in learning technology with 15 years of experience in higher education/adult learning
- Collaborated with faculty and SME's to develop courses based on best practices, targeted learning outcomes, and student engagement
- Over 13 years of experience teaching both face-to-face, hybrid, and online courses across community colleges and four-year institutions
- Consistently rated as "Excellent-Superior" (4-5 on 5 point Likert scales) by students and superiors in periodic evaluations, exceeding institutional requirements
- Skilled Voiceover Artist and Audio Editor

---

---

**EDUCATION:**

**Doctorate in Education/Learning Technologies**, Pepperdine University (2014)

**Professional Certificate in Educational Technology**, San Diego State University

**Master of Arts in Education/Instructional Leadership**, University of Illinois-Chicago

**Bachelor in Fine Arts/Applied Theatre**, University of Illinois-Urbana/Champaign

---

---

**INSTRUCTIONAL DESIGN EXPERIENCE:**

**Production Coordinator/Instructional Designer**, Embry-Riddle Aeronautical University

*Responsible for the successful production of high quality, asynchronous online courses. Daily interaction and collaboration with instructional designers, faculty developers, media specialists, and contractors was required.*

- Collaborated with remote faculty to design and deliver high quality, academic and/or non-credit interactive online courses;
- Edited and organized electronic information to create high quality course content specifically designed for the adult online learner;
- Coordinated the production and/or acquisition of instructional materials, including video, graphics, animations, and interactive media elements;
- In collaboration with faculty, produced instructional materials within Blackboard (ERAU's Learning Management System);
- Conducted quality assurance reviews of courses and other instructional materials;
- Implemented established ERAU course development standards and policies and communicates those with other team members and faculty;
- Worked equally well individually and on teams, as required by specific work demands;
- Facilitated course approval processes with academic department chairs upon completion of course development; and
- Coordinated course review cycles and facilitated course updates.

## **TEACHING EXPERIENCE:**

### **Adjunct Faculty, Management/Leadership, Embry-Riddle Aeronautical University**

*Adjunct position teaching BSAB/MGMT 371 – Leadership. The focus of this course is leadership in organizations. In the increasingly competitive global economy, leaders must develop the necessary skills to lead organizational development, change, and create a motivating workplace. This course focuses on analyzing the leadership skills that enhance organizational success. Topics discussed include approaches and models of leadership, organizational change, and organizational development.*

### **Independent Trainer/Educational Technology Consultant/Certified U.S. Government Contractor**

*Independent Trainer/Consultant, developing and delivering courses to private, not-for-profit, educational, and/or governmental institutions wishing to integrate effective classroom/online/e-learning strategies into their daily operations and/or training programs, based on proven principles of Instructional Design.*

- Independent Trainer/Consultant for Blackboard, Inc.;
- Designed and delivered trainings for faculty and staff at San Diego State University, San Diego Community College District, and The Wal-Mart Corporation; and
- Developed working knowledge with federal/state/local government contracting procedures for RFP's/RFI's/grant applications.

### **Full-Time Lecturer, Information Technology, Dept of Sociology/SSRL, San Diego State University**

*Instructor/Course Facilitator/ Instructional Designer, responsible for the delivery of up to 8 university-level courses per semester with an average student population of 150+. Responsible for all elements of course design, delivery, and assessment.*

- Designed and delivered blended Software/New Media curricula as required by SDSU's Departments of Sociology, Anthropology, and Economics (courses were also open to other majors);
- Subjects over 8 class sections included Microsoft Office® (Access, Excel, PowerPoint, Word), Web Design (Adobe® Dreamweaver, Fireworks, Flash), Internet Research (Using the Internet /New Media for effective academic research);
- Driving force behind integration of Web/New Media applications into traditional Liberal Arts environment;
- Designed and delivered course modules using Blackboard LMS and related tools;
- Collaborated with SDSU Faculty, Staff, and Students on how to most successfully apply traditional, new and emergent technologies to the academic environment; and
- Designed and delivered software trainings and workshops for SDSU Faculty and Staff.

### **Adjunct Professor, Computer, Business and Technology Ed and Continuing Ed, San Diego Community College District**

*Instructor/Course Facilitator, responsible for the delivery of 1-3 courses with an average student population of 60+ per semester. Responsible for all elements of course design, delivery, and assessment.*

- Facilitated blended Software/New Media courses, including Microsoft Office® applications, Learning the Internet, Podcasting and Second Life;
- Delivered course modules using WebCT Vista LMS and related tools; and
- Simultaneously coached SDCCD students taking courses in multiple subjects, which required great flexibility, superior communication and multitasking ability, and thorough knowledge of all CBTE software topics taught at SDCCD.

**Adjunct Professor, Department of Computer and Information Sciences, Joliet Junior College**

- Designed and delivered up to 5 Software and New Media Courses per semester for Joliet Junior College's Department of Computer and Information Sciences, with an average student population of 80+ per semester.
- Subjects included Microsoft Office® (Access, Excel, PowerPoint, Word), JJC's first courses in Internet Research.

**Teacher, Grades 1-2, Los Angeles Unified School District (Emergency Long-Term Substitute)**

- Designed and delivered courses for multiple-subject, Early Childhood environment;
- High-risk student population in South Central Los Angeles (ages 6-9; approx. 30 students).

---

**ADDITIONAL EXPERIENCE:**

**Web Content Strategist, The Rainmaker Institute (TRI)**

*Independent contractor writing original web page content, blogs, newsletters, and/or white papers for independent attorneys, large and small law firms and legal websites.*

**Independent Voiceover Artist, April 2013-Present**

*Independent Voiceover Artist/Voice Actor providing voice and audio production (editing, mastering) for commercial, industrial, educational, narration, and/or audiobook projects. Own and operate my own professional home audio studio.*

**Broadcast Communications, Radio/Television, Chicago, IL Metropolitan Area**

*Positions included On-Air Personality, Administration, Account Executive, Producer, Copywriter, and Voice Actor.*

---

**PROFESSIONAL ACTIVITIES:**

Reviewer, Faculty Submissions to Bollinger-Rosado Teaching and Learning Effectiveness Symposium, ERAU (2011-2012)

Reviewer/Session Chair, AERA 2009 Annual Conference, San Diego, CA (4/09)

E-Learning/New Media Coordinator, ASTD-San Diego Chapter (2009-2010)

Reviewer/Session Chair, AERA 2008 Annual Conference, New York, NY (3/08)

Faculty Judge, Student Research Symposium, San Diego State University (2/08)

**MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS**

American Educational Research Association (AERA)

Association for Education and Communications in Technology (AECT)

EDUCAUSE/ELI

The Sloan-Consortium (Sloan-C)

---

## PRESENTATIONS:

- Berger, A.E. (2014, November). *How Do YOU Engage Online Students?* Roundtable session scheduled for the upcoming AECT International Convention, Jacksonville, FL.
- Berger, A.E. (2012, July). *An Engaging Conversation: What are YOU doing to engage online students?* Poster presented at Blackboard World 2012, New Orleans, LA.
- Berger, A.E. (2012, July). *Design ARCS: What does online learning designed using Keller's ARCS model look like?* Poster presented at Blackboard World 2012, New Orleans, LA.
- Berger, A.E. (2011, November). *Enhancing Online Learning with Audacity.* Concurrent session presented at AECT International Convention, Jacksonville, FL.
- Berger, A.E. (2011, November). *Captioning Video using Camtasia.* Concurrent session presented at AECT International Convention, Jacksonville, FL.
- Berger, A.E. (2010, August). *Enhancing Online Learning with Audacity.* Workshop (3-hr) presented at Annual Conference on Distance Learning and Teaching, UW-Madison.
- Berger, A.E. (2010, October). *Audacity for Education.* Concurrent Session presented at AECT International Convention, Anaheim, CA.
- 

## AWARDS/ACADEMIC RECOGNITION:

- **2014 – Blackboard Catalyst Award, Exemplary Course:** *MSLD 500, Leadership Foundations in Research.* Served as Instructional Designer on graduate-level course envisioned by Dr. Daryl Watkins (SME), Embry-Riddle Aeronautical University-Worldwide.
- **2011 – Best-in-Track Session:** *E-Portfolios Work—and We Can Prove It!* Presented at the Sloan Consortium's 5<sup>th</sup> Annual Emerging Technologies for Online Learning Symposium. Served as Editor for Dr. Tracey Richardson (PI) and Pamela Lehr, ERAU
- **2011 – Invited Mentee,** AECT Faculty/Student Mentoring Program. Mentor: Dr. Ross Perkins, Boise State University.
- **2008 – Invited Participant,** AECT/NSF Early Career Symposium. One of approximately 15 researchers selected to participate and receive a \$500 stipend. Mentor: Dr. David Wiley, Brigham Young University.
- Founders Scholarship, Pepperdine University
- Dean's List, University of Illinois at Chicago
- Dean's List, University of Illinois at Urbana-Champaign

**REFERENCES, Work Samples and Evidence of Teaching Excellence available upon request.**

## ABSTRACT

As part of an effort to learn more about the technologies currently available to students, three executives in the online division of a private, not-for-profit four-year university requested a survey of students and faculty to learn more about the technologies to which they currently have access. Additionally, each of three executives wanted to better understand student and faculty views of student engagement in the division's online courses. To that end, research-based questions about student engagement levels were added to a survey about access to technology. This mixed-method non-experimental study collected data from students and faculty about which definition of student engagement taken from the literature they primarily relate to, as well as their views of current levels of student engagement in online courses offered by the university. Interestingly, student and faculty responses regarding the definition of student engagement to which they related, whether they felt the only courses are engaging based on that definition and the course activities they found most engaging were nearly identical. Given that the responses between the subject groups were so similar, survey bias may be a valid consideration. Recommendations include editing of survey questions, surveying faculty and students in individual courses and more research on the role gender differences may play in student engagement in online learning environments.

## Chapter I: The Problem

### Overview

Are students engaged? What engages them? What do students and faculty think about current levels of student engagement?

As part of an effort to learn more about the technologies currently available to students, three executives in the online division of a private, not-for-profit four-year university wanted to survey students and faculty to learn more about the technologies to which they have access. Additionally, each of the three executives wished to find a way to measure student and faculty views of current levels of student engagement in the division's online courses. To that end, research-based questions about student views of current levels of student engagement were added to a survey about student access to technology. Faculty received a shorter survey containing only the research-based questions. These research questions and a line of inquiry devoted to student engagement is the focus of this dissertation.

While each of the three executives stated his or her belief that incorporating new technologies into the university's online courses will increase student engagement, no formal measurement of student and faculty views of student engagement had ever been administered by the university, making the current level of student engagement in these courses unknown. This study was done to inform the three executives and other interested parties at the university about the current levels of student engagement, as well as provide insight into the possible design and development of new technological tools both for course delivery and for learning objects and information about student and faculty views of student engagement in the university's online courses.



Growing pains have hit a private, not-for-profit four-year university. The university offers undergraduate and graduate degrees in Arts and Sciences, Aviation/Aerospace, Engineering, and Business. The university also has a strong, longstanding relationship with all branches of the US Military, and a large percentage of students are active-duty, retired or reserve military personnel.

The main residential campus is headquartered in the Southeastern part of the United States and serves approximately 5000 students. A satellite residential campus in the Southwestern region of the United States accommodates approximately 2000 students. However, the majority of the university's students are served by the Online campus, which has enrollments in excess of 23,000 professional, undergraduate, graduate, and doctoral students. The university's student population over all three campuses is approximately 75% male and 25% female (Holland Marketing, 2012)<sup>1</sup>. [pseudonym]

This study focuses solely on students served by the university's Online campus (when capitalized, "Online" will henceforth refer specifically to Holland University's online campus).

Online already utilizes multiple technologies to offer students the opportunity to *Choose How You Learn*<sup>2</sup> [pseudonym], including fully online asynchronous courses, blended courses, face-to-face classroom courses, and videoconferencing via HawkVision [pseudonym] (used by professors to conduct courses from campus locations and stream them to remote classrooms) and HawkVision Home [pseudonym] used by professors and students from their homes or another remote location of their choice).<sup>3</sup>

The 23,000+ full- and part-time students currently enrolled in Online courses break down into approximately 9000 civilian students (40%) and 13,000 military students (60%, including

---

<sup>1</sup> "Holland" is a pseudonym for the name of the university at which the study discussed in this paper was completed.

<sup>2</sup> "Choose How You Learn" is a pseudonym for the university's copyrighted name of its collective learning modalities.

<sup>3</sup> The "Hawk" is a pseudonym for the university mascot.

active duty troops and reservists). The Online student population is comprised of approximately 7000+ graduate students and 14,000+ undergraduates. The remaining 2000+ students are enrolled in single courses or professional certificate programs. Online students are unique in that they are primarily working professionals in their respective fields, and the average age of Online students is 35 years (Holland Marketing, 2012).

The university is a four-year, non-profit liberal arts institution, but its curricula covers many facets of STEM/STEAM by emphasizing the study of science (especially the hard sciences such as physics and meteorology), technology (including computer science), arts and letters (particularly the literary arts and humanities), engineering (especially aviation and aerospace engineering), and mathematics. The university is also renowned for training military and commercial pilots. The curricula offered by the university are often viewed as male-dominated areas of work and study. But the university enthusiastically welcomes female students, and initiatives are in place to encourage more female enrollees into all of these dynamic and growing professional fields.

Online has a dedicated Instructional Design (ID) department, which is responsible for the implementation of all Online courses. The Executive Director of ID supervises a team of Instructional Designers. These Instructional Designers work directly with faculty Subject Matter Experts (SME's) in their given fields and assist them in creating courses based on best practices in online learning.

**Hardware/software considerations.** Online has contracted Blackboard, Inc. to deliver all online courses via the latest version of the Blackboard LMS. The Blackboard Learning Management System (LMS) is the primary course delivery tool, supplemented by Web 2.0 tools including wikis, blogs, podcasts, and videos.

Blackboard is hosted offsite, and while it is generally stable and functional the majority of the time, its content system can run very slowly. Blackboard's proprietary coding structure also does not afford much capability to change the design of individual pages or courses.

Another ongoing issue with Blackboard is that proprietary Blackboard tools such as wikis, blogs, journals, and personal portfolios are only available within the Blackboard online environment, and may not be shared outside of the LMS. In 2012, the university adopted a new e-Portfolio management system which will allow students to archive their work online and present it to university faculty and staff as well as to prospective and current employers who may view the students' coursework in progress (personal communication). The e-Portfolio system is intended to alleviate some of the restrictions to sharing information via Blackboard. The ability to access their own portfolios and share them with potential employers and others may also serve to increase student engagement with the university, even after they graduate (Coates, 2007).

Blackboard also offers mobile content delivery for devices running Apple's iOS or Google's Android software via an application (app) called Blackboard Learn. However, much of the functionality available via web browser in Blackboard is not available via Blackboard's mobile systems. While the Blackboard course interface may be accessed on mobile devices such as iPhones, iPads, and Android devices, back-end editing of courses is not possible through these mobile apps. Additionally, many of the Blackboard Learn mobile features are only available at a minimum cost per student, which the university has chosen not to pay. A major reason why the university has chosen not to purchase access to Blackboard mobile content is because the university executives simply did not know exactly what kind(s) of mobile devices students use regularly.

Blackboard does, however, offer some newer modalities and tools for online learning. Holland Online launched its first Massive Open Online Course, or MOOC (Holland Online,

2014), and Blackboard's recent updates to their CourseSite free online portal provided a platform which afforded Online the capability to provide a full college course to thousands of enrollees at no charge. Participants need not be matriculated Online students; anyone with an interest in the topic was welcome. A second section of this MOOC accommodated up to 5000 enrollees. Based on the enrollments and participation in the first two offerings, Online executives believe that levels student engagement was sufficient to warrant plans to offer more MOOCs on various topics in the future as well (Holland Online, 2014).

The Online and ID administration and staff are well aware that the pace of advancement in technologies for online learning affords new opportunities for instructional and curriculum design, particularly the rapid growth and development of web-enabled mobile technologies. Mobile technologies are of particular interest because they offer not only mobility but also a plethora of applications, many of which could potentially be applied to and adapted for online learning (such as iBooks). But given the requirements of the existing *Choose How You Learn* model and the array of technological tools available outside of Blackboard and HawkVision, it is difficult for the Online and ID administration and staff to judge which technologies to concentrate on in regard to training, professional development, and instructional design. For example, the ID department could potentially spend a year or more training staff on how to create iBooks and incorporate them into new or existing courses. But no matter how well designed these iBooks may be, the iBooks could not be used if the students and faculty do not all have iPads. In such a circumstance, a great deal of time, money, and effort in creating the iBooks could theoretically be wasted. This is just one illustration of how knowledge about the technologies to which students currently have access can affect decisions made about course design and modes of delivery at the executive level.

In another example, several publicly available online news sources announced in 2013 that the US Air Force (USAF) signed a contract in May of that year to purchase up to 18,000

iPads to replace the paper manuals that make USAF flight bags so heavy. The change to iPad-based flight manuals is expected to bring the USAF a cost savings of approximately \$50 million USD over 10 years, largely in fuel costs due to the reduced weight of aircraft (Mashable, 2013). Currently, these USAF-sanctioned iPads are intended to be used for flight manuals only, and in pilot tests at one Air Force base in the central US have been customized with software that prohibits users to download unauthorized software (Stibbe, 2013). If the conversion of flight manuals to iPads is successful, however, it may be possible that the USAF—and perhaps other branches of the US military—may consider using iPads or other electronic media for the delivery of online instructional materials. The university has a large number of students in the US military, especially the USAF, including the largest contingent of USAF ROTC students other than the USAF Academy (Holland Marketing, 2012).

**Executives want to increase student engagement.** Three university executives—the Executive Director of the ID Department, the Chief Technology Officer, and the Dean of Online Learning—have contended that adding more technology will lead to increased student engagement. Additionally, they all wanted to learn more about student access to technology. As part of the preparation for the design of this study, these three executives were interviewed individually about why they wanted to find out more about student access to technology as well as about views of the current levels of student engagement. Their responses follow, and verbatim quotes are provided in each interviewee’s natural language.

The Executive Director of ID says he wants to increase student engagement by incorporating more technologies into the Online curriculum, but finds it difficult to decide which new technologies may accomplish this while still working within the current technologies available, the *Choose How You Learn* model and other requirements of Online and ID.

In his words (personal communication, July 6, 2012):

[To me, student engagement means] interest and relevance. We need to do what we can to keep our courses interesting and relevant to our students—Androgogy (sic) 101. Obviously we wish to leverage technology to do that and hence [the need for] the survey. This interest and relevance can promote a richer and deeper learning experience and greater student satisfaction. As a practical matter, the survey should help us choose appropriate technologies from the student perspective and those that fit with Online[’s] strategic direction (sic).

Online’s Chief Technology Officer (CTO) also says that she wants to foster more student engagement, and is very interested to learn more about the current technologies available to Online students which could ultimately play a role in doing so. The CTO has questions such as (personal communication, July 12, 2012):

- To what devices do our deployed military students have access?
- What kind of Internet connectivity is available to our students, particularly to military students stationed overseas in peaceful areas or down range (i.e., in active combat zones)?
- What percentage of students has access to mobile devices?
- What kind of devices do our students have?
- From what kind of activities to students feel that they learn the most? What learning activities do the students find to be most engaging?
- Can we create courses and learning objects which are browser and/or device-neutral?

When asked for further comments about her questions, the CTO confirmed that she would like to use more mobile apps, but that she is concerned about the need to ensure that mobile apps would be device neutral, as students may use different devices and operating systems (Android, iOS, etc.). Additionally, students must be able to access the same content all over the world. For example, as previously stated, Online has thousands of active-duty military students. Students stationed at US Central Command at MacDill Air Force Base in Tampa, FL who have access to state-of-the-art computer labs may have classmates who are taking their classes in a trailer or tent on an overseas military base, where updated hardware and software

and dependable internet access may be lacking. All students must be considered and served equally, and this adds difficulty to the process of making decisions about which technologies the students use.

The CTO goes on to opine:

[Industry trends show] that whatever can offer mobility and collaboration are HOT. My sense is that anything that involved more interactivity is more engaging. Accessibility is key. Everything culminates together in the students' learning experience. Technology should be seamless and transparent [which translates into] a more powerful learning experience (sic).

The university's new Dean of Online Learning has added that he, too, would like to increase technology to promote more student engagement, which he believes would help keep student attrition to a minimum. He discussed the university's unique student population: distance learners with an average age of 35, many of whom are male students in the military.

Some of the problems he feels that Online has to consider include:

- a potential lack of access to the Internet on some overseas campuses, citing an example he saw in a meeting on a recent trip to Italy during which Internet access was completely lost, and the meeting had to be stopped;
- inferior technology at military installations, which makes it either difficult or impossible for students on active duty in the military to access and use the newer technologies which ID is adding to courses; and
- students jumping from modality to modality, such as enrolling in one course which uses HawkVision Home, then a blended course, then a fully online asynchronous course, etc.

The Dean of Online Learning is also concerned about the following issues currently faced by Online:

I [have spoken] at many military installations, and [military students] are told to get a degree at all costs. It doesn't matter what the name of the university is. [Our university] is a 'name' institution. If five hundred students walk into [a military student advising office] and they say they want to attend a name institution, [the advisors] will probably mention [our university]. But to the rest of the people, we will tell them to get the most for their tuition assistance, and go where they can get their degrees the quickest, because [the advisors] want them to be officers in the military, and they have to have a bachelor's degree (sic).

So, I think what happens is that there's a lot of 'degree shopping' out there. [Our university is part of a consortium]. Basically, it's an agreement that we have with other institutions that cater to the military that our courses will count at their institutions. Military members are aware of this as well, and I think they may do a little 'shopping' even maybe after they start.

And then, of course, we have adult learners. I think that a lot of times they're looking for a reason to STOP. We have to be the people who will tell them the reasons to stay. We need to be that cheerleader, that backbone [to help them] stay. Children, health, job requirements...it's so easy to quit, and I think it's even easier to quit when you have an institution [that offers distance courses]. I'm not 'there,' nobody can be disappointed in me. I can just take off another term, and then that term ends up being a year, and then two years, and then they [break] status, and they don't want to go through the whole process of getting [readmitted]. [The university has plans in place] to get these students to not attrite.

You know, we've grown so dramatically over the years, and one of the things I see within my own campus—and I have a very large campus—is that paying attention to what the students are thinking and what [their needs are] really does bring dividends. I think we could have a stronger relationship with students if we knew these issues were out there. If we had some real survey data to look at which was more all-encompassing we could put our fingertips on the issues that are really out there. And that would probably give our students a good feeling of, 'Hey, [the university] really want[s] to know what issues we're having with technology and [bring] them forward.' I think that we are getting into an age—especially the Online campus—where our leadership is very interested in making the university very technically savvy (sic).

The Dean of Online Learning would like to include on the survey not only questions about technology, but also questions about student views of their current level of engagement with the university:

- Have you been through a technology orientation provided by the university?
- What kind of courses have you taken (online, blended, etc.)?
- Did you feel engaged in the course?
- Did you feel as engaged as you would in a face-to-face course?
- If the university provided you with one device that had all of the technologies you would need installed on it, would that make your experience better?
- What would you prefer that one device to be (iPad, laptop, etc.)?



- Do you regularly encounter any Internet security issues from your location (sites blocked, firewalls, etc.)?

**No current definition of engagement.** A few months after this first series of interviews, each of these members of university management was asked the following questions informally via email regarding how s/he defines student engagement at the present time:

1. WHY you would like to improve student engagement? For example, do you simply see this as an ongoing concern in education?
2. Was there any discussion of improving student engagement from “on high” at some point?
3. Do you have any solid evidence that student engagement is currently at a lower level than you would like?

The informal responses they each sent via email follow (personal communications, 2013):

From the Executive Director of ID:

For my part, I am most interested in the tech parts of the tech survey. As for engagement, research shows that engagement leads to student satisfaction and success so anything that we can do to support or improve engagement is worthwhile. I don't feel that we are lacking engagement, but that is the point of the survey is it not? To determine what the students feel? I am unaware of any edicts for improving engagement from our administration or evidence that students are dissatisfied with the level of engagement we build into the courses now (sic).

From the Chief Technology Officer:

I echo [the Executive Director of ID]'s comments. Student engagement whether is asynchronous or synchronous is key to effective learning. How that engagement happens can take on many methods but certainly important and always will be. There is no specific edict but an awareness all around. Personally, technologies that support engagement rank high on the radar as typically people who are more engaged will learn more, be more satisfied, etc. I hope that's helpful (sic).

From the Dean of Online Learning:

I personally want to improve student engagement for a few different reasons:

1. The more our students are engaged with our University, the better overall experience they have.
2. Higher education is changing at an accelerated rate, students can transfer from college to college with relative ease, and the market is becoming very competitive. For example a few years back you did not hear of too many colleges offering Aviation education, but now there are multiple. In order for our University to remain competitive with those that may offer cheaper tuition, etc. our students will need to be engaged with us. They will need to know all the benefits we offer and how attending [the university] relates to their life goals.
3. The better engaged our students are the higher retention rate we have. Our leadership team has been consistent in their message that we are not [here] to 'put [students] in seats;' we are here to help students earn degrees.
4. We have a globally dispersed model, and we need to ensure that all students are getting the same information. It is easier for a student to stop out when they are attending online and not physically walking into one of our locations. Therefore, we understand that we will need to evolve and continue to improve our student engagement strategy in order to stay connected with these students learning at a distance.
5. Lastly, and maybe more personal, I believe once students see the overall benefits of attending [the university] there is no better place for them to be. I know I find myself engaging with students in every opportunity I get. An example, on my flight home from San Antonio a month ago I sat next to two pilots heading to Atlanta. I asked them where they had their flight training and one of them was [a university] graduate and the other attended a few classes with one of our branch locations and left our University. It was an interesting conversation that lasted almost the whole flight. Interestingly enough, I just spoke to one of these gentlemen two weeks ago and now he would like to pursue a Master's degree with us. Thus, keeping them engaged while they are here and after will be critical to our Universities success (sic)."

To summarize, the Executive Director of ID states that "research shows that engagement leads to student satisfaction and success." The CTO states that, "Student engagement whether [it] is asynchronous or synchronous is key to effective learning (sic)." The Dean of Online Learning's first statement about why he feels engagement is important is, "The more our students are engaged with our University, the better overall experience they have."

## **Statement of the Problem**

The three executives each expressed an opinion that the addition of more and newer technologies will lead to increased student engagement. However, they do not use a common definition of student engagement, nor do they refer to specific extant research as to why they feel that technology will necessarily result in increased student engagement. This, however, is not to say that any of the comments of these three members of university management are untrue or incorrect. But it leads to the question of whether their contention that more and newer technologies will lead to increased student engagement is rooted in opinion or in fact that can be supported by research.

Currently, there is no mutually agreed-upon university standard by which to measure student engagement. Additionally, the university also has no set organizational definition of what student engagement should look like, guiding principles to know whether Online courses are engaging, or best practices for instructional design that may help faculty and ID staff create courses specifically with student engagement in mind.

Moreover, while the three executives interviewed in the development phase of this study all said that they would like to increase student engagement by adding new technologies, student engagement among Online students and faculty has yet to be measured. A lack of data makes it impossible to know the views of student engagement among Online students and faculty, and whether student engagement in fact needs to be increased. Productive study of engagement in online learning requires understanding and settling on a definition of student engagement.

## **Significance/Purpose of the Study**

This study gathered data about the views of student engagement among Online's students and faculty. The data may help Online executives and personnel gain insight into how students and faculty view current levels of student engagement, and may further assist Online in making decisions about a set definition of student engagement and how to formally measure student engagement. Subsequently, these data may help Online gain a better understanding of whether students and faculty believe that courses are currently engaging, and provide a framework to design and develop courses which will meet a definition of engagement that can be used by all relevant parties at the institution.

It is expected that this study will add to the body of extant research on student engagement in the following ways:

- The study focuses on college and adult learners, which is unusual. The bulk of research on student engagement concentrates on Pre-K-12 students.
- It surveys students and faculty using well-established definitions from the literature.
- This research in part examines relationship of student engagement to institutional policy decisions, rather than simply to classroom activity, which is also unusual.

The purpose of this study was to conduct mixed-method, non-experimental research to gather and compare current views of student engagement among Online students and faculty. It may be important to further emphasize that, at this juncture, only data on the *views* of student engagement on the part of the university's students and faculty were collected and examined.

## Research Questions and Hypotheses

The following research questions were applied to the survey responses:

1. To which definition of student engagement (of three taken from the literature) do Online students most closely relate?
2. To which definition of student engagement (of three taken from the literature) do Online faculty most closely relate?
3. Is there a statistically significant difference between the definitions of student engagement to which Online students and Online faculty most closely relate?
4. Do students feel that Online courses are engaging, based on the definition of student engagement to which they most closely relate?
5. Do faculty feel that Online courses are engaging, based on the definition of student engagement to which they most closely relate?
6. Is there a statistically significant difference between student and faculty views of current levels of student engagement in Online courses?
7. What kinds of course activities to students and faculty find to be most engaging?

Research questions 1 through 6 were designed to facilitate the acceptance or rejection of these hypotheses:

$H_0^1$ : There is no statistically significant difference between the definitions of student engagement to which Online students and Online faculty most closely relate.

$H_1^1$ : There is a statistically significant difference between the definitions of student engagement to which Online students and Online faculty most closely relate.

$H_0^2$ : There is no statistically significant difference between student and faculty views of current levels of student engagement in Online courses.

$H_1^2$ : There is a statistically significant difference between student and faculty views of current levels of student engagement in Online courses.

## **Summary of Methodology**

Research-based survey questions were included as part of a larger mixed-method, non-experimental survey of student access to various technologies requested by the three university executives. The surveys were distributed via internal university email and collected confidentially via Qualtrics proprietary web-based software. Email distribution was facilitated by Online staff with access to student and faculty contact information. The Principal Investigator (PI) did not have access to the student and faculty contact information, but could access the confidential responses collected in Qualtrics.

Quantitative responses from students and faculty were cross-tabulated and Chi-Square analysis was applied to determine whether there is any statistically significant difference between the definitions of student engagement to which Online students and Online faculty most closely related. Qualitative responses were also cross-tabulated and Chi-Square analysis was applied to reveal whether students and faculty feel that Online courses are engaging based on the definition to which they most closely related, and whether there is any statistically significant difference between student views and faculty views of current levels of student engagement. Qualitative data about student and faculty views of what course activities are most engaging were collected as well.

The Principal Investigator worked with the testing university's Manager of Survey Research and Institutional Research Board (IRB) as well as Pepperdine University's IRB to ensure that all research was done according to all appropriate protocols.

## Definition of Terms

*Student Engagement* (three separate definitions, taken from the literature):

- A. "...[student engagement means] that all student activities involve active cognitive processes such as creating, problem-solving, reasoning, decision-making, and evaluation. In addition, students are intrinsically motivated to learn due to the meaningful nature of the learning environment and activities" (Kearsley & Shneiderman, 1999, p. 1).
- B. Student engagement is "the time and effort students devote to activities that are empirically linked to desired outcomes of college and what institutions do to induce students to participate in these activities" (Kuh, 2009a, p. 683).
- C. [Student] [e]ngagement is a broad construct intended to encompass...academic as well as...non-academic aspects of the student experience, including
  - a. Active and collaborative learning
  - b. Participation in challenging academic activities
  - c. Formative communication with academic staff;
  - d. Involvement in enriching educational experiences; and
  - e. Feeling legitimated and supported by university learning communities. (Coates, 2007; NSSE, 2003)

## Chapter II: Review of Extant Literature

### What is Student Engagement?

Many researchers agree that defining student engagement is at best challenging. Fredricks, Blumenfeld & Paris (2004) label student engagement a “multidimensional...metaconstruct” (p. 60). Trowler (2010) describes the current literature on student engagement as “a mixed bag” (p. 5). Newswander and Borrego (2009) call student engagement a “troublesome term,” (p. 552) as it is often applied differently within different educational contexts. Axelson and Flick (2011) label the concept of student engagement as “theoretically messy” (p. 41) for the same reasons. Baron and Corbin (2012) say that discussions of “student engagement in the university context are often fragmented, contradictory and confused” (p. 759). Kahu (2013) writes that the topic of student engagement is fraught with “poor definitions and a lack of distinction between the state of engagement, factors that influence student engagement and the immediate and longer term consequences of engagement” (p. 758).

A brief history of the study of student engagement. Researchers have been trying for decades to define the concept of student engagement, yet it remains elusive. Axelson and Flick (2011) say that this may be due simply to the fact that the common lay definition of engagement has one meaning, but in an educational context, it may mean something else entirely. Even the etymology of the term engagement has changed throughout history, although it has nearly always had a meaning close to that of the word commitment. The root of the English word engagement is the Norman French word gage, or pledge. Over nearly 500 years of linguistic history, the infinitive “to engage” has gone from meaning “tying oneself to a course of action by oath” to “occupy the attention of” to being completely “present” (p. 40) during a given activity. Engagement may mean very different things depending in which context it is being used.



The same is true to for the concept of student engagement. The formal study of student engagement could be aged anywhere from ten to around eighty years as of this writing, depending on the literature being studied. Axelson and Flick (2011) suggest that the study trying to find a method of accurately measuring student engagement may be traced back to the work of Ralph Tyler, who studied the length of time students spend on their schoolwork and how that may affect learning as part of his work at the Ohio State University and the University of Chicago beginning in the 1930's.

Three decades later, C. Robert Pace studied student effort at UCLA, which led to the design and implementation of the College Student Experiences Questionnaire (Axelson & Flick, 2011; CSEQ, 2013).

In the 1980's, Alexander Astin (1984) wrote about student involvement, suggesting that "the quantity and quality of physical and psychological energy that students invest in the college experience" (p. 519) produces learning in direct proportion to that involvement . Astin (1984) also defines *involvement* as a behavior:

...I am emphasizing that the behavioral aspects, in my judgment, are critical: It is not so much what the individual thinks or feels, *but what the individual does, how he or she behaves* [emphasis added], that defines and identifies involvement. ( p. 519)

Upon retiring from UCLA, Pace transferred his extensive body of work to Indiana University, under the direction of George Kuh (CSEQ, 2013). Kuh went on to enlist the help of Peter Ewell of the National Center for Higher Education Management Systems. With funding from the Pew Charitable Trusts and the National Center for Education Statistics (NCES), the National Survey of Student Engagement (NSSE) was born in 1999 (Axelson & Flick, 2011).

**Defining student engagement.** Before student engagement can be measured, it must be defined, and to this day, even after close to a century of formal research, multiple definitions still exist. Even Astin and Kuh, two of the most prolific researchers in the area of student

engagement, agree that student engagement and student involvement may be synonyms (Axelson & Flick, 2011). Axelson and Flick (2011) also say that within higher education, engagement has come to refer to students' levels of involvement, interest, and connection to their coursework. Zyngier (2008) calls engagement an "important precursor to student learning" (p. 1765). Taylor and Parsons (2011) write that engagement has traditionally focused on "increasing achievement, positive behaviors, and a sense of belonging in students so they might remain in school" (p.4).

Trowler (2010) writes that a number of divergent and wide-ranging definitions of the term student engagement appear within the literature, and that the scope, nature, and types of work on student engagement vary a great deal, making it difficult to pin down a single definition. Some of the literature uses the term only vaguely, while other writings incorporate complicated statistics and measurement instruments.

Trowler (2010) summarizes the broad expanse of literature on student engagement in this way:

Student engagement is concerned with the interaction between the time, effort, and other relevant resources invested by both students and their institution intended to optimize the student experience and enhance the learning outcomes and development of students and the performance and reputation of the institution. (p. 2)

Kearsley and Shneiderman (1999) offer their *Engagement Theory* which they specifically apply in the context of teaching and learning supported by technology:

By engaged learning, we mean that all student activities involve active cognitive processes such as creating, problem-solving, reasoning, decision-making, and evaluation. In addition, students are intrinsically motivated to learn due to the meaningful nature of the learning environment and activities. (p.1)

Kearsley and Shneiderman (1999) also say that their definition is specifically meant to promote Problem-Based Learning. They subdivide their definition into three categories of Relate-Create-Donate:

- Relate: communication, planning, management and social skills demanded by modern workplace;
- Create: define problem and devise solutions; and
- Donate: make a useful contribution while learning (do projects for non-profits, etc.).

Other researchers take a different approach by defining engagement by what it is *not*. Mann (2001) describes student engagement as the opposite of alienation from one's coursework. Krause (2005) deems behavior states such as "inertia, apathy, disillusionment, or engagement in other pursuits" (p. 4) as being antithetical to student engagement.

Harper and Quaye (2007) define student engagement as "participation in educationally effective practices, both inside and outside the classroom, which leads to a range of measurable outcomes" (p. 2). Kuh and Hu (2001) define of student engagement as "the quality of effort students themselves devote to educationally purposeful activities that contribute directly to desired outcomes" (p.3) Nearly a decade later, Kuh (2009a) reformed his definition of engagement as "the time and effort students devote to activities that are empirically linked to desired outcomes of college *and* what institutions do to induce students to participate in these activities" (p. 683).

Krause and Coates (2008) describe 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).

Trowler (2010) says that three distinct foci can be found within the broader topic of student engagement:

1. Individual student learning: Trowler (2010) found that the majority of literature on student engagement concentrates on individual student learning, which includes research on student:
  - I. attention in learning;
  - II. interest in learning;
  - III. involvement in learning;
  - IV. active participation in learning; and
  - V. involvement in the design, implementation and assessment of their own learning, or student-centeredness.
  
2. Structure and process: Structure and process refers to aspects of student engagement such as students' representation and role within the governance of an institution, including:
  - I. students as delegates (representatives) on committees;
  - II. students as observers on committees;
  - III. students as members (trustees) of committees; and
  - IV. fully integrated student representation at every level of an institution (courses, departments, faculty, etc.).
  
3. Identity: Identity can refer to how student engagement may be facilitated, particularly those considered to be marginally engaged and/or non-traditional, including among the following:
  - I. individual students;
  - II. groups of students; and
  - III. identity attached to representation within the institution as a whole. (Trowler, 2010, pp. 10-11).

Some researchers also say that students are engaged when they are focused on their academic work (Kuh, 2009a, 2009b), exert energy sufficient to attend to and complete their schoolwork (Milne & Otieno, 2007), and derive a sense of self-efficacy (Salmela-Aro & Upadyaya, 2014) when they feel that they have successfully completed a project or assignment. Other researchers define engagement as energy in action representing the connection between an individual and the activity in which one is involved (Ainley, 2004; Appleton, Christenson, Kim & Reschly, 2006; Sagayadevan & Jeyaraj, 2012). Reeve and Tseng (2011) propose adding agency as a component of the definition of engagement, defined as "students' constructive contribution into the flow of the instruction they receive" (p. 257).

## Student Engagement Typologies

The literature on student engagement also offers various descriptions of what comprises the ontology of student engagement. Most current definitions involve students *and* the institution in some way.

**Behavioral/emotional/cognitive student engagement.** Fredricks et al. (2004) break the concept of student engagement down into three distinct categories: behavioral, emotional, and cognitive.

- Behavioral Engagement: involvement and/or participation in academic and social or extracurricular activities; considered to be critical for achieving positive academic outcomes and preventing attrition.
- Emotional Engagement: includes both positive and negative reactions to instructors, fellow students, academics, and school itself; said to foster bonds with the institution and promote a desire to complete one's work.
- Cognitive Engagement: refers to one's investment in one's work and one's willingness to expend the effort required to deal with complex ideas and skill sets (Fredricks et al., 2004, p. 60).

**Individual student engagement.** Hamish Coates (2007, 2009) suggests that engagement styles among individual students may be divided into two categories: social and academic. Coates subdivides these categories into four engagement styles:

1. Intense: "Students reporting an intense form of engagement are highly involved with their university study...tend to see teaching staff as approachable, and...see their learning environment as responsive, supportive, and challenging" (Coates, 2007, pp. 132-133).
2. Independent: "[Independent students exhibit a] more [academic] and less [social] approach to study...see themselves as participants in a supportive learning community...see staff as...approachable, [and] responsive ...encouraging...tend to be less likely...to work collaboratively with other students... or to be involved in...activities around campus" (Coates, 2007, pp. 133-134).
3. Collaborative: "[Collaborative] students tend to favour the social aspects of life and work, as opposed to...[individual] forms of interaction...High levels of...collaborative engagement reflect students feeling validated within their university communities, particularly...[through] activities and interacting with staff and other students" (Coates, 2007, p. 134).

4. Passive: “[Students who] indicate passive styles of engagement rarely participate in the only or general activities and conditions linked to productive learning” (Coates, 2007, p. 134).

**Institutional engagement.** Pike and Kuh (2005) analyzed the results of the National Survey of Student Engagement and found seven types of engaging institutions, including:

1. Diverse, but interpersonally fragmented: At these institutions, students do not view the institution as being supportive of their academic or social needs, nor do they view their peers as supportive. This is despite the fact that students at these institutions also said that they tend to use technology, and that the institution supports student diversity.
2. Homogeneous and interpersonally cohesive: These institutions do not offer a great number of experiences with diversity, but students at these institutions view their peers and the institutions as generally supportive.
3. Intellectually stimulating: According to students, these institutions offer a variety of academic activities and afford interaction with faculty during class and outside the classroom. Students at these schools also report that they tend to engage in collaborative learning activities with their peers which demand higher-order thinking skills.
4. Interpersonally supportive: Students at these institutions say that they have a reasonable amount of contact with faculty, their peers and school are generally supportive, and diversity experiences are frequent.
5. High-tech, low-touch: Students at such institutions report that information technology is the prevailing form of communication. There is little collaboration, low levels of academic challenge, and interpersonal relations and communications do not feature prominently.
6. Academically challenging and supporting: Traditional higher-order thinking is emphasized on these campuses, and faculty set high expectations for academic success. Students are supportive of one another, and also view the campus as supportive. However, collaborative learning is not emphasized.
7. Collaborative: Students support one another's learning activities in this type of environment. They also report that faculty are supportive and that students have reasonable contact with faculty. Diversity experiences are not a priority (Pike & Kuh, 2005).

**Engagement through extracurricular activities.** Extracurricular activities are also highlighted within the literature about student engagement. Trowler (2010) notes that extracurricular activities which are related to educational experiences are generally viewed as positive.

Kuh (2009a) writes that some positive influences on student engagement include writing for campus publications, working on campus in an office or for a program, participating in honors programs, taking part in or assuming a leadership role in student organizations or committees, and school-sanctioned athletics.

Slocum and Rhoads (2009) suggest that off-campus activities may also positively impact student engagement by broadening the horizons of students, as these activities

[provide] a vision of the university as a vehicle for social transformation, whereby the university community is engaged in something other than the pursuit of immediate economic returns...[and] creating a vision of society based on more democratic economic practices and a politically engaged citizenry...Universities must be something more than simply the engines of capital production and enact forms of social engagement fitting the struggles of communities and societies increasingly operating within a complex and conflicted global environment. (p. 102)

Kuh (2009a) examined whether spending time in activities outside the school environment might negatively affect student engagement. He found that while students who worked off-campus did spend less time preparing for class:

...working students reported higher levels of active and collaborative learning, perhaps because their jobs provided them with opportunities to apply what they were learning...Indeed, employment may provide opportunities for students to practice and become more competent in collaboration and teamwork, skills that are needed to function effectively in the twenty-first century work environment. (pp. 693-694)

### **Who is Responsible for Engagement and Learning?**

Disagreement exists as to who carries more responsibility for student learning and engagement: the student or the institution. Krause and Coates (2008) put the onus on the student: “[S]tudent engagement focuses on 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)

Kuh and Hu (2001) also say that the responsibility lies with students, as engagement represents the “quality of effort” (p. 3) which the students themselves dedicate to “educationally

purposeful activities” (p. 3) which have been found to lead to “desired [learning] outcomes,” (p. 3) based on research. However, the Higher Education Funding Council for England (HEFCE, 2008) puts the more responsibility for student engagement on the institution, by defining engagement as “the process whereby institutions and sector bodies make deliberate attempts to involve and empower students in the process of shaping the learning experience” (p. 1).

Kuh (2009b) concludes that the responsibility for student engagement may be attributable to both students and institutions, stating that “student engagement represents the time and effort students devote to activities that are empirically linked to desired outcomes of college *and* what institutions do to induce students to participate in these activities” (p. 683).

Harper and Quaye (2009) concur with Kuh, saying that students should not carry the sole responsibility for student engagement and learning, but that “administrators and educators” should also work together to facilitate the conditions that “enable diverse populations of students to be engaged” (p. 6).

Coates (2005) agrees:

The concept of student engagement is based on the constructivist assumption that learning is influenced by how an individual participates in educationally purposeful activities. Learning...also depends on institutions and staff providing students with the conditions, opportunities and expectations to become involved. However, *individual learners are ultimately the agents in discussions of engagement* [emphasis added]. (p. 26)

Coates (2005) submits that when constructivist learning theory is applied, data on levels of student engagement come very close to providing insight into student learning, because these data offer insight into what students may actually be *doing*.

### **Why Does Student Engagement Matter?**

**Engagement and learning.** The university’s Executive Director of ID, the CTO, and the Dean of Online Learning all stated that they seek to increase student engagement through the use of more and newer technologies. However, the ultimate goal of any educational institution is learning. In fact, most research on student engagement focuses either directly or indirectly on



student learning (Trowler, 2010). Therefore, it is important to discuss the relationship of student engagement to student learning.

Fredricks et al. (2004) state that high levels of student engagement lead to increased levels of achievement and decreased dropout rates.

Coates (2005) writes:

...student engagement is based on the constructivist assumption that learning is influenced by how an individual participates in educationally purposeful activities...therefore, student engagement is concerned with the extent to which students are engaging in a range of educational activities that research has shown as likely to lead to high quality learning. (p. 26)

Graham, Tripp, Seawright and Joeckel (2007) submit:

...the idea that students must be actively engaged in the learning process in order for it be effective is now new....the roots...reach back to John Dewey...research has shown that academic achievement is positively influenced by the amount of active participation in the learning process. (pp. 233-234)

Newmann (1991) posits that academic and social aspects of student engagement should be incorporated simultaneously into the classroom, and also that student engagement is effectively facilitated in learning environments which provide students with:

1. authentic tasks;
2. opportunities for students to take ownership of the tasks' conception, evaluation, and conception;
3. opportunities for collaboration with peers;
4. permission to use diverse talents, and
5. opportunities for fun (Newmann, 1991; Newmann, Wehlage & Lamborn, 1992).

Fredricks et al. (2004) agree that many studies have found that "authentic and challenging tasks" (p. 79) are correlated with an increase in behavioral, emotional, and cognitive engagement, particularly when these studies take both social and academic dimensions of student engagement into account. They also relate student engagement to

motivation, finding that a great deal of research examines the link between individual student needs and student engagement, including the following:

1. the need for relatedness (belonging);
2. the need for autonomy; and
3. the need to feel competent and in control of one's learning (Bundick, Quaglia, Corso & Haywood, 2014; Fredricks et al., 2004; Skinner, Furrer, Marchand & Kindermann, 2008)

**Effects of engagement on institutions of higher learning.** Coates (2005) says that data on student engagement and learning may also provide universities with valuable information about how productive these institutions may be as a whole. These data may inform marketing and recruitment campaigns, and provide insight as to how learning activities and outcomes may be improved:

“To the extent that the productivity of education is centered around student learning, it is obviously important that students and institutions are doing things that are likely to approach individual academic performance.” (p. 33)

Kuh (2009b) supports the idea that the study of engagement may reveal the quality of learning activities and learning outcomes when he writes that “what the institution does to foster engagement can be thought of as a margin of educational quality...and something a college or university can directly influence in some degree” (p. 685).

Coates (2005) writes that more attention has been focused on the quality of higher education since the 1990's. Information about the quality of higher education helps students make decisions about which college environment to choose, helps faculty know how their courses are being perceived by students and how knowledge may be transferred to real-world scenarios by students both in and out of school, helps university administrative officials get a better idea of how a given school is performing, and helps governments know how schools are utilizing any funding which may be tied to that performance. Engaged students tend to perform better in school and even in their careers and personal lives after graduation (Carini, Kuh &

Klein, 2006; Kuh, 2009a, 2009b; Shulman, 2002), and such results make everyone in a given school environment look good to the outside world.

In the current economy, educational funding has taken a sharp downturn, and for many institutions of higher learning the largest (and perhaps only) source of funding may be an influx of new students. If these students do not feel engaged at their current institutions, they may attrite. Many accreditation bodies now demand that institutions of higher learning prove that students are performing through evidence-based metrics, which can also be tied to future funding. Given these factors, student engagement may represent very big business

Markwell (2007) links student engagement directly to the financial future of an institution:

...when universities and colleges are increasingly focused on the importance of outreach to alumni and other...friends of the institution for...philanthropic support...how engaged students are and feel themselves to be during their student years will have great bearing on how connected and supportive towards the institution they are likely to be in later years. (p. 15)

Coates (2005) suggests that:

By monitoring student engagement and outcomes, institutions can identify areas of good practice as well as those areas in need of improvement. Institutions can also allocate expensive teaching and support resources in a strategic fashion, and report the results of such actions that demonstrate the efficacy of the feedback cycle. (p. 13)

Krause and Coates (2008) add that “[data about student engagement] have the potential to inform understanding of many aspects of university life, pedagogical quality, recruitment and selection, attrition and retention, equity, and student learning processes” (p. 495). Kuh (2009a) offers: “...credible, actionable information about how students spent their time and what institutions emphasized in terms of student performance could tell an accurate [and] comprehensive story of students’ educational experiences and be a powerful lever for institutional improvement” (p. 685).

## Why Does Technology Matter?

**Relevant trends in online learning.** The three university officials interviewed for this paper are not alone in their curiosity about whether more and newer technologies may increase engagement among Online's students. It appears that issues such as *how, when, and why* to integrate more technology into a higher education curriculum (if at all) are not unique to this university. The New Media Consortium (NMC) has studied issues related to the integration of educational technology since its founding in 1993 (NMC, 2012).

In a white paper titled *The Economist Intelligence Unit 2008*, the NMC addressed *The future of higher education: How technology will shape learning* (NMC/The Economist, 2008).

This white paper includes the following statements:

...[R]espondents foresee an interesting range of possibilities regarding how technology is most likely to affect future academic offerings, spurred by innovative faculty research, student engagement, and the pursuit of academic collaboration. Over the next five years, 56% of respondents expect to see a greater number of interdisciplinary majors...and 43% foresee broader inter-university collaboration among students from multiple institutions. Looking beyond the five-year horizon, more than two-thirds of all respondents say that students will be able to craft individualized degree programmes, either within their own university or by bundling coursework from different institutions. And more than one-half see the publishing world evolving as a result of all these developments, with textbooks and printed documents eventually being replaced by online materials. (p. 7)

The passage above was written in 2008, while this paper is being written largely in 2013-2014, approximately within the five-year window given for the ideas in the passage directly above to take hold. In the case of this university, every one of these possibilities has either come to pass, or is in the process of doing so. Online is introducing a number of interdisciplinary majors, such as Leadership and Project Management. The university offers some credit to students for life experience, particularly to students who have served in the military. Students may also have a hand in designing their own coursework within certain majors. The Executive Director of ID has the creation and inclusion of iBooks on his own personal horizon for the department, and has conveyed this to his staff directly. In this regard, the predictions included in

the aforementioned white paper from the NMC and The Economist have proven to be quite perceptive within the current environment of Online.

The New Media Consortium is also known for its research for and publication of yearly *Horizon Reports*. The NMC began publishing *Horizon Reports* for the fields of K-12 Education, Higher Education, Museum Education, and Regional Education since the inception of its *Horizon Project* in 2003 (NMC, 2012, 2013, 2014).

In the NMC Horizon Project Short List: 2014 Higher Education Edition (NMC Horizon Report for HE, 2014), the NMC outlines *Key Trends Accelerating Higher Education Technology Adoption* that the NMC committee maintains will be increasingly adopted over the next one to five years.

Fast trends driving changes in higher education over the next 1-2 years:

- **Growing Ubiquity of Social Media.** According to the NMC, social media has permeated all demographic groups. The 2014 Horizon Report for Higher Education cites a study by the University of Massachusetts-Dartmouth which found that 100% of surveyed colleges and universities use social media in some way. While privacy concerns remain an issue for some faculty and administrators, the NMC suggests that the leadership of institutions of higher learning have a unique opportunity to create and document creative, dynamic social media projects for the higher ed environment (NMC Horizon Report, 2014).
- **Integration of Online, Hybrid, and Collaborative Learning.** Higher education paradigms are shifting to incorporate online learning, blended/hybrid learning and collaborative learning models. The affordances of online learning greatly increase the potential for collaboration because it incorporates media that students can access outside of the traditional classroom environment to meet and exchange ideas. Many institutions are taking advantage of these affordances through initiatives such as instituting policies which encourage more collaboration between students, improving teaching practices by using online learning to facilitate peer-to-peer collaboration among faculty, and use online learning tools to personalize the learning experience for individual students, even though they may be taking part in a large class (NMC Horizon Report for HE, 2014).

Mid-range trends driving changes in higher education within 3-5 years:

- **Rise of Data-Driven Learning and Assessment.** Users of online learning leave a data trail, and interest in figuring out new ways to tap into these data sources with the intent of personalizing the learning experience as well as for assessment is growing. The emerging field of learning analytics offers a series of tools for data mining and gathering statistics. These tools can help institutions of higher education recognize student who may be having trouble much earlier, personalize learning experiences, and even improve student learning outcomes—all of which may help maintain and increase student engagement (NMC Horizon Report for HE, 2014).
- **Shift from Students as Consumers to Students as Creators.** Across all disciplines, many institutions of higher education are encouraging students to engage in more design and content/product creation as part of their coursework. Technology certainly facilitates a *maker space* mentality. New and emerging technologies such as (but not limited to) 3-D printers, laser cutters and microcontrollers, along with more traditional craft tools for woodworking, metallurgy, and electronics all provide students the chance to learn by doing and examining and documenting the processes by which things are made (NMC Horizon Report for HE, 2014).

Long-Range Trends driving changes in higher ed in 5 or more years:

- **Agile Approaches to Change.** Many colleges and universities are experimenting with approaches to teaching and learning inspired by the creative environment found in many technology startups. The NMC cites a 2013 study by the U.S. Department of Commerce titled *The Innovative and Entrepreneurial University*, which reveals how many American institutions of higher education are encouraging entrepreneurship in their teaching practices as well as in their infrastructures. According to the NMC, employers increasingly expect college graduates to enter the workforce with some real world experience. To that end, many institutions are designing and redesigning curricula to offer students such opportunities. The NMC goes on to say that “if higher education institutions adopt startup models, it could lead to the more efficient implementation of new practices and Pedagogies” (NMC Horizon Report for HE, 2014).
- **Evolution of Online Learning.** As the popularity of online learning increases, higher education institutions are adding more online courses to supplement and/or replace existing courses. The NMC Horizon Report committee found that improvements in the quality and dependability of tools for video and audio communications, such as Skype, VoiceThread, iMovie, SoundCloud, iTunesU and Google Hangouts support the success of these courses (NMC Horizon Report for HE, 2014).

The NMC’s 2014 Horizon Report for Higher Learning goes on to suggest that six specific *Important Developments in Educational Technology for Higher Education* will impact the higher education environment in the short-, medium- and long-term:

#### Time to Adoption Horizon-1 Year or Less:

- **Flipped Classrooms.** The Flipped Classroom model rearranges how students spend their time in and out of the classroom. Students may access material such as videos and podcasts online through portals such as Khan Academy or MIT's OpenCourseWare project before attending class, and then work on the material further with the help of an instructor who may answer questions and help facilitate deeper learning during face-to-face class time. The Flipped Classroom emphasizes a self-directed, student-centered approach to learning, and also allows students to access course information as needed. Flipped Classrooms combines pedagogical approaches such as blended learning, inquiry-based learning which may help make learning more flexible, active, and more engaging for students (NMC Horizon Report Short List, 2013; NMC Horizon Report for HE, 2014). Examples include Khan Academy, YouTube (videos used specifically for classroom purposes), Schoology, and Edmodo.
- **Learning Analytics.** Learning analytics is the analysis of data collected from student activities which are either explicit and assessed (such as assignments and exams) and implicit and perhaps not assessed (such as discussion boards, online interactions, etc.) These analytics also may be applied within Adaptive Learning Environments (ALEs) as a means of addressing multiple learning styles. (NMC Horizon Report, 2013; NMC Horizon Report for HE, 2014). Examples include Gephi, SNAPP, and Socrato.

#### Time to Adoption Horizon: 2 to 3 Years:

- **3D Printing.** Three-dimensional (3D) printing refers to multiple technologies such as computer-aided tomography (CAT), computer-aided design (CAD) and X-ray crystallography which work in concert to physical 3D objects from digital content. 3D printers create models one layer at a time using an industrial bonding agent combined with a very fine layer of powder. This technique is often referred to as *rapid prototyping* in industrial parlance, but is now being adapted to create objects for many purposes, including jewelry, collectibles, and machine parts. Universities may integrate 3D printed objects into multiple curricula including engineering, architecture, physics, biology, and many others as needed (NMC Horizon Report Short List, 2013; NMC Horizon Report for HE, 2014). Examples include: MIT's Fab Lab program (a lab devoted to digital fabrication), Shapeways.com (through which custom 3D printed items may be designed and ordered), ExOne, Mojo, MakerBot, and Cubex 3D Printer.
- **Games and Gamification.** Kablan (2010) opines that games may increase the learning process, strengthen retention, supply effective learning with joy in place of boring lessons by increasing motivation. The New Media Consortium maintains that game-based learning may reflect and a number of 21<sup>st</sup> Century skills such as collaboration, communication, critical thinking, digital literacy, and problem solving, which are highly desirable in college students. Games which directly relate to course content facilitate retention, student engagement, and knowledge transfer (NMC Horizon Report Short List, 2013; NMC Horizon Report for HE, 2014). Examples include Serious gaming, Massively Multi-Player Online (MMO) gaming, and Simulations.

Time to Adoption Horizon: 4 to 5 Years:

- **The Quantified Self.** The NMC says that the *Quantified Self* refers to the phenomenon of using technologies to gather data about oneself in order to learn about one's health, athletic or academic performance, dietary habits, sleep patterns, etc. Tools such as the Fitbit and Nike Fuel Band keep records of exercise goals, Weight Watchers and SparkPeople keep track of food eaten and calories expended, and Jawbone and Beddit track one's sleep and warns of deviations from expected patterns. In essence, these technologies provide personalized analytics, which may ultimately be used to help students learn what they can do to improve their physical, psychological and even academic performance (NMC Horizon Report for HE, 2014).
- **Virtual Assistants.** Advancements in voice recognition and gesture-based computing make it possible to interact with computers, video games and mobile devices without even touching them. Technologies such as Apple's Siri, Microsoft's Cortana and Xbox Kinect, and Nintendo's Wii offer the ability to control one's device via voice or gesture. Virtual assistants have the potential to significantly impact higher education. The NMC notes that virtual assistant technologies have already begun to permeate the health sector, and provides the example of *Florence*, a virtual assistant programmed to understand clinical language and take directions from doctors to help them order prescriptions, diagnostic tests and lab work. More technologies that can "see, listen, and think like humans do" (p. 47) may be available to the mass market in the not-too-distant future (NMC Horizon Report for HE, 2014).

It is entirely possible that the technologies included in the NMC 2014 Horizon Report for Higher Education could potentially play a role in maintaining and even increasing student engagement at an institution such as Holland University. For example, the university's on-campus fitness center (which online students and faculty may use if they are on campus) could create a downloadable app for students that monitors progress of exercise programs and provides suggestions for good nutrition and sleep practices. This could result in higher levels of energy and alertness, which further support learning—and possibly a sense of personal empowerment among Holland University students as they see their health (and grades) improve. This might even lead to a more positive view of the Holland U as a whole—and therefore increase levels of student engagement with the institution.



Assuming that the three university officials interviewed for this paper are correct when they say that incorporating more and newer technologies into the university's curriculum should increase student engagement, the technologies discussed in the Horizon Report may be among those which they may wish to research and potentially adopt.

The trends noted in the Horizon Report are also important due to the exponential rate of growth of online learning within the last decade or so. The Sloan Consortium has gathered data for annual surveys of demographics and statistics in online learning since 2002. The first survey, titled *Sizing the Opportunity: The Quality and Extent of Online Education in the United States, 2002-2003*, reported that:

- Over 1.6 million students took at least one online course in Fall 2002.
- Over one-third of these students (578,000) took all of their courses online.
- Among all U.S. higher education students in Fall 2002, eleven percent took at least one online course (Allen & Seaman, 2003).

In this initial report, 57.2 percent of academic leaders rated the learning outcomes in online education as the same or superior to those in face-to-face courses (Allen & Seaman, 2003).

The 2002-2003 findings are in stark contrast with those found in *Changing Course: Ten Years of Tracking Online Learning in the United States*, the Sloan Consortium's 2013 report:

- Over 6.7 million students took at least one online course (an increase of nearly sixfold over the 2002-2003 findings).
- Thirty-two percent of higher education students now take at least one course online (an historic high, nearly tripling the 2002-2003 findings).
- At 9.3 percent, reported year-to-year enrollments far exceed the two percent growth in the overall higher education student population, but this represents the lowest growth rate in the ten years during which the data was collected (Allen & Seaman, 2013).
- Seventy-seven percent of academic leaders now rate the learning outcomes in online education as the same or superior to those in face-to-face courses (a twenty percent increase over the 2002-2003 findings; Allen & Seaman, 2013).

A similar rate of growth has been seen in the enrollments in Online courses. In the 2001-2002 academic year, course registrations were measured at approximately 64,000 individual enrollments. In 2010-2011, they were measured at approximately 97,000 individual enrollments (Holland Marketing, 2012). It is important to note that many students took more than one course during the academic year, and that between January 2001 and June 2011, courses began every month and lasted for nine to twelve weeks. As of July 2012, all Online asynchronous online courses are offered in a nine-week format (personal communication).

There is no question that knowledge of the current technological landscape and of the technologies being used by Online's students will always be important to the day-to-day functioning of Online. Learning more about the technologies to which students have access can help Online management make informed decisions about which technologies to incorporate in the divisions asynchronous online courses.

**Are students different now? The millennial generation.** Many researchers explore whether technology has fundamentally changed the way students learn, even at the deepest levels of cognition (Carr, 2010; Clark, 1983, 1994; Johnson, 2005; Kozma, 1994; Prensky, 2001a; Shirky, 2010; Small & Vorgan, 2008; Willingham, 2010).

Perhaps higher education professionals should consider that we may now be dealing with a "different" type of student, beginning with those born around 1980—the first generation to have access to personal computing throughout their entire lives. Tapscott (2009) calls these students "the Net Generation" (p. 9). Rosen (2010) called them the "iGeneration," and credits them with amassing skill sets never before seen in human history. Conversely, Bauerlein (2009) labels them as "the Dumbest Generation," (p. 38) unable to put down their gadgets and engage in deep thinking.

These students are often referred to as the Millennials, as they reached adulthood around the year 2000. A study of the Millennial mindset is relevant here, as the average age of students enrolled in Online courses offered by the university is currently 35 years (Holland Marketing, 2012), and this study took place in 2013-14 (33-34 years after 1980). It is also quite possible that the Millennial generation has gone on to give birth to the next generation of tech-savvy students at this point in history, but this section will concentrate on the Millennial Generation itself.

Opinions about whether technology has indeed changed how students learn—particularly Millennial students—vary widely. On the positive side, Willingham (2010) says that some new technologies may have a very engaging feature: they change what a user sees and/or experiences through the addition of the technology into the environment, and this newness may foster engagement and interest, in agreement with Kozma's (1994) statements that technology may influence and perhaps enhance learning. In *Here Comes Everybody*, Shirky (2008) writes about how social media and mobile technologies now give people the power to organize thoughts, groups, and mass movements via technology. In *Cognitive Surplus*, Shirky (2010) says that technology affords everyone the opportunity to create, share and even publish materials much more easily than ever before (although he does submit that some reduction in quality of these materials may result). Johnson (2005) opines in *Everything Bad is Good for You* that the *Flynn Effect*, a rise in IQ scores noted over decades, supports his argument that this increase in IQ scores is directly attributable to taking in more diverse and substantial information gathered through technologies including radio, newsreels, movies, television, computers, the Internet, mobile technologies, and even videogames and serious games.

But others are more negative about the effects of technology on students' levels of cognitive and critical thinking abilities. In his book *The Dumbest Generation*, Bauerlein writes

that "...while [Millennials] have absorbed digital tools into their daily lives like no other age group (p. 8)...young Americans today are no more learned or skillful than their predecessors..." (pp. 8-9). In a July 2008 article in *The Atlantic*, Nicholas Carr asks "Is Google Making Us Stupid?" In this article, Carr (2008) wrote about how he felt that Google and other Internet-based technologies were affecting his ability to think and research in a negative way, and were essentially dumbing him down. He also applies this concern to society at large. The article became so popular that Carr went on to expound upon his theories in his 2010 book titled *The Shallows: What the Internet is doing to Our Brains*. Gary Small and Gigi Vorgan (2008) suggest in *iBrain: Surviving the Technological Alteration of the Modern Mind* that while web-based tools such as Google have been shown in lab tests to improve brain function in elderly test subjects who were not familiar with these tools, other technologies such as videogames may actually be stunting the cognitive and emotional development of young people. They write that videogames may overstimulate one's temporal lobe, the area of the brain which responds to visual stimuli and which also monitors one's senses of selfishness. Small and Vorgan (2008) also say that the frontal cortex is the area of the brain which monitors critical thinking and empathy, and fear that if the brain development of young people gets stuck at the level of the temporal lobe and never advances to the frontal cortex, we run the risk of ending up with a society of people who lack empathy and the ability to think critically.

Perhaps the most vocal critic of the idea that technology affects learning in any way is Richard Clark (1983), who wrote that media can never and will never influence learning "under any conditions" (p. 33) and that "media are delivery vehicles for instruction and do not directly influence learning" (p. 33). To Clark (1983), the comparison of media and method is completely irrelevant, going so far as to state that media "are mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries causes changes in our nutrition" (p. 445).

Regardless of which side one may take in the argument of whether technology affects our brains or our thinking positively or negatively, it is nearly impossible to deny that technology has definitely influenced the way students-and others-think and act on a daily basis. On February 24, 2010, the Pew Internet and American Life Project released a study titled *Millennials: A Portrait of Generation Next*. (Pew Internet & American Life Project, 2010). This 149-page study provides the Pew Research Center's most recent information about this generation primarily born after 1980 (Pew Internet & American Life Project, 2010, p. 9, para. 2), and to whom the study's authors refer as:

“...history's first 'always connected' generation. Steeped in digital technology and social media, they treat their multi-tasking hand-held gadgets almost like a body part – for better and worse.” (p. 1)

According to the Pew Internet and American Life Project, Millennials are very adept with technology. Some findings from Pew's 2010 study about Millennials include:

- 74% say that New Technology makes life easier;
- 75% use social networking sites;
- 90% say that they use the Internet or send email at least occasionally;
- 96% of those who say they use the Internet or send email at least occasionally have attended college.

In addition to being tech-savvy, many Millennials also strive for the attainment of an advanced degree. According to a 2009 study published by Pew Social Trends, 39.6% of Millennials aged 18-24 were enrolled in a two- or four-year college in 2008, the highest percentage ever recorded (Pew Social Trends, 2009). This approximate number was echoed in Pew's 2010 study on Millennials, which found 39% of this generation was currently in school, and 44% intend to graduate from college. Nearly one-fifth (19%) of the respondents to Pew's Millennial study had already graduated from college.

Pew's 2009 study of college enrollments in the US and 2010 study of Millennials show education and technology are important to this generation. As previously cited, a Pew

researcher (Pew Internet & American Life Project, 2010) wrote that, “Millennials...treat their gadgets...almost like a body part” (p. 1).

The idea of technology as an extension of the human body is not new. As early as 1962, theorists in the realms of Media, Technology, and Culture hypothesized that technology may have the power to not only extend our bodies, but our minds as well. In his book *The Gutenberg Galaxy*, Marshall McLuhan (1962) prophesied the coming Internet:

The next medium, whatever it is – it may be the extension of consciousness – will include television as its content, not as its environment, and will transform television into an art form. A computer as a research and communication instrument could enhance retrieval, obsolesce mass library organization, retrieve the individual’s encyclopedic function and flip it into a private line to speedily tailored data of a salable kind. (pp. 52-53)

Douglas Engelbart led the team at the Stanford Research Institute (SRI) which first conceived of the computer mouse (SRI, 2009), and is regarded as a “father” of personal computing. Engelbart theorized in his seminal 1962 essay, *A Conceptual Framework for the Augmentation of Man’s Intellect* (SRI, 2009):

By “augmenting human intellect” we mean increasing the capability of a man to approach a complex problem situation, to gain comprehension to suit his particular needs, and to derive solutions to problems. Increased capability in this respect is taken to mean a mixture of the following: more-rapid comprehension, better comprehension, the possibility of gaining a useful degree of comprehension in a situation that previously was too complex, speedier solutions, better solutions, and the possibility of finding solutions to problems that before seemed insoluble...We do not speak of isolated clever tricks that help in particular situations. We refer to a way of life in an integrated domain where hunches, cut-and-try, intangibles, and the human “feel for a situation” usefully co-exist with powerful concepts, streamlined terminology and notation, sophisticated methods, and high-powered electronic aids. (p.1, para. 1)

In 1962, personal computing was at a nascent, largely theoretical stage. The very idea for what ultimately became the Internet had come about only five years earlier. In 1957, inspired by the USA’s reaction to the Soviet’s launch of Sputnik, President Dwight Eisenhower saw the need for a new network that would facilitate communication among US military installations in

the event of war (Friedman, 2000). It was not until 12 years after Sputnik's launch in 1969 that the SRI would receive the first message—the word *login*—sent via the new *ARPANet* from a computer at UCLA (Friedman, 2000). As time and technology progressed, an intricate network of interconnected networks grew exponentially into the modern-day Internet.

Engelbart (SRI, 2009) postulated that computers may be used to quite literally augment human understanding of nearly any topic, and that this new understanding should be described as a way of life. Marshall McLuhan (1964) went on to say that not only did new technologies serve as extensions of the human body and mind, but also extended the human central nervous system, fundamentally changing an individual who came into contact with these new technologies. At that time, McLuhan was talking about the “new medium” of television. One can only imagine what McLuhan may have written about the Internet had he lived to see it. Marshall McLuhan died on December 31, 1980 (Whitman, 1981), just as the oldest Millennials were at the very beginning of their lives. Fast-forwarding to the present day, it may be said that the theories of Engelbart and McLuhan were impressively prescient. All manner of personal computing devices, most now featuring Internet access, have made their way into the daily lives of people all over the planet, and particularly into the hands of the Millennial generation. The Pew Internet and American Life Project (2010) found that 90% of Millennials in the US use the Internet. One example of the proliferation of portable Internet devices is demonstrated in a Pew Research Center report titled *Smartphone Adoption and Usage*, released on July 11, 2011. This study found that smartphone adoption is highest among the age ranges which include the Millennials: 52% of those aged 18-24 and 45% of those aged 30-45 said that they owned smartphones (Pew Research Internet Project, 2011).

The study of the use of technology in learning environments is undoubtedly relevant to the lives of Millennial college students. They will need to effectively apply their technology skills directly from their academic lives to their work lives upon leaving college.

Additionally, a great deal of evidence and ongoing research indicate that:

- Technology may have had such an impact as to fundamentally change the way the Millennial generations think and learn, due to culture and the neuroplasticity of the brain (Brown, 2000; Doidge, 2007; McLuhan, 1962, 1964; Prensky, 2001a, 2001b; Small & Vorgan, 2008; SRI, 2009).
- Learning best takes place when students have the opportunity to transfer their skills to the realistic environment in which they may use those skills (Bransford, Brown, & Cocking, 1999; Broody, 1977; Schwartz & Bransford, 1998).

Technology may serve a critical role in any curriculum geared toward not only to Millennials but also to all students going forward. As technology has always been situated (Lave & Wenger, 1991) in the lives of Millennial college students, they may want—even need—to use technology in order to learn at the deepest possible level. Technology may have become necessary to how college students live, learn and feel engaged, and therefore to how they learn. Therefore, the three university officials interviewed for this paper may indeed be correct in their belief that using more or newer technologies may promote student engagement. However, since the concept of student engagement is so vast, this may be just one component of a larger strategy to ultimately increase student engagement.

Based on Holland University's own report that the average age of Online students is 35, Millennial students *are* Holland students, making an examination of the needs and technological capabilities of Millennial students relevant to this study.

### **Does Technology Promote Student Engagement?**

The three university executives all believe that integrating more technology into Online courses such as mobile applications, simulations, games, and animated presentations will increase student engagement. But the literature on student engagement cited in this paper does not specifically state that technology either causes or correlates to increased student engagement. So, are these three executives correct? Would the implementation of more technologies into Online courses necessarily result in increased student engagement?



The topic of whether technology promotes learning (the ultimate goal of student engagement) was at the forefront of the literature in 1983, the year Richard Clark of the University of Southern California published a seminal article titled *Reconsidering Research on Learning from Media*. In this article, Clark rebukes researchers such as McLuhan (1962, 1964) and Engelbart (SRI, 2009) and submits that media can never and will never influence learning under any conditions (Clark, 1983). Rather, media is merely the means of delivery. In Clark's opinion, instructional design and content drive learning (Clark, 1983, 1994). Clark (1983) also cautions that comparing multiple media formats to one another is useless, analogizing such an endeavor to the problems encountered when researchers confuse an individual teacher with the *teaching* taking place in a given learning environment. According to Clark, they are simply not the same thing, and therefore cannot be accurately compared to one another.

Clark's theory was challenged by Robert Kozma of the SRI in 1994, sparking the *Clark/Kozma Debate*. In Kozma's 1994 article *Will Media Influence Learning? Reframing the Debate*, he asks whether it is possible that media *will* influence learning in the future. Kozma posits that in order for media to influence learning, it is incumbent upon the Educational Technology community at large to *create* a relationship between media and learning. Kozma (1994) calls Educational Technology a *design science* rather than a *natural science*:

The phenomena that [Educational Technologists] study are the products of our own conceptions and devices. If there is no relationship between media and learning it may be because we have not yet *made* one. If we do not understand the potential relationship between media and learning, quite likely one will not be made. And finally, if we preclude consideration of a relationship in our theory and research by conceptualizing media as "mere vehicles," we are likely never to understand the potential for such a relationship. (p. 7)

Kozma (1994) goes on to make a prophetic assumption when he writes in *Will*

*Media Influence Learning? Reframing the Debate:*

In the not-too-distant future, we will be faced with a situation where telephone, cable television, and digital computer technologies will merge. This capability presents the prospect of interactive video integrated with access to large multimedia data bases distributed among people in offices, classrooms, and living rooms all over the world. If by then...we have not *forged* a relationship between media and learning, this capability may be used primarily for interactive soap operas and on-line purchasing of merchandise with automatic funds transfer. Its educational uses may be driven primarily by benevolent movie moguls who design edutainment virtual reality adventure games and the contribution of educational technologists will be minimal. (pp. 7-8)

Kozma wrote this opinion when the Internet had only just become available to the general public three years prior through the passage of the High-Performance Computing Act (HPCA, 1991). Many of the technologies which support education such as learning management systems, Google, Khan Academy, YouTube, and “the cloud,” were not to come until years later.

It may be further argued that all the issues which Clark and Kozma debated have changed dramatically, particularly in light of advancements in technology over the past twenty years, along with the ubiquity of technology in the daily lives of so many modern students. The issues may have changed so much that the Clark/Kozma debate may now be less relevant than it once was, although it may hold a noteworthy place within the literature.

Other researchers have gone on to add to the literature on student engagement and its relationship to technology. Willingham (2010) suggests that the question of whether technology indeed influences learning (and, consequentially, engagement) may not actually make sense on its own, and should perhaps be broken into two parts. First, Willingham writes that any engagement supported by a given technology is dependent upon how that technology is used. Second, the *content* of a given lesson trumps any technology (as also argued by Clark, 1983, 1994).

Willingham (2010) goes on to say that:

In order for technology (or any instructional tool) to increase student engagement in academic content, it has to aid in presenting problems as both challenging and solvable. And many technologies can do just that...But there is nothing inherently interesting about the technology (at least once the newness wears off)...It's the *content* [emphasis added] and what the user might do with it that makes it interesting or not. (p. 24)

Like Astin (1984), Willingham (2010) also posits that engagement is a “mental state” (p. 24) and that as such, any environment which may foster engagement need not have a technological component.

While Clark (1983, 1994) maintains his position that media does not and cannot influence learning, others suggest that technology does afford new modes of delivery which may inspire people both in and out of the school environment to attend more closely to a given topic and to dedicate more time to it, which is in keeping with other definitions of what engagement looks like (Carini et al., 2006; Coates, 2005; Kozma, 1994; Kuh, 2003; Shirky, 2008, 2010; Small & Vorgan, 2008; Tapscott, 2009).

Fredricks et al. (2004) note that community and culture are “antecedents of engagement” (p. 73). Consequently, it may be argued that since technology has been part of community and culture for the Millennial generation, technology may indeed spark increased involvement in schoolwork, which may be synonymous with increased engagement (Astin, 1984; Axelson & Flick, 2011; Kuh, 2009a).

It may be said that many researchers agree that technology does have the power to promote student engagement. In particular, technology may facilitate collaboration between students, which, according to Kuh (2009a), fosters engagement. But, as Willingham (2010) points out, technology alone does not have the power to *keep* students engaged; in the long run, only solid, well-designed course content can accomplish that.

We are well past the stage of weighing whether media are irrelevant or secondary to content. Although instructional materials should start with solid content, the appropriate

technologies for delivery should also be part of the learning design process. Content and technology can-and should-work in tandem (Willingham, 2010).

### **Best Practices for Promoting Student Engagement**

Learning by doing, learning through play and Social Learning Theory have long been said to promote student engagement within the annals of the history of education at all levels (Bandura, 1977; Piaget, 1985; Vygotsky, 1978). Technology certainly affords students tools through which they may learn through playing, doing and communicating and collaborating with others. Learning by doing may be applied in any educational context, including online.

Bransford et al. (1999), Brown (2000), and Lave and Wenger (1991) discuss the importance of *learning in situ*, or *situated learning*. Technology has always been situated in the lives of the Millennial Generation.

Learning strategies which some researchers maintain promote student engagement include, but are not limited to Project-Based Learning (Chen & McGrath, 2003), Problem-Based Learning (Smith, Sheppard, Johnson & Johnson, 2005), and collaborative activities (Lightner, Bober & Willi, 2007). Technology has the power to facilitate and support collaboration and the completion of projects in online courses offered by Holland U and at other institutions.

Arthur Chickering and Zelda Gamson (1987) introduced their Seven Principles for Good Practice in Undergraduate Education at the 1987 AAHE Conference. These principles for effective undergraduate education include practices that:

- Encourage student-faculty contact.
- Encourage cooperation among students.
- Encourage active learning.
- Give prompt feedback.
- Emphasize time on task.
- Communicate high expectations.
- Respect diverse talents and ways of learning (Chickering & Gamson, 1987).

Taken together, Chickering and Gamson maintain that the seven principles culminate in six influential forces in education:

- Activity
- Diversity
- Interaction
- Cooperation
- Expectations
- Responsibility (Chickering & Gamson, 1987).

Chickering and Gamson's discourse on the "Seven Principles" has become an influential document in literature on best practices in online learning in higher education as well, although it was originally published in 1987, several years before the Internet was made available to the general public (Friedman, 2000; High-Performance Computing Act, 1991).

Chickering and Ehrmann (1996) expanded upon these concepts in an article titled *Implementing the Seven Principles: Technology as Lever*.

If the power of...new technologies is to be fully realized, [the technologies] should be employed in ways consistent with the Seven Principles. Such technologies are tools with multiple capabilities; it is misleading to make assertions like "Microcomputers will empower students" because that is only one way in which computers might be used...Any given instructional strategy can be supported by a number of contrasting technologies (old and new), just as any given technology might support different instructional strategies. But for any given instructional strategy, some technologies are better than others: Better to turn a screw with a screwdriver than a hammer—a dime may also do the trick, but a screwdriver is usually better. (p.3)

Essentially, Chickering and Ehrmann (1996) argue that it is critically important to use technology properly, ensuring that the right tool is being used for the right job:

The Seven Principles cannot be implemented by technophiles alone, or even by faculty alone...When confronted with teaching strategies and course requirements that use technologies in ways contrary to the Principles, students should...move to alternatives that serve them better. If teaching focuses on simply memorizing and regurgitating prepackaged information, whether delivered by a faculty lecture or computer, students should reach for a different course, search out additional resources or complementary experiences, establish their own study groups, or go to the professor for more substantial activities and feedback...Faculty members who already work with students in ways consistent with the Principles need to be tough-minded about the software- and technology-assisted interactions they create and buy into. They need to eschew materials

which are simply didactic, and search instead for those that are interactive, problem oriented, relevant to real-world issues, and that evoke student motivation. (pp. 5-6)

Chickering and Gamson (1987) and Chickering and Ehrmann (1996) also touch upon the importance of what they call apprentice-type learning, and Chickering and Ehrmann (1996) maintain that this type of learning may easily be supported by technology. However, all of these scholars emphasize that the student learning experience trumps all. Chickering and Ehrmann (1996) also state their belief that “technology is not enough” (p. 5).

### **Measuring Student Engagement**

The concept of student engagement may be just as difficult to measure as it is to define, although some researchers do try. Multiple instruments designed to measure engagement are available (Fredricks et al., 2011), but most of these concentrate on measure engagement in primary or secondary school. One instrument, however, was designed specifically for the higher education sector.

The National Survey on Student Engagement (NSSE) was designed as an instrument to measure levels of student engagement at institutions of higher learning. In a brief history of the origins of the NSSE, Kuh (2001) credits Chickering & Gamson’s (1987) “Seven Principles” as being instrumental to the efforts to document and measure conditions which promote student engagement and impactful learning. In February 1998, a group funded by the Pew Charitable Trusts convened to design a survey instrument focused on the extent to which undergraduate students engage in good educational practices. By the spring of 2000, the first version of the NSSE was ready for launch (Kuh, 2001).

The NSSE is administered by the Indiana University Center for Survey Research, an independent third party which uses professional survey research methods and techniques to distribute the NSSE to freshmen and seniors at four-year institutions of higher education (Kuh, 2001).

Kuh (2001) also notes that the NSSE's reliance solely on the responses of students may be a concern, as it is unknown whether the students are honest in their responses. This may be important to note, as the same will be true of the university's survey to its Online students.

The NSSE asks participants 42 questions centered on five "benchmarks:"

- Level of Academic Challenge (LAC): Challenging intellectual and creative work is central to student learning and collegiate quality. Colleges and universities promote high levels of student achievement by emphasizing the importance of academic effort and setting high expectations for student performance.
- Active and Collaborative Learning (ACL): Students learn more when they are intensely involved in their education and are asked to think about and apply what they are learning in different settings. Collaborating with others in solving problems or mastering difficult material prepares students to deal with the messy, unscripted problems they will encounter daily during and after college.
- Student-Faculty Interaction (SFI): Students see first-hand how experts think about and solve practical problems by interacting with faculty members inside and outside the classroom. As a result, their teachers become role models, mentors, and guides for continuous, life-long learning.
- Supportive Campus Environment (SCE): Students perform better and are more satisfied at colleges that are committed to their success and cultivate positive working and social relations among different groups on campus.
- Enriching Educational Experiences (EEE): Complementary learning opportunities inside and outside the classroom augment the academic program. Experiencing diversity teaches students valuable things about themselves and other cultures. Used appropriately, technology facilitates learning and promotes collaboration between peers and instructors. Internships, community service, and senior capstone courses provide students with opportunities to synthesize, integrate, and apply their knowledge. Such experiences make learning more meaningful and, ultimately, more useful because what students know becomes a part of who they are (NSSE, 2000-2012; see Appendix A for a more detailed description of NSSE's Five Benchmarks.).

The Australasian Survey of Student Engagement (AUSSE) is based on the NSSE, and adds a sixth benchmark of "work-integrated learning" (Coates, 2010; Kahu, 2013). The creators of the NSSE and AUSSE promote these instruments as being theoretically and empirically sound, valid and reliable (Kuh, 2001), and they may be the most used tools for the measurement of student engagement on their respective continents.

However, some researchers dispute the validity of the NSSE (and consequently, its derivative, the AUSSE). Porter (2011) submits that these tests are too dependent upon survey data and correlations which may be weak when deeply examined. Porter suggests that perhaps time-use diaries created by students might provide a more accurate snapshot of how students are truly engaged in their coursework throughout the measurement period (2011). Payne, Kleine, Purcell, and Carter (2005) found that students and staff found the academic challenge scale to be confusing. Kahu (2013) warns that student responses to questions regarding skills they have learned in their courses must be weighed against the students' ability to understand terms in the tests, such as "thinking critically and analytically" (p. 760).

It may also be important to note that the NSSE and AUSSE may measure only behavioral engagement most accurately. While behavioral engagement takes into consideration the thinking patterns and processes of students, engagement and the learning that results from it can also be described as emotional and cognitive (Christie, Tett, Cree, Hounsell & McCune, 2008; Fredricks et al., 2004; Kahu, 2013). Kahu (2013) suggests that measuring student engagement from only the behavioral perspective leaves out a great deal of information which may be critical to getting a full understanding of the "student experience" (p. 71).

Neither Holland University at large nor the Online campus has implemented any formal tool to measure student engagement. As previously stated, student engagement cannot be measured until a set definition is decided upon, and this study attempted to take some "first steps" toward finding the definition(s) to which students and faculty most closely identify as well as the course activities that they find most engaging. These steps were taken with the intention of setting up and contributing to a research environment that act as a reference if and when Holland or any other institutions wish to determine whether they wish to initiate formal measurement of student engagement.



## **Chapter III: Methodology**

### **Organization of the Study**

The mixed-method, non-experimental survey collected both quantitative data (through a Likert 5-point scale) and qualitative data (including open-ended questions addressing beliefs about current levels of engagement in Online courses). All responses were confidential, and the privacy of respondents was protected and is maintained.

### **Restatement of the Research Questions and Hypotheses**

The following research questions were applied to the survey responses:

1. To which definition of “student engagement” (of three taken from the literature) do Online students most closely relate?
2. To which definition of “student engagement” (of three taken from the literature) do Online faculty most closely relate?
3. Is there a statistically significant difference between the definitions of student engagement to which Online students and Online faculty most closely relate?
4. Do students feel that Online courses are engaging, based on the definition of student engagement to which they most closely relate?
5. Do faculty feel that Online courses are engaging, based on the definition of student engagement to which they most closely relate?
6. Is there a statistically significant difference between student and faculty views of current levels of student engagement in Online courses?
7. What kinds of course activities to students and faculty find to be most engaging?

Research questions 1 through 6 were designed to facilitate the acceptance or rejection of these hypotheses:

$H_0^1$ : There is no statistically significant difference between the definitions of student engagement to which Online students and Online faculty most closely relate.

$H_1^1$ : There is a statistically significant difference between the definitions of student engagement to which Online students and Online faculty most closely relate.

$H_0^2$ : There is no statistically significant difference between student and faculty views of current levels of student engagement in Online courses.

$H_1^2$ : There is a statistically significant difference between student and faculty views of current levels of student engagement in Online courses.

### **Research Design and Rationale**

The Executive Director of Instructional Design, the Chief Technology Officer, and the Dean of Online Learning concluded that they wanted to gather data about the kinds of technologies to which the university's online students currently have access, and also about faculty and student views of current levels of student engagement. This non-experimental, mixed-method research study was designed to accomplish this (Campbell & Stanley, 1963; Cook & Campbell, 1979).

The research questions were included as part of a larger mixed-method, non-experimental survey of student access to various technologies requested by the three Online executives. A separate survey asked faculty questions about student engagement exclusively. The surveys were distributed via internal university email and collected confidentially via Qualtrics proprietary web-based software. Email distribution was facilitated by Online staff with access to student and faculty contact information. The Principal Investigator (PI) did not have

access to the student and faculty contact information, but could access to the confidential responses once collected in Qualtrics.

### **Data Collection**

**Participants.** The study was distributed to as diverse a group of students and faculty as possible, although it is known that the demographics of Online students include a 75% male student population and an average age of 35 (Holland Marketing, 2012). Faculty respondents were not asked to provide their age or gender. Only students who had taken at least one course offered by Online and faculty who had taught at least one or Online course were surveyed.

**Questionnaire.** Questionnaires for students and faculty were customized for the purposes of the study. Questions focusing on student engagement were included in each survey; in student surveys, responses to questions about student engagement were analyzed separately from the data relating to current student access to technology. Each survey was designed to gather both quantitative and qualitative data. Samples surveys appear in Appendices B and C.

**Analytical techniques.** The surveys were sent to approximately 8000 students and 700 faculty over the course of about 2.5 weeks in late 2013, via the participants' individual university email accounts. It was assumed that only the recipients had access to their personal email accounts. Participants were sent a hyperlink to a survey created in and delivered via Qualtrics web-based software, along with a letter approved by Pepperdine and the testing university's IRB requesting consent to participate, explaining the purpose for the survey, and letting participants know that they could opt out or partially respond to the surveys at no risk to their standing at the university.

**Statistical analysis.** Quantitative responses from students and faculty to the research-based questions were cross-tabulated and Chi-Square analysis (test of independence) was applied to determine whether there is any statistically significant difference between the definitions of student engagement to which Online students and Online faculty said they most closely related. Qualitative responses to the research-based questions were cross-tabulated and Chi-Square analysis (test of independence) was applied to reveal whether students and faculty feel that Online courses are engaging, based on the definition they chose, and whether there is any statistically significant difference between student views and faculty views of current levels of student engagement. Qualitative responses of student and faculty views of what course activities they find most engaging were also collected.

**Ethical considerations.** Class standing, grades, status on an athletic team, or job status of the subjects was not affected by refusal to participate in or withdrawal from this study.

All subjects' responses were confidential, although the final results of the survey may be shared with Holland University and the Principal Investigator's Research Team (Doctoral Committee) at Pepperdine University. The data may be used in other subsequent research papers or projects, but the identity of the respondents will remain confidential in perpetuity.

Participation in the survey was strictly voluntary. No incentive for participation was offered. While every effort was made to keep all responses confidential, some questions about personal demographic characteristics were included in the survey (age, gender, student status, etc.). No demographic information links respondents to individual responses, however, and no risk to participants is anticipated.

**Limitations/delimitations of methodology.** The following limitations and delimitations were considered:

- The researcher had no control over the truthfulness of study respondents.
- It was assumed that only the recipients would have access to their personal email accounts and that only the recipients would respond to the survey, but this could not be guaranteed.
- The study was administered via an online survey using Qualtrics web-based software, and the number of respondents remained unknown until the survey was completed.
- Views of student engagement are by nature rather subjective and abstract, and therefore may have been difficult for respondents to conceptualize.
- The study is available in English only and language barriers may exist. It is expected, however, that university students have a good working knowledge of English, as all Online courses are offered only in English.
- Bias may exist on the part of faculty respondents in regard to levels of engagement in courses which they designed or have taught.
- It is unknown whether students may have also taught Online courses, or whether faculty may have been Online students at any time.
- The surveys were given only once during the academic year. Gathering survey data multiple times over a longer period may provide more reliable information about student vs. faculty views of student engagement.
- The courses were not necessarily designed in keeping with the definitions of engagement used for the purposes of this study. These definitions were used because they are well-established definitions of student engagement within the field.
- A previous version of the study was piloted outside the bounds of this dissertation study, and this version is based on changes made after that initial pilot. This version, however, was not piloted prior to distribution.

**Reliability.** The Principal Investigator enlisted the assistance of the university's Manager of Survey Research to ensure that reliability was maintained through survey design intended to result in a low rate of non-response bias as well as to collect data from a representative sample of current Online university students and faculty.

**Validity: internal.** Campbell and Stanley (1963) note eight threats to the internal validity of a study:

1. History;
2. Maturation;
3. Testing;
4. Instrumentation;
5. Statistical regression;
6. Selection bias;
7. Experimental mortality; and
8. Selection-maturation interactions.

Among these eight, the following three are likely the most relevant to this study:

- Instrumentation: responses were recoded once received. Data was gathered using Qualtrics online software, and analyzed using SPSS and Microsoft Excel.
- Selection bias: Participation on the part of the students was by self-selection. Bias toward certain responses may have influenced the faculty's individual desire to participate.
- Experimental mortality: Students were asked to respond in regard to a course which they would have just finished within one-two weeks of course completion (if possible).

**Validity: external.** Campbell and Stanley (1963) also note four threats to external validity:

1. Reactive/interactive effects of testing;
2. Interaction of selection bias and the experimental treatment (generalizability);
3. Ecological validity (reactive effects of the experimental arrangement); and
4. Multiple treatment interference.

Of these, only the interaction of selection bias and the experimental treatment (generalizability) may be of concern. The university's population is 75% male, the average age is 35, and many students are either active or reserve members of the US military (Holland Marketing, 2012), and therefore results of the study may not be generalizable to a larger population of online students outside the unique environment of the university. However, responses from these sample groups may provide insight into student and faculty views of

student engagement and about what course activities are most engaging specifically at Holland University.

### **Summary**

This mixed-method, non-experimental study was designed to provide insights into views of current levels of student engagement on the part of Online students and faculty. The data may also supply important knowledge that university executives and others could potentially use in decision-making and strategic planning about formulating an operationalized definition of student engagement and best practices for promoting student engagement. These data may further aid in decision-making regarding hiring, training, marketing, and ongoing professional development for faculty and staff as well.

## **Chapter IV: Findings**

This chapter presents the results of the data collection and analysis based on the research questions presented in Chapters I and III of this dissertation.

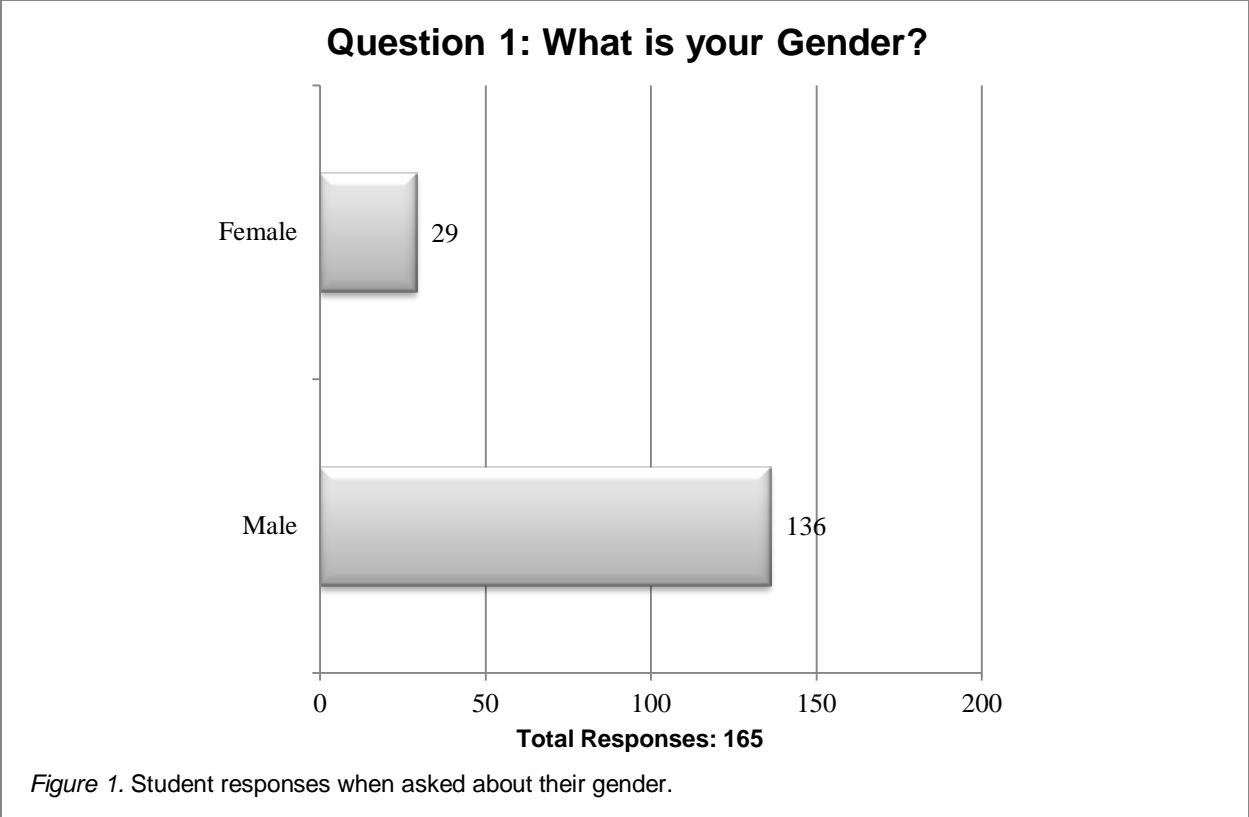
### **Response Rate**

The survey was distributed to 8000+ Online students and 700+ Online faculty. Thirty-four completed faculty surveys were received, for an approximate response rate of 4.9%. One hundred sixty-five completed surveys were received from students, reflecting an approximate response rate of 2.1%. One hundred ninety-nine completed surveys were received, for a total response rate of around 2.3%. While some respondents did not answer all survey questions offered, all of these surveys were considered acceptable and were included in the final data analysis. This low response rate may affect the study's validity in a negative way.

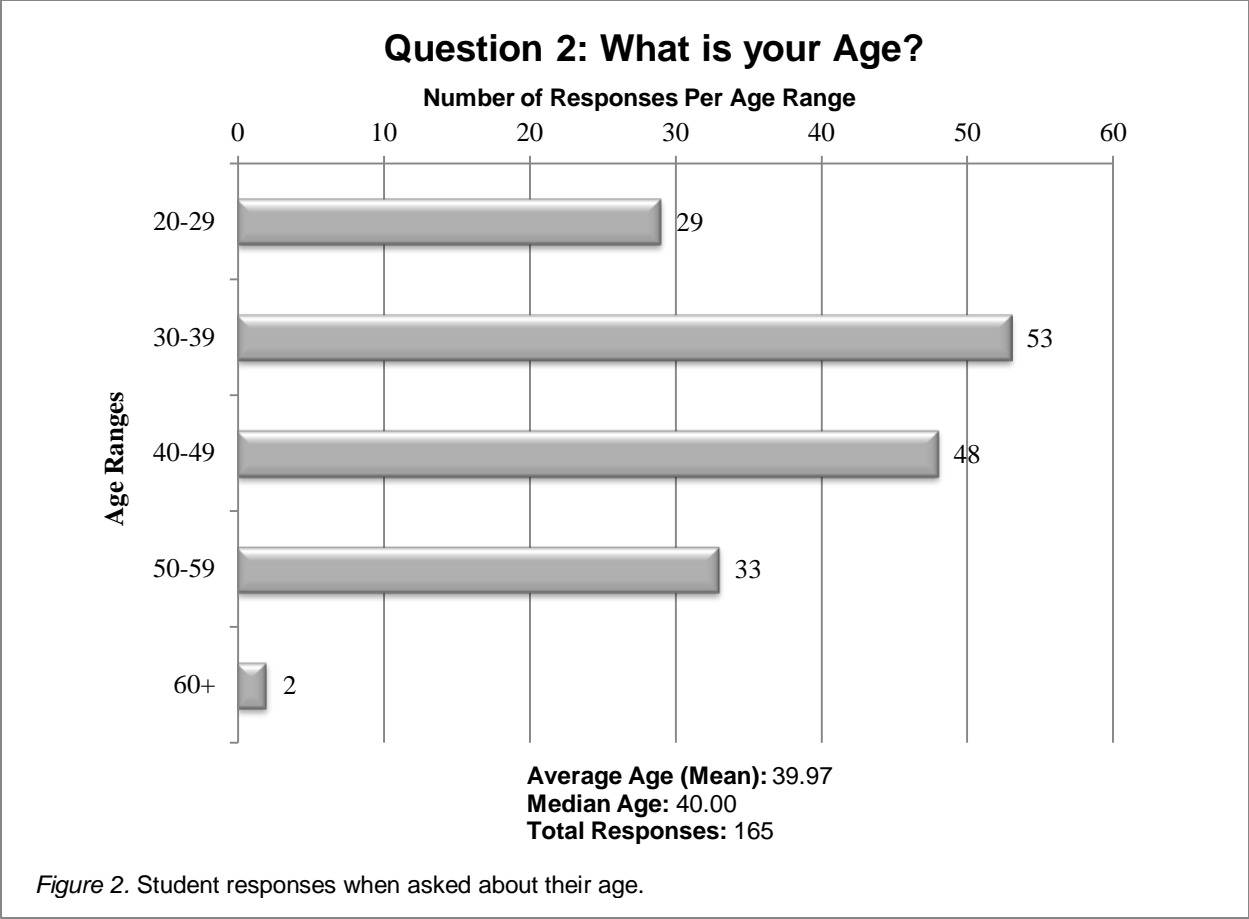
### **Demographics of Student Respondents**

Only student respondents were asked to provide their gender and age. Of the 165 student respondents, 136 were male (representing 82% of the respondents and 29 were female (representing 18%; see Figure 1 on next page). These findings approximate data from the university stating that the student population is around 75% male and 25% female (Holland Marketing, 2012), which may support reliability that the responses provide a representative sample of Online university students.

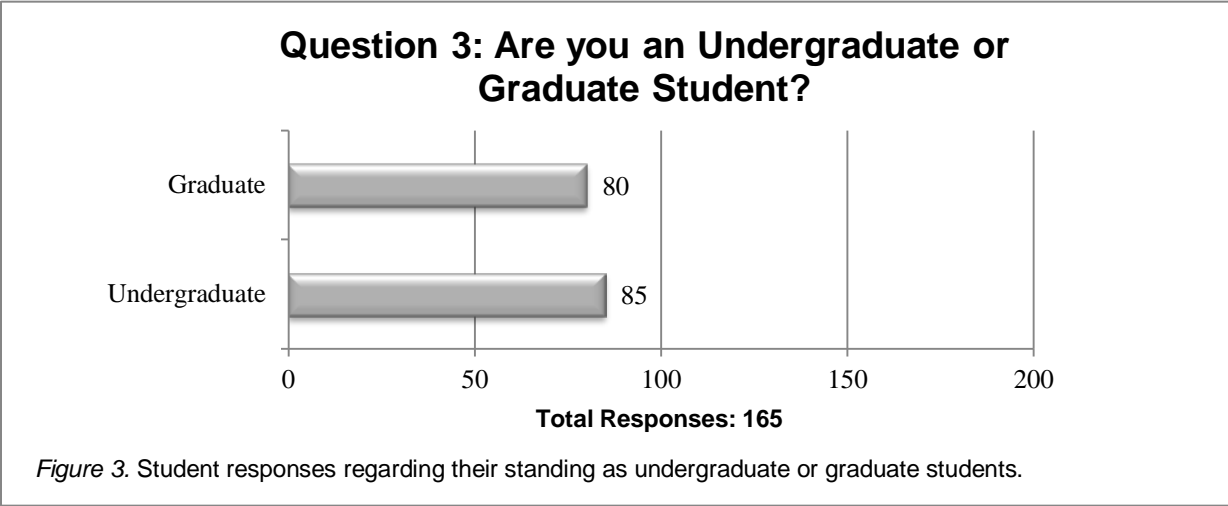




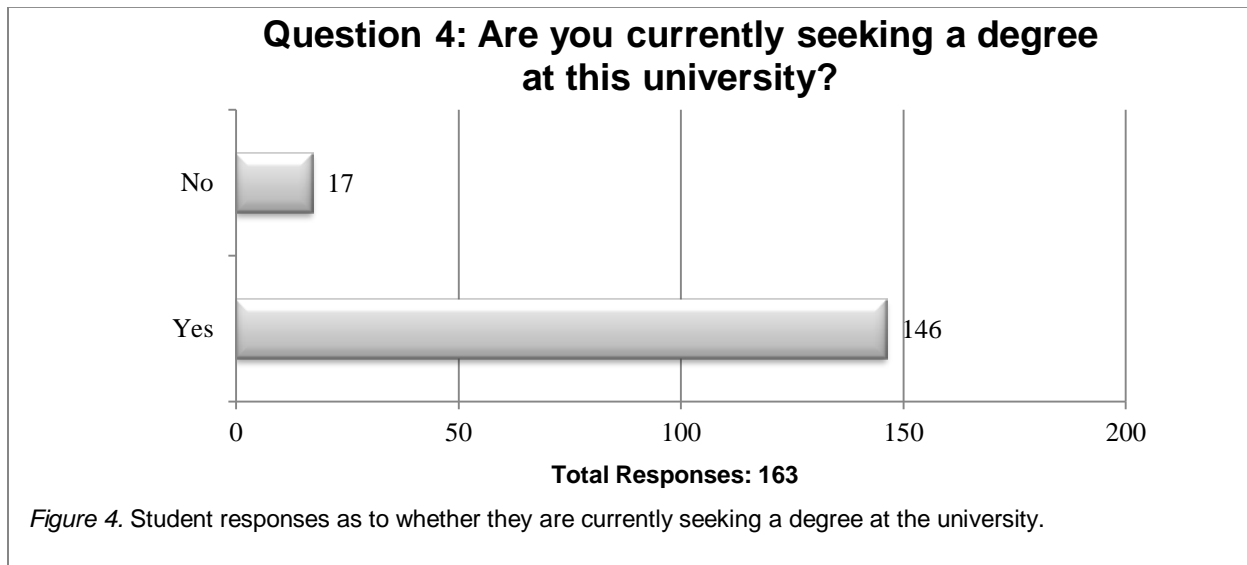
The average age of student respondents was 39.97, while the median age was 40.00 (see Figure 2). These findings again approximate data from the university stating that the average age of online students is 35 (Holland Marketing, 2012), further supporting the study's reliability. The largest number of respondents fell into the age range of 30-39, close to the age range of Millennials who would be around the ages of 34-37 around the time this study was completed, assuming that the oldest Millennials would have been born sometime between 1977 and 1980 (Tapscott, 2009). Therefore, the ages of the respondents may ultimately make consideration of Millennial online learning preferences and learning styles relevant.



Of the 165 student participants, 52% responded that they are undergraduates, and the remaining 48% self-identified as graduate students (see Figure 3).



Nearly all student respondents (90%) stated that they are seeking degrees at the university (see Figure 4).



Demographic data was not requested of faculty respondents.

### **Analyses of Student and Faculty Responses to Research Questions**

Students and faculty were asked to consider the same three definitions of student engagement taken from extant literature, and were provided the full text of the definitions as part of the surveys (see Appendices B and C). Students and faculty could see and refer back to these definitions while they were in the process of responding.

**Analysis of responses to research questions 1, 2, and 3.** Research Questions 1, 2, and 3 are:

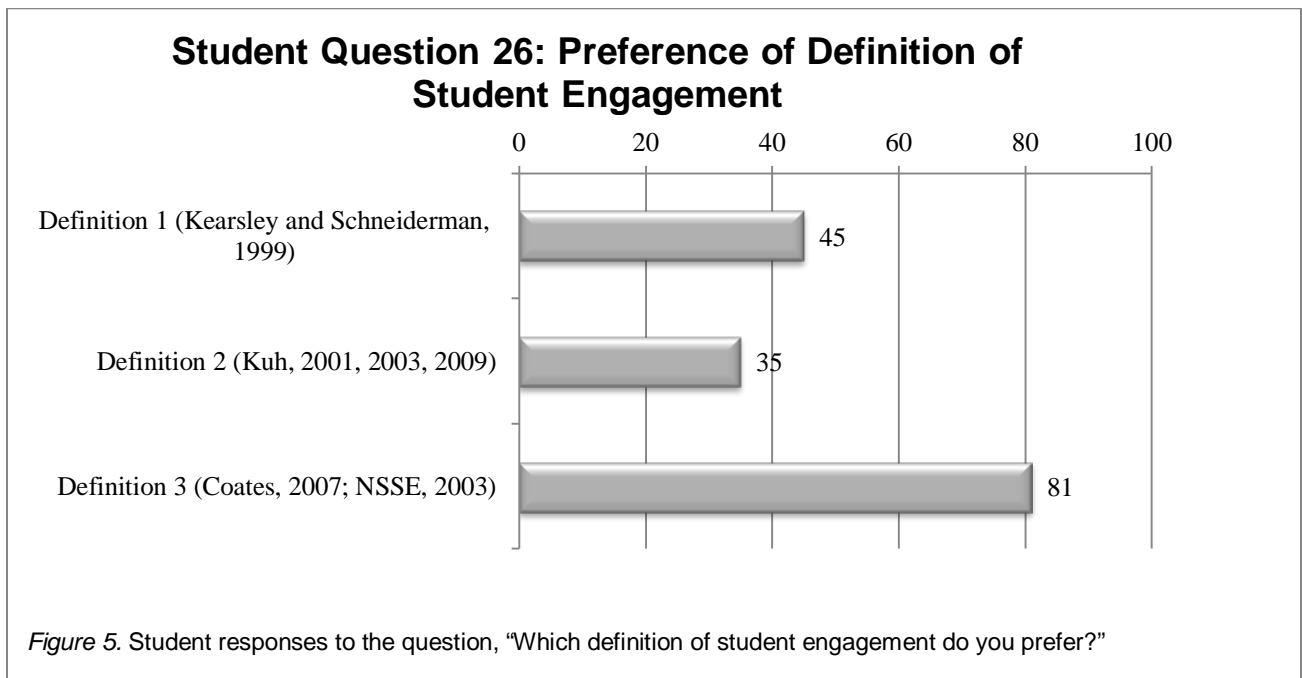
1. To which definition of “student engagement” (of three taken from the literature) do Online students most closely relate?
2. To which definition of “student engagement” (of three taken from the literature) do Online faculty most closely relate?
3. Is there a statistically significant difference between the definition of student engagement to which Online students and Online faculty most closely relate?

**Hypotheses.** The following hypotheses were applied to Research Questions 1, 2, and 3:

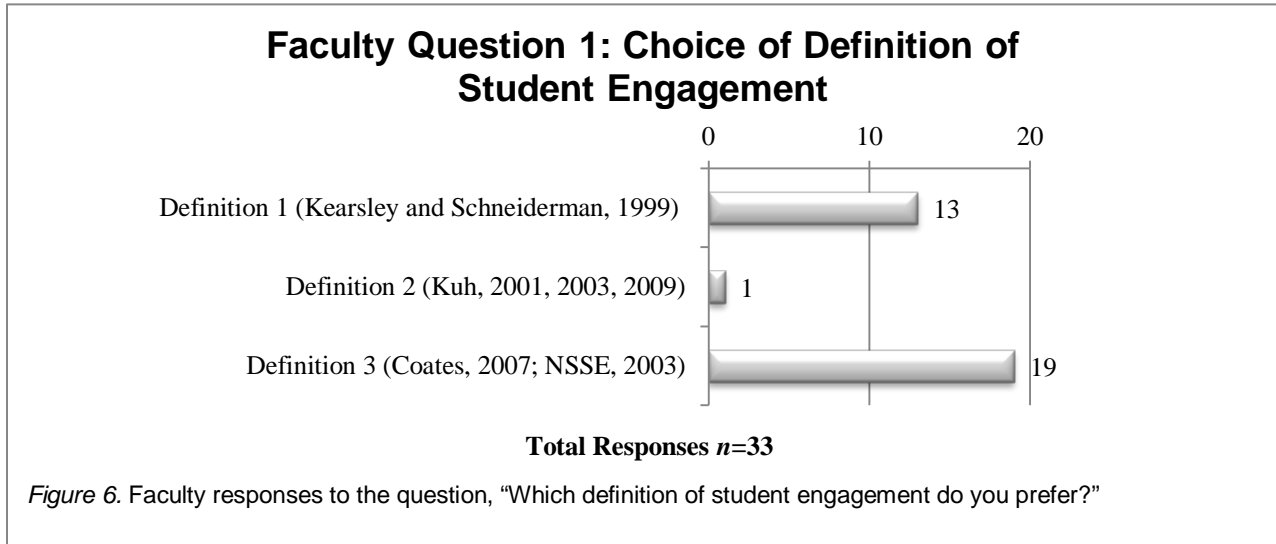
$H_0^1$ : There is no statistically significant difference between the definition of student engagement to which Online students and Online faculty most closely relate.

$H_1^1$ : There is a statistically significant difference between the definition of student engagement to which Online students and Online faculty most closely relate.

Of the 161 student responses received, about half (50.3%) indicated that they most closely related to the Coates (2007) and NSSE (2003) definition, followed by the Kearsley & Shneiderman (1999) definition at 28% and Kuh's (2009a) definition at 21.7% (see Figure 5).



Among 32 faculty responses received, 56.3% (19) said that they most closely related to the definition by Coates (2007) and NSSE (2003), 40.6% (13) to Kearsley & Shneiderman, and 3.1% (1) to Kuh (2009a; see Figure 6).



Faculty and student responses were cross-tabulated and Chi-Square (test of independence) analysis was applied, resulting in a *p*-value of .037 results (<.05; see Table 1):

Table 1

*Definition of Student Engagement Most Related to by Faculty and Students*

		<i>To which definition of student engagement do you most closely relate?</i>			
		Def 1	Def 2	Def 3	Total
		(K and S)	(Kuh)	(Coates/ NSSE)	
	Count	13	1	18	32
Faculty ( <i>n</i> =32)	% within Group	40.6%	3.1%	56.3%	100.0%
	% of Total	6.7%	.5%	9.3%	16.6%
	Count	45	35	81	161
Students ( <i>n</i> =161)	% within Group	28.0%	21.7%	50.3%	100.0%
	% of Total	23.3%	18.1%	42.0%	83.4%
	Count	58	36	99	193
<b>Total % of Total</b>		<b>30.1%</b>	<b>18.7%</b>	<b>51.3%</b>	<b>100.0%</b>

*Note. p-value=.05*

Therefore, the null is rejected and the alternate hypothesis is accepted: There is a statistically significant difference between the definitions of student engagement most related to by Online students and Online faculty.

While the percentages of faculty (56.3%) and students (50.3%) who said they most closely relate to Coates (2007) and NSSE's (2003) definition are relatively close in number, a far greater percentage of faculty (40.6%) chose Kearsley and Shneiderman's (1999) definition than did students (28%). Additionally, while only 3.1% of faculty said that they most closely relate to Kuh (2009a), 21.7% of students said that they most closely related to Kuh's definition.

The degree to which faculty responded that they did not relate to Kuh's definition may be noteworthy (and may be responsible for the statistically significant difference between the definitions of student engagement to which each response group most closely related). Kuh is an extremely prolific author in the area of student engagement, and as the one of the originators of the NSSE (2001) might be described as the father of modern standards and practices of data collection regarding student engagement. But despite this, only 3.1% of faculty responded that they most closely related to Kuh's (2009a) definition. Students, on the other hand, responded to Kuh's (2009a) definition far more favorably, with 21.7% saying that they most closely related to it. Without further research, it is difficult to say why this might be the case. One possibility might be that students who may have been in school after Kuh's definition of student engagement was widely distributed may have been exposed to curricula designed with Kuh's (2009a) definition in mind throughout their academic careers, while faculty may not have been (assuming that they were in school prior to the students). If faculty were either in school or taught when the Kearsley and Shneiderman (1999) definition was more popular in academic circles, that may explain why they responded far more favorably to it than to Kuh's definition.

As to why both students and faculty may have responded that they relate to the Coates (2007) and NSSE (2003) definition to a nearly equal degree, familiarity with curricula designed based on the principles discussed in the Coates (2007) and NSSE (2003) definition may provide one explanation. The Coates (2007) and NSSE (2003) definition, however, has its roots in Kuh's (2009a) definitions; Kuh, in fact, played a major role in creating the NSSE (2003) definition that has been combined with Coates' (2007) definition. Consequently, the Coates (2007) and NSSE (2003) definition may represent an evolution or variation of Kuh's (2009a) definition, and may have made its way into the modern academic environment more thoroughly than the other two definitions provided to respondents. Much more research is necessary in order to construct hypotheses and tests to find out why student and faculty responded to the definitions as they did.

**Analysis of responses to research questions 4, 5, and 6.** Research Questions 4, 5, and 6 are:

4. Do students feel that Online courses are engaging, based on the definition of student engagement to which they most closely relate?
5. Do faculty feel that Online courses are engaging, based on the definition of student engagement to which they most closely relate?
6. Is there a statistically significant difference between student and faculty views of current levels of student engagement in Online courses?

**Hypotheses.** The following hypotheses were applied to Research Questions 4, 5, and 6:

$H_0^2$ : There is no statistically significant difference in the degree to which students and faculty feel that Online courses are engaging.

$H_1^2$ : There is a statistically significant difference in the degree to which students and faculty feel that Online courses are engaging.

Cross tabulation and Chi-Square analysis (test of independence) of quantitative responses to these questions resulted in a  $p$ -value of .929 ( $>.05$ ), indicating no statistically significant difference between the two subject groups. Therefore, the null is accepted: There is

no statistically significant difference in the degree to which students and faculty feel that Online courses are engaging (see Table 2).

Table 2

*Do Faculty and Students Find Online Courses Engaging Based on Their Preferred Definition of Student Engagement (Responses of Somewhat Recoded )?*

		<i>Do you feel that Online's courses are engaging?</i>		
		NO	YES	TOTAL
Faculty ( <i>n</i> =30)	Count	9	21	30
	% within Group	30.0%	70.0%	100.0%
	% of Total	5.5%	12.9%	18.4%
Students ( <i>n</i> =133)	Count	41	92	133
	% within Group	30.8%	69.2%	100.0%
	% of Total	25.2%	56.4%	81.6%
Total ( <i>n</i> =163)	Count	50	113	163
	% of Total	30.0%	69.3%	100.0%

*Note.* *p*-value=.05

This survey question was also designed to gather qualitative data, and participants were given the opportunity to type in their own text-based, natural language responses (“Yes,” “No,” “Somewhat,” “Sort Of,” “Not at all,” “Sometimes,” etc.) and to further explain their reasoning behind their responses. If a given response showed any negative equivocation whatsoever (e.g., “Kind of; I didn’t really think so, though”), it was initially calculated as a response of “no.” Responses that were equivocal but more positive (e.g., “They were mostly okay”) were recoded as “Yes.” This was done at the suggestion of the Manager of Survey Research at the testing institution. Twenty-seven equivocal responses were recoded; two were recoded as “Yes,” and twenty-five were recoded as “no.”

After recoding, a little more than two-thirds of each group—70% of faculty and 69.2% of students—responded “Yes” to this question. Students (30.8%) and faculty (30.0%) responses of “No” again reflected nearly identical percentages. Aggregated totals are also similar, with 69.3% of all respondents saying “Yes” and 30% saying “No.”



These data were further analyzed with equivocal responses recoded as “Somewhat” (see Table 3).

Table 3

*Do Faculty and Students Find Online Courses Engaging Based on Their Preferred Definition of Student Engagement (Responses of Somewhat Included)?*

		<i>Do you feel that Online's courses are engaging?</i>			
		NO	SOMEWHAT	YES	TOTAL
Faculty	Count	8	2	20	30
	% within Group	26.7%	6.7%	66.7%	100.0%
	% of Total	4.9%	1.2%	12.3%	18.4%
Students	Count	18	24	91	133
	% within Group	13.5%	18.0%	68.4%	100.0%
	% of Total	11.0%	14.7%	55.8%	81.6%
Total	Count	26	26	111	163
	% of Total	16.0%	16.0%	68.1%	100.0%

Clear responses of “Yes” remained about the same in these recalculated data, with 66.7% of faculty, 81.6% of students, and an aggregated 68.1% of respondents saying that they do feel that Online’s courses are indeed engaging.

These recalculations also provide more insight into how many students and faculty felt that they could not answer whether they find Online’s courses to be engaging with a definitively positive response. Only two faculty members said that they felt that Online’s course are “Somewhat” engaging, representing 6.7% of total faculty responses and just 1.2% of total responses overall.

Among students, however, a discrepancy emerged. When responses of “Somewhat” were included, responses of “No” and “Somewhat” revealed an exact 50/50 split, with 26 responses each. But each set of 26 represents a different percentage of student responses; clear responses of “No” represent 11% of total student responses, while “Somewhat” represents 14.7% of student responses.

The result after recalculating these data with responses of “Somewhat” included also shows no statistically significant difference among the responses, based on a new  $p$ -value of .098 ( $>.05$ ). Therefore, when responses of “Somewhat” are included, the null is accepted once again: There is no statistically significant difference in the degree to which students and faculty feel that Online courses are engaging.

Based on the inclusion of “Somewhat” as a calculated response, the hypotheses should be reworded to more accurately reflect that this result occurs specifically when responses of “Somewhat” are left intact not recoded. The original hypotheses did not adequately account for the possibility of responses that could be interpreted as “Somewhat.”

While not statistically significant, recalculation of the data related to Research Questions 4, 5, and 6 may indicate that faculty who said “No” were more resolute in their responses to the question of whether they feel that Online’s courses are engaging, while students were about equally likely to say either “No” or “Somewhat” (and slightly more likely to say “Somewhat”). The recalculation also revealed that students who responded that they felt “Somewhat” engaged were, in essence, saying that they felt engaged some of the time, but not all of the time. This result may be worthy of further exploration.

**Analysis of Responses to Research Question 7.** Research Question 7 follows:

7. What kinds of course activities do students and faculty find to be most engaging?

In this question, respondents were asked for qualitative responses in their own natural language in an effort to gain insight into what type of course activities each individual finds most engaging. This question was designed to be open-ended in an effort to avoid a leading question so that responses supported the study’s reliability by allowing respondents to answer as honestly as possible.

Answers to this question varied greatly, as expected given that each respondent was free to provide his or her own opinion(s). Responses from faculty and students were examined for commonalities, which served as the basis for organizing the answers into categories. Respondents were not prompted to use particular terms; all responses are in their own natural language. All verbatim responses received are included in Appendices D and E.

Based on the responses received, faculty responses were categorized into Discussion Boards, Group Activities, Feedback from Instructor, Writing Assignments/Papers, Personal Experience/Narrative, Projects, Opportunities for Research, Challenges to Learn More, Case Studies and Blogs/Wikis/Journals.

Among faculty respondents, the top three activities they said are most engaging are Discussion Boards at 43%, Group Activities at 11% and Writing Assignments and Feedback from Instructor, tied at 9% each. See Figure 7 (on next page) for more information.

## Course Activities that Faculty Find Most Engaging

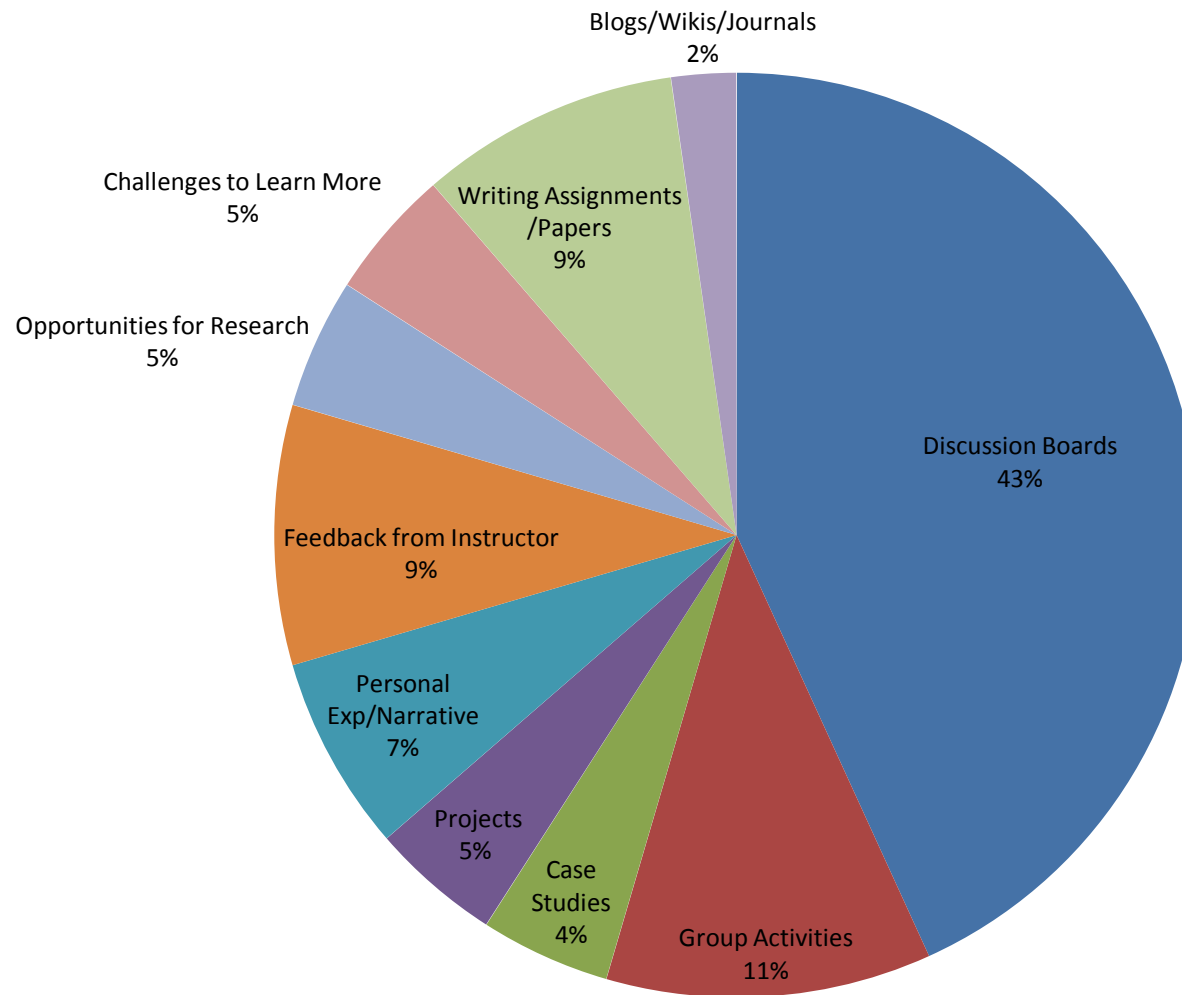


Figure 7. Course Activities that Faculty Find Most Engaging ( $n=31$ ; many respondents listed multiple activities).

Student respondents included more types of activities which they find engaging, resulting in more categories among the responses. Many of the categories, however, matched the categories proposed by faculty in spirit if not verbatim. For example, both groups included participants who stated that *Feedback from Instructor* supports student engagement. But some students also noted that *Feedback from Other Students* also helps increase their engagement levels, while no faculty responses mentioned this.

Like faculty responses, student responses are broken down into the following categories: *Discussion Boards, Writing Assignments/Papers, Personal Experience/Narrative, Group Activities, (Individual) Projects, Opportunities for Research, Challenges to Learn More, Case Studies, Blogs/Wikis/Journals, and Feedback from Instructor*. But student responses also suggested these additional categories: *Feedback from Students, Presentations, Streaming Lectures, Videos, Critical Thinking/Problem Solving Activities, Assignments, Readings, Evaluation/Quizzes/Exams, and Chat*.

For students, the top three most engaging activities are *Discussion Boards* at 35%, *Group Activities* at 14% and *Feedback from Instructor* at 9%. See Figure 8 (on next page) for more information.

## Course Activities that Students Find Most Engaging

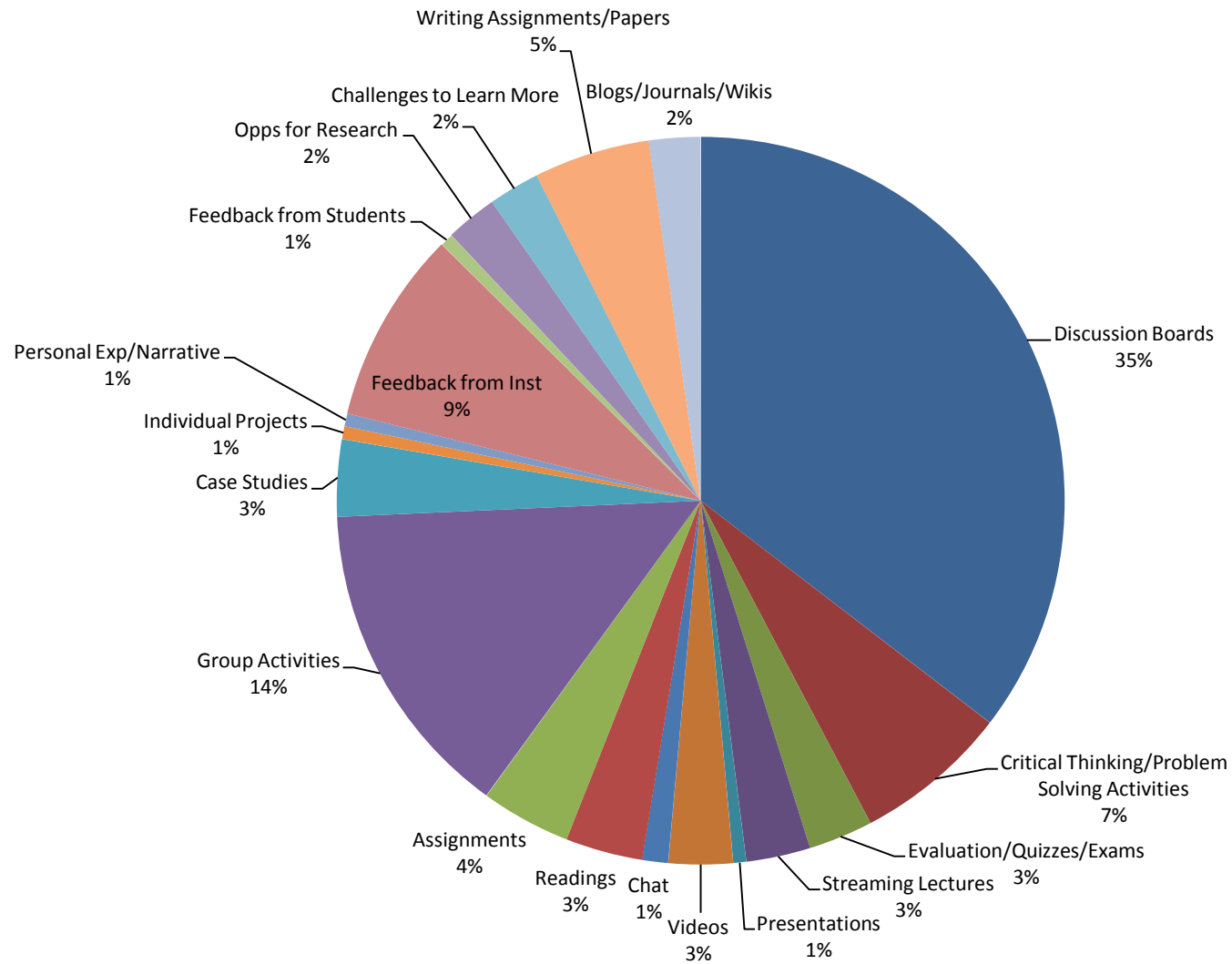


Figure 8. Course Activities that Students Find Most Engaging (n=132; many respondents listed multiple activities)

Both groups chose the same activities as their top three most engaging course activities: *Discussion Boards*, *Group Activities* and *Feedback from Instructor*, in the same order. The only exception is the faculty respondents' addition of *Writing Assignments/Papers*, which tied with *Feedback from Instructor* in their perceived power to promote engagement at 9% (again, in both groups).

### **Summary of Findings**

The response rate to the surveys was low (2.1% from students; 4.9% from faculty; 2.3% overall), which may raise concern about the reliability of the data. But the study's reliability was alternately supported by some of the findings. Demographics of gender and age among student respondents closely match the known demographics of gender and age. This match may indicate that the student sample group is a true representation of Online's student population.

Both faculty and student respondents overwhelmingly stated that the definition of student engagement from Coates (2007) and NSSE (2003) was the one to which they most closely related. Students chose the definitions from Kearsley and Shneiderman (1999) and Kuh (2009a) to an approximately equal degree. Faculty, however, largely rejected Kuh in favor of Kearsley and Shneiderman as their second choice. It may be interesting that Kuh's definition was rejected by the faculty, as Kuh is a well-known and well-respected researcher in the field of student engagement, and he was a driving force behind the NSSE.

Approximately two-thirds of student and faculty respondents said that they feel that Online's courses are engaging, while the remaining third said that either Online's courses are somewhat engaging or not engaging. Students were slightly more likely to provide a response of "Somewhat" than "No," while to faculty, "No" meant "No."

When asked for their opinions on what course activities they find most engaging, many similarities emerged among student and faculty responses. Responses from both sample groups could be organized into the following categories:

- *Discussion Boards;*
- *Group Activities;*
- *Feedback from Instructor;*
- *Writing Assignments/Papers;*
- *Personal Experience/Narrative;*
- *Projects;*
- *Opportunities for Research;*
- *Challenges to Learn More;*
- *Case Studies; and*
- *Blogs/Wikis/Journals.*

Student responses of most engaging course activities included other categories:

- *Feedback from Students;*
- *Presentations;*
- *Streaming Lectures;*
- *Videos;*
- *Critical Thinking/Problem Solving Activities;*
- *Assignments;*
- *Readings;*
- *Evaluation/Quizzes/Exams; and*
- *Chat.*

Faculty and student groups both chose the same three course activities as the most engaging, in the same order:

1. *Discussion Boards;*
2. *Group Projects; and*
3. *Feedback from Instructor.*

The only difference was the addition of *Writing Assignments/Papers* by faculty (in a tie for third place).



## **Chapter V: Recommendations**

The findings that faculty and student responses to their respective survey questions were similar in so many respects inspire a range of new considerations. .

### **Results are from Unidentified Courses**

The survey was administered to the university's general population of Online students and faculty. The responses would likely provide much more specific information if individual courses had been surveyed. Surveying courses individually could provide a better picture of views of student engagement by students and faculty in specific courses. Such information could prove invaluable in determining the actual levels of student engagement by course, major, program, college, etc. Surveys by individual course were not possible, however, due to technological and time constraints.

### **Evidence of Possible Survey Bias**

Given that the responses of students and faculty were similar in so many ways, it is possible that one or more types of bias may have inadvertently been built into the surveys.

**Regarding research question 7.** As discussed in Chapter 4, particularly in regard to responses to Research Question 7: What kinds of course activities do students and faculty find to be most engaging? Faculty and student responses were nearly identical in a number of instances. If it is true that the faculty and student groups gave similar responses entirely on their own, it brings about some interesting considerations.

The surveys were purposefully distributed to faculty who had taught and students who had taken at least one of the university's online courses. The university offers around 250 separate courses in a variety of academic disciplines. Some courses run consistently—often in several sections of the same course during each nine-week term—while others are only offered periodically. Due to technological and time constraints during the survey data collection period, respondents were not asked which course(s) they had taught or taken. A subsequent study that

surveys and organizes responses by individual course might provide very different responses, along with a clearer picture of which individual courses faculty and students find engaging.

The university's ID department uses a common template designed to provide many of the same items in each online course. Discussion boards and group activities are included in a large number of the university's online courses. Additionally, faculty are regularly encouraged to provide consistent feedback to students throughout each course term. In fact, the need for consistent feedback is emphasized in faculty training sessions offered by the university's Center for Teaching and Learning Excellence (personal communication, 2011-2013). Many researchers suggest that incorporating online discussion boards, group projects and consistent feedback into courses should increase student engagement (Alutu, 2006; Chickering & Ehrmann, 1996; Dixson, 2010; Dobbs, Waid, & del Carmen, 2009; Robinson, 2006).

It could be said that many of the school's Instructional Designers see elements such as discussion boards, group activities and consistent feedback as standard and are therefore necessary in the courses. While faculty Course Developers (Subject Matter Experts in their respective fields) typically design and write content for each course, the Course Developers often work very closely with one or more Instructional Designers on course development as well. In this environment, it may be assumed that many courses may be structured in very similar ways. Therefore, students and faculty may be exposed to similarly designed courses within a program or across disciplines. This may be partially responsible for the similarity in responses on the part of students and faculty.

Research Question 7 was intended to collect data about the respondents' own opinions about what types of course activities they felt were most engaging based on what they have experienced throughout their entire academic lives, whether inside or outside of this university. This, however, may not have been clear in the wording of the question. A long-held educational maxim states that students learn by scaffolding onto prior knowledge, or building their learning

based on what they already know (Bruner, 1957, 1960, 1961, 1966; Piaget, 1985; Vygotsky, 1978), as well as by what they may have been exposed to as appropriate responses and behaviors (Bandura, 1977).

Since faculty and student responses to this Research Question 7 were so similar, it is possible that they may have responded by providing the activities which they found to be most engaging among the activities to which they were exposed in the courses that they either taught as faculty or took as students only at this particular university. Subsequent surveys which clarify the wording of Research Question 7 to more fully explain that respondents may cite *any* course activities that they find engaging—regardless of whether the courses to which they were exposed at this university offered these activities or not—may serve to provide more information. Clarification on what activities faculty and students find to be engaging may have implications for instructional design and development going forward.

After reviewing the content and structure of approximately 35 of Online's courses, the Principal Investigator designed the survey to match the format of the courses. It may be reasonable to consider that the Principal Investigator's familiarity with the structure and content of the university's asynchronous online courses may have biased the survey questions toward material found in existing courses. The surveys were piloted once and then edited prior to distribution for this study. Ideally, the surveys should have been piloted multiple times and further edited prior to distribution for this study.

### **Implications and Inspiration for Further Research**

**Regarding research questions 1, 2, and 3.** As was the case regarding Research Question 7, faculty and students responded very similarly to Research Questions 1, 2, and 3. These research questions collectively sought to discover to which definition of student engagement (of three taken from the literature) faculty and students most closely related, and whether there was a statistically significant difference between the choices of the two groups.

As an institution, Online has yet to conduct formal research and collect data on levels of student engagement as of this writing. Faculty and student groups said that they most closely related to Definition 3 (Coates, 2007; NSSE, 2003) to a very similar degree. If Online administration wants to determine a formal definition of student engagement which could be operationalized and go on to support more research, they may wish to base any further research projects on the Coates (2007) and NSSE (2003) definition as a starting point. It may also be advisable to formally administer the NSSE or AUSSE (or a modified version of the NSSE that Coates and his colleagues created for institutions of higher education in Australasia) to the Online student body at large and consult with faculty about the results to find out if this definition might be acceptable going forward.

Of the three definitions provided, Definition 3 was the longest. It is possible that respondents chose Definition 3 simply based on this fact. Definition 3 could also be described as the most comprehensive definition, as its length comes from the number of specific issues which the definition endeavors to address. Respondents may have chosen Definition 3 based on its comprehensiveness.

Finally, Definition 3 included the phrases *active and collaborative learning; participation in challenging academic activities; formative communication with academic staff; involvement in enriching educational experiences; and feeling legitimated and supported by university learning communities*. Activities such as discussion boards, group projects and feedback from instructors fall into these categories, and these were the top three types of activities which both sample groups said they found to be most engaging. If students and faculty feel that the university's courses offer the learning environments and activities discussed in Definition 3, this may account for both groups saying that they most closely related to that definition.

**Regarding research questions 4, 5 and 6.** Collectively, Research Questions 4, 5 and 6 were designed to find out whether faculty and students find the university's online asynchronous courses to be engaging, and whether there is any statistically significant difference between the two groups. The resulting data illustrated in Table 2 in Chapter IV show that around 70% of both subject groups stated that they feel that the university's asynchronous courses are engaging based on the definition they chose. An aggregate of both groups shows that around 30% of respondents said that they do not find Online's courses to be engaging.

These findings could be considered in two ways. Given that over two-thirds of respondents stated that they find the university's online courses to be engaging, this could be viewed as a rousing success for Online. These findings reveal that a majority of Online students and faculty said that the courses are engaging, and this could be certainly be viewed as a success.

One could also, however, consider the findings that nearly a third of the respondents did not find the courses to be engaging. While this may come across as a rather negative position, a third of respondents could be viewed as a significant enough number to represent cause for concern regarding current levels of student engagement.

For example, the demographic data regarding gender and age collected from student respondents revealed that their demographics closely match the demographics of Online students as collected and distributed by the university (Holland Marketing, 2012). This finding supports the reliability that students who responded to this study are representative of the true demographics of Online's students, making it likely that the survey results could indeed be generalized across Online's general student population. If the findings are generalized across Online's total student population of 23,000+, one-third of this total is approximately 7600 students. If this large a number of students do not feel that they are engaged in Online's courses, this may mean that potentially unacceptable number of Online students are not getting

all they could out of their educational experience (Coates, 2005; Krause, 2005; Krause & Coates, 2008). Students who are not engaged also may communicate negative messages about their experiences at the university to fellow students and others, and are not likely to maintain a relationship with the university as an alum, including a lack of desire to donate to the university after graduation (Coates, 2005). Negative comments from students about their experiences and a lack of alumni donations reflect poorly on an institution in the long term (Carini et al., 2006; Coates, 2005; Kuh, 2009a, 2009b; Markwell, 2007; Shulman, 2002).

Verbatim responses from faculty and students regarding their personal views on levels of student engagement in the university’s asynchronous online courses can be found in Appendices D and E. While most responses were positive, some of the negative responses indicate a discernible passion, including comments from some respondents—both students and faculty—who said that they felt that their time in Online courses was actually being wasted.

**Student Views of Student Engagement by Gender.** Due to the unusual demographics of Online’s students (75% male), student responses were further analyzed by gender (see Table 4).

Table 4

Views of Student Engagement by Gender

		<i>Do you feel that Online’s courses are engaging?</i>			
		NO	SW	YES	Total
Male ( <i>n</i> =109)	Count	13	19	77	109
	% of Gender	11.9%	17.4%	70.6%	100%
	% of Total	10.0%	14.6%	59.2%	83.8%
Female ( <i>n</i> =21)	Count	3	5	13	21
	% of Gender	14.3%	23.8%	61.9%	100%
	% of Total	2.3%	3.8%	10.0%	16.2%
Total	Count	16	24	90	130
	% of Total	12.3%	18.5%	69.2%	100.0%

These results show that over two-thirds of males (70.6%), nearly two-thirds of females (61.9%), and 69.2% of total student respondents said “Yes” in response to the question of whether they find Online’s courses to be engaging—clearly positive for the institution.

Male students answered “No” 11.9% of the time and “Somewhat” 17.4% of the time to the same question, for a collective total of 29.3% of responses from men reflecting that they chose not to provide a definitively positive response to the question of whether they find Online’s courses to be engaging.

Among females, 14.3% responded “No” and 23.8% responded “somewhat,” for a total of 38.1% of females choosing not to provide a definitively positive response to the question of whether they find Online’s courses to be engaging.

It has been established that the student population of this university is around 75% male (Holland Marketing, 2012). If current enrollment is around 23,000, then around 17,250 of Online students are male and the remaining 5750 (25%) of students are female.

Using 17,250 as the approximate number of Online male students, 11.9% of this figure is 2053 (rounded up), and 17.4% is 3002 (rounded up). When generalized over Online’s entire student population, this could mean that approximately 5055, or 29.3% of Online’s male students would choose not to say definitively that they find Online’s courses to be engaging.

Regarding female respondents, using 5750 as the approximate number of current female Online students, 14.3%, or 822, responded “No” to this question, and 23.8%, or 1369, responded that they find Online courses to be “Somewhat” engaging. If these figures are generalized over Online’s student population, this adds up to 2191, or 38.1% female Online students who may choose not to say definitively that they find Online’s courses to be engaging.

Again, the results examining views of engagement by gender could again be viewed in multiple ways. There is no doubt that a positive response rate of approximately two-thirds from all students to the question of whether they feel Online’s courses are engaging is a positive

result. But if almost 30% of male students and nearly 40% of female students cannot say with alacrity that they feel engaged by Online's courses, this may be viewed as a reason to explore the issue further. If only the responses of "No" are considered, it may mean that 2053 male and 1369 female students do not feel engaged in Online courses, for a total of around 3422 students, or around 14.9% of Online's total student population. If responses of "No" and "Somewhat" are added together, this total increases to around 7246 students, or around 32% (rounded up). If this result can be generalized across Online's entire student population, it may mean that nearly a third of Online students would choose not to say that they find Online's courses to be engaging.

Based on these findings, Online courses do appear to be engaging to the majority of students, as evidenced by a response of "Yes" from more than two-thirds of students surveyed when asked whether they feel that Online's courses are engaging. But in order to better serve the needs of the remaining approximately one-third of students who said they do not feel Online courses as definitely being engaging, and given the unusual demographics of Holland U's student population of 75% male and 25% female, research into the area of the neuroscience regarding learning preferences and characteristics of males vs. females may be one area to explore in order to learn more about how to more fully engage learners of both genders.

**Characteristics of Male Learners.** Brizendine (2011) notes the tendency of boys and young men to demonstrate a trait known as embodied cognition. She uses an example of boys playing video games; while the boys play video games, whether they are gesture-based (Wii, Xbox Kinect) or traditional (PS3/4 console, with no motion), the boys will move as they play and pay very close attention to the movement of the avatars on the screen. Functional magnetic resonance imaging (fMRI) scans during videogame play revealed that as a boy watches one of the *Super Mario Brothers* jump in a video game, neurons in the boy's brain fire as though he



were about to jump himself. Brizendine (2011) contends that this shows that motion is very important to male learning.

Brizendine (2011) also suggests that mental rotation of objects is a critical difference between the cognitive strategies of male and female brains. Males solve problems by using the visual cortex to spatially rotate objects in their heads as they devise solutions. The motion sensors in both hemispheres of the male brain are essentially locked on at all times. This may be of particular interest in regard to instructional and curricular design at this university, as so many students (of both genders, but statistically more male students) are also trained pilots who may naturally be oriented to visual stimuli, motion, speed and velocity. A casual observance of the large number of high-performance motorcycles in the university parking lots may also serve as “informal empirical evidence” of this. This dissertation has also established that the university has a large number of students in the US military. While exact statistics on how many US military service members may ride motorcycles could not be found as of this writing, the US Department of Defense (USDOD) sees fit to maintain a *Military Rider* website containing a plethora of articles about motorcycle safety (USDOD, 2013).

Brizendine (2011) also discusses a study of young boys and girls which researched differences between the genders in how they explained their strategies for solving mathematical problems. The boys tended to learn the math involved much faster than did the girls. When asked to explain how they arrived at the answers, the boys expressed their answers through movement, and used far fewer words than the females did. According to Brizendine (2011),

“The boys’ movements *were* their explanations. Words, in this instance, were a hindrance.” (p. 27)

In her book *Teaching the Male Brain: How Boys Think, Learn and Feel in School*, James (2007) offers some suggestions for educators as they consider instructional and curriculum design for the male brain, noting that male learners:

- Attach a great deal of importance to learning facts and figures, and tend to develop “encyclopedic knowledge” (p. 62) of them;
- Are not as verbally fluent as females—and don’t want to be;
- Have better knowledge and memory recall of facts than females, particularly in areas that require spatial recall, such as geography and recalling directions; and
- Have difficulty in remembering learned content in context as compared to females. For example, females may ultimately do better on tests because they remember “what the teacher said” (p. 64) and can apply it to the coursework more readily than males.

James (2007) goes on to offer some suggestions as to how to plan curricula for the male brain:

- Males may confuse learning facts and figures with truly understanding course material. Offer opportunities to apply learning in context;
  - If given a choice, men prefer to read material in which they have an active interest. To that end, include reading materials with a clear, applicable relationship to the topic being studied and keep the need to read to a minimum;
  - Encourage males to take great care when crafting responses to questions;
  - Encourage males to create outlines for projects, papers, etc.;
  - Include visual elements in courses—particularly ones that move, such as video;
  - Avoid lessons that require males to listen to audio for long lengths of time, as males’ hearing is typically inferior to that of females, largely due to hormonal differences and changes over the course of a male’s life (Brizendine, 2011)
  - Offer organized practice prior to heavily weighted exams, papers, etc. in order to avoid test anxiety and a resultant rise in cortisol levels;
  - Emphasize spatial relationships and activities involving same
- ;
- Design activities to encourage male learners to see the forest rather than just the trees in regard to the topic being studied, as male learners have trouble with this in comparison to females;

- Incorporate group activities as appropriate to give males a chance to collaborate with others and see that not everyone thinks as they do;
- Encourage explanations through analogy rather through facts, which may be a natural male tendency; and
- Provide structure in all lessons, and stick to it.

**Characteristics of female learners.** Brizendine (2007) writes that male and female brains are naturally different, explaining that female brains have physically larger communication and emotional memory centers and can read cues in others better than male brains. This means that from a neuroscientific perspective, females value “communication, connection, emotional sensitivity, and responsiveness” (p. 13) far more than males.

James (2009) posits that an increased ability to hear and communicate as compared to males makes it important to include auditory and verbal tasks in learning specifically designed for females. She suggests that educators should consider the following types of lessons and expectations when designing educational environments with the needs of female learners in mind:

- Provide written directions and explanations;
- Encourage note taking;
- Introduce lessons through verbal and written means if possible;
- Employ storytelling;
- Enhance graphical information and visual learning activities with verbal explanations;
- Expect to encourage females to participate in kinesthetic learning activities, as they may shy away from them;
- Expect to encourage females to participate in activities rather than simply observe them;
- Provide multiple opportunities to learn terms and symbols; and
- Use physical objects to illustrate abstract concepts (such as blocks to represent variables in mathematical equations).

- When planning group activities
  - make sure roles for group members are clearly defined;
  - provide opportunities to change groups periodically (if possible); and
  - divide grading for group projects into a group grade and an individual grade to encourage equal work from all group members .
- Provide clear rules, learning objectives, and rubrics so that female learners can check for themselves that the grades they receive are “fair” and objective rather than subjective.

Much of the extant data on male vs. female learning styles and brain-based learning relates to the brains of young children and teens. Research on gender difference in learning styles among college-aged and adult students is sorely lacking, and this dearth of information may indicate a need as well as an opportunity to explore the topic of brain-based learning and gender differences in college and adult students.

**Characteristics of Adult Learners.** Given that the vast majority of Online’s students are adults, it may also be relevant to also examine characteristics of adult learners in order to better understand what learning activities may engage them.

In their seminal book *The Adult Learner*, Knowles, Holton and Swanson (2005) do not separate adult learners into groups by gender. They do, however, offer *The Andragogical Model* which list several characteristics of adult learners which may be important to consider when designing instruction for adult learners:

1. The need to know. Adults must know *why* they need to learn something, even before they start learning it.
2. The learners’ self-concept. Adults appreciate autonomy, possess a self-concept of being responsible for their own decisions (and fate), and have a need to be seen as capable of self-direction. Adults resent having the will of others imposed upon them, and resist it.
3. The role of learners’ experiences. Adults come into any learning environment with a vast amount of individual experience. Emphasizing experiential learning in curricula designed for adult learners allows them to tap into their individual knowledge and experiences. Activities such as group discussions, simulations, problem-solving activities, case studies, labs and the opportunity to help peers all facilitate this.
4. Readiness to learn. Adults naturally become ready to learn things that will help them know and do whatever may be necessary to cope with real life effectively. Relevance is a key component in lesson planning (Artino, 2009).

5. Orientation to learning. Adults are life-centered in their approach to learning, and are motivated to learn tasks and strategies that will help them solve problems. Adults learn best when material is presented in the context of how it applies to real world situations.
6. Motivation. While adults do respond to external motivators such as higher salaries and prestige, they are even more motivated by internal factors such as self-esteem and job satisfaction (Knowles et al. 2005).

**Motivation and Engagement.** Knowles et al. (2005) and Fredricks et al., (2004) refer to the learner's need for autonomy within learning environments. Deci and Ryan (2008) also address this within their Self-Determination Theory (SDT) of motivation, based in research which finds that people in general are motivated more by intrinsic factors (the drive to learn and improve, increasing one's sense of self-efficacy, etc.) than by extrinsic factors such as money, fame or other rewards. In fact, in his research, Edward Deci found that external rewards can ultimately have a negative effect on motivation; if rewards are offered and then taken away, motivation to complete tasks actually goes down (Pink, 2010). Deci went on to conduct further research with Richard Ryan, and the team ultimately developed their Self-Determination Theory, which finds in essence that people do things largely just because they want to. Skinner and Pitzer (2012) even suggest that SDT itself is a source of engagement.

Within SDT, Deci and Ryan posit that a key differentiation should be made between *autonomous motivation* and *controlled motivation*. According to Deci and Ryan, autonomous motivation involves both intrinsic motivation and the extrinsic motivation that people identify with a given activity's value to them. Ideally, this value becomes integrated into one's own sense of self after completing the activity. People who are autonomously motivated experience what Deci and Ryan (2008) call *volition*, or a "self-endorsement of their own actions" (p. 182).

In contrast, controlled motivation is comprised of the *external regulation* of one's behavior (a function of external rewards or punishment) and *introjected regulation*, or the regulation of actions that have been partially internalized. Introjected regulation is also driven by

factors such as motive, self-esteem, ego and avoidance of shame. Controlled individuals are pressured to think, feel and behave in certain ways.

Autonomous motivation and controlled motivation both drive behavior, however, in contrast to *amotivation*, or a lack of motivation (Deci & Ryan, 2008).

Similarly, Knowles et al. (2005) cite the work of Tough (1979), who found that adults are naturally motivated to grow and develop their own knowledge and skill sets, but this motivation can be hindered by roadblocks such as a lack of opportunity or resources, time constraints, negative self-concept, and even programs that are not designed according to best practices for adult learning.

Kim and Keller (2008) posit that motivational and volitional e-mail messages (MVEM) may promote increased levels of motivation among undergraduate students. This supports the student and faculty responses to the surveys completed for this study in which respondents said they feel that *Feedback from Instructor* is critical to facilitating student engagement.

**Experiential Learning.** As stated in Chapter II, learning best takes place when students have the opportunity to transfer their skills to the realistic environment in which they may use those skills (Bransford et al., 1999; Broody, 1977; Schwartz & Bransford, 1998). Deci and Ryan (2008), Knowles et al. (2005), Piaget (1985), and Vygotsky (1978) and all have similar contentions. Brizendine (2011) and James (2007) also say this specifically in regard to male learners. In short, men learn best by doing. While women may also learn by doing, active learning environments (working on projects, solving problems, getting out in the field) may serve male learners particularly well as opposed to passive learning environments (reading, listening, etc., watching without participating, etc.).

Many researchers (Bransford et al., 1999; Chen & McGrath, 2003; Smith et al., 2005) suggest that Project- and Problem-Based Learning activities which afford learners the chance to really dig in to real-life situations inspire the most impactful, meaningful learning experiences.

## Conclusions

**Student Engagement is an Expansive Topic.** Student engagement is an enormous and challenging area of study with many applicable definitions. This topic is made even more challenging by the fact that student engagement comprises so many subsets, including (but not limited to) academic engagement, behavioral engagement, social engagement and cultural engagement. The existence of these subsets makes measuring the broad topic of student engagement extremely difficult. It may be more effective to study and measure each area of student engagement individually in order to gain insight into current levels of each specific type of student engagement. The question, “What kind of engagement are we talking about?” should be answered before any studies or measurements take place. This study did not do this.

**Scant Research on Student Engagement and Technology.** Formal research on the role of technology within student engagement, particularly among college and adult students, appears to be sorely lacking. Even the *Handbook of Research on Student Engagement* (Christenson, Reschly & Wylie, 2012), a seminal and comprehensive work on the current literature and research on student engagement, does not discuss technology and learning as it may relate to student engagement. For example, the terms *computers*, *media*, *technology*, and *Internet* do not even appear in the index of the 840-page *Handbook of Research on Student Engagement*, indicating that they do not appear anywhere in the book.

**Suggested Action Items.** If the testing institution is motivated to gather further data regarding current levels of student engagement in its online courses and potentially increase it, the administration and faculty may wish to:

1. Settle upon one operationalized definition of student engagement, and design curricula that will meet each point included in that definition and set the standard for what student engagement should “look like” in the eyes of the institution.
2. Administer a broad-based assessment such as the NSSE/AUSSE (or an original measurement tool of the institution’s own design) to measure student engagement among the students based on the definition of student engagement chosen by the institution.
3. Compare the information provided in the chosen definition of student engagement and the results of the broad-based assessment to existing curricula and to new courses in development to determine the degree to which student engagement is considered, maintained or promoted.
4. Conduct further research targeted by individual courses, in order to get a clearer picture of views of student engagement in specific classes, majors, programs, colleges, etc.
5. Consider gender differences in regard to learning preferences and best practices for adult learning and online learning.



## REFERENCES

- Allen, I. E. & Seaman, J. (2003). *Sizing the opportunity: The quality and extent of online education in the United States, 2002 and 2003*. Needham, MA: Sloan-C. Retrieved from [http://www.sloanconsortium.org/sites/default/files/sizing\\_opportunity\\_2.pdf](http://www.sloanconsortium.org/sites/default/files/sizing_opportunity_2.pdf)
- Allen, I. E. & Seaman, J. (2013). *Changing course: Ten years of tracking online education in the United States, 2013*. Needham, MA: Sloan-C. Retrieved from <http://www.onlinelearningsurvey.com/reports/changingcourse.pdf>
- Ainley, M. (2004). *What do we know about student motivation and engagement?* Paper presented at the annual meeting of the Australian Association for Research in Education, Melbourne.
- Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the student engagement instrument. *Journal of School Psychology, 44*, 427-445. doi:10.1016/j.jsp.2006.04.002
- Artino, A. R. (2009). Online learning: Are subjective perceptions of instructional context related to academic success? *Internet and Higher Education, 12*(3-4), 117-125. doi:10.1016/j.iheduc.2009.07.003
- Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel, 25*, 518-529.
- Axelson, R. D., & Flick, A. (2011). Defining student engagement. *Change, 43*(1), 38-43. doi:10.1080/00091383.2011.533096
- Alutu, A. N. G. (2006). The guidance role of the instructor in the teaching and learning process. *Journal of Instructional Psychology, 33*(1), 44-49. Retrieved from Proquest.com.
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, N.J.: Prentice Hall. doi:10.1177/105960117700200317
- Baron, P. & Corbin, L. (2012). Student engagement: Rhetoric and reality. *Higher Education Research and Development, 31*(6) 759-772. doi:10.1080/07294360.2012.655711
- Bauerlein, M. (2009). *The dumbest generation: How the digital age stupefies young Americans and jeopardizes our future (or, don't trust anyone under 30)*. New York, NY: Tarcher/Penguin.
- Brizendine, L. *The female brain*. (2007). New York, NY: Broadway Books/Random House.

- Brizendine, L. *The male brain*. (2011). New York, NY: Broadway Books/Random House.
- Bruner, J. S. (1957). *Going beyond the information given*. New York, NY: Norton.
- Bruner, J. S. (1960). *The process of education*. Cambridge, MA.: Harvard University Press.
- Bruner, J. S. (1961). The act of discovery. *Harvard Educational Review*, 31, 21-32.
- Bruner, J. S. (1966). *Toward a theory of instruction*. Cambridge, MA: Belkapp Press.  
doi:10.1177/019263656605030929
- Bransford, J., Brown, A. L., & Cocking, R. R. (Eds.). (1999). *How people learn*. [Electronic Version]. Washington, DC: The National Academies Press. Retrieved from <http://www.nap.edu/openbook.php?isbn=0309070368>
- Brown, J. S. (2000). Growing up digital. *Change*, 32(2). Retrieved from Academic Search Elite. doi:10.1080/00091380009601719
- Bundick, M. J., Quaglia, R. J., Corso, M. J., & Haywood, D.E. (2014). Promoting student engagement in the classroom. *Teachers College Record*, 116(4).
- Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research*. Chicago, IL: Rand McNally.
- Carini, R. M., Kuh, G. D., & Klein, S. P. (2006). Student engagement and student learning: testing the linkages. *Research in Higher Education*, 47, 1-32. doi:10.1007/s11162-005-8150-9
- Carr, N. (2008). Is Google making us stupid? *Yearbook of the National Society for the Study of Education*, 107(2), 89-94. doi:10.1111/j.1744-7984.2008.00172.x
- Carr, N. (2010). *The shallows: What the internet is doing to our brains*. New York, NY: W. W. Norton and Co.
- ChanLin, L. (2009). Applying motivational analysis in a web-based course. *Innovations in Education and Teaching International*, 46(1), 91-103. Retrieved from ProQuest Central. doi:10.1080/14703290802646123
- Chen, P. & McGrath, D. (2003). Moments of joy: student engagement and conceptual learning in the design of hypermedia documents. *Journal of Research on Technology in Education*, 35(3). 402-422. Retrieved from ProQuest Central. doi:10.1080/15391523.2003.10782393
- Chickering, A. W. & Ehrmann, S. C. (1996). Implementing the seven principles: technology as lever. *AAHE Bulletin*, October, 3-6.
- Chickering, A. W., & Gamson, Z. (1987). Seven principles for good practice in undergraduate education. *AAHE Bulletin*, 40(7), 3-7.

- Christenson, S. L., Reschly, A. L., & Wylie, C. (Eds.). (2012). *Handbook of research on student engagement*. New York, NY: Springer.
- Christie, H., Tett, L., Cree, V. E., Hounsell, J., & McCune, V. (2008). 'A real rollercoaster of confidence and emotions': learning to be a university student. *Studies In Higher Education, 33*(5), 567-581. doi:10.1080/03075070802373040
- Clark, R. E. (1983). Reconsidering research on learning from media. *Review of Educational Research, 53*(4), pp. 445-459. doi:10.3102/00346543053004445
- Clark, R. E. (1994). Media will never influence learning. *Educational Technology Research and Development, 42*(2), 21-29. doi:10.1007/BF02299088.
- Coates, H. (2005). The value of student engagement for higher education quality assurance. *Quality in Higher Education, 11*(1), 25-36. doi:10.1080/13538320500074915
- Coates, H. (2007). A model of online and general campus-based student engagement. *Assessment and Evaluation in Higher Education, 32*(2), 121-141. doi:10.1080/02602930600801878
- College Student Experiences Questionnaire (CSEQ). (2013). A summary of Pace's career. Retrieved from [http://cseq.iub.edu/condense\\_summary.cfm](http://cseq.iub.edu/condense_summary.cfm)
- Cook, T. D. & Campbell, D. T. (1979). *Quasi-experimentation: design and analysis issues for field settings*. Boston, MA: Houghton Mifflin Company.
- Deci, E. L. & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development and health. *Canadian Psychology, 49*(3), 182-185. doi:10.1037/a0012801
- Dixson, M. D. (2010). Creating effective student engagement in online courses: What do students find engaging? *Journal of the Scholarship of Teaching and Learning, 10*(2), 1-13.
- Dobbs, R. R., Waid, C. A., & del Carmen, A. (2009). Students' perceptions of online courses: The effect of online course experience. *Quarterly Review of Distance Education, 10*(1), 9-26, 89, 91. Retrieved from Proquest Central.
- Doidge, N. (2007). *The brain that changes itself*. New York, NY: Penguin.
- EDUCAUSE Quarterly (EQ; 2009). A special issue on student engagement. *EDUCAUSE Quarterly Magazine, 32*(4). Retrieved from <http://www.educause.edu/ero/educause-quarterly-magazine-volume-32-number-4-2009>
- Fredricks, J., McColskey, W., Meli, J., Mordica, J., Montrosse, B., & Mooney, K. (2011). Measuring student engagement in upper elementary through high school: a description of 21 instruments. *Issues and Answers Report, REL 2011, No. 098*. Retrieved from [http://ies.ed.gov/ncee/edlabs/regions/southeast/pdf/rel\\_2011098.pdf](http://ies.ed.gov/ncee/edlabs/regions/southeast/pdf/rel_2011098.pdf)

- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59-109.
- Friedman, T.J. (2000). *The lexus and the olive tree*. New York, NY: Anchor Books.
- Graham, C. R., Tripp, T. R., Seawright, L. & Joeckel, G. L. (2007). Empowering or compelling reluctant participators using audience response systems. *Active Learning in Higher Education, 8*(3), pp. 233–258. doi:10.1177/1469787407081885
- Harper, S. & Quaye, S. (Eds.). (2009). Student engagement in higher education: Theoretical perspectives and practical approaches for diverse populations. New York, NY: Routledge.
- Higher Education Funding Council for England (HEFCE; 2008). Tender for a study into student engagement. Bristol: Higher education funding council for England.
- High-Performance Computing Act of 1991, S.272, 102<sup>nd</sup> Cong., 1<sup>st</sup> Session. (1991). Retrieved from <http://thomas.loc.gov/cgi-bin/query/z?c102:S.272.ENR>:
- Holland Marketing. (2012). Student demographics. Retrieved from <http://news.holland.edu/media-resources/facts-figures/student-demographics/index.html> [pseudonym used to protect institutional identity]
- Holland Online. (2014). Massive open online courses. Retrieved from <http://online.holland.edu/degrees-programs/free-online-courses/index.html> [pseudonym used to protect institutional identity]
- James, A. N. (2007). *Teaching the male brain*. Thousand Oaks, CA:Corwin/Sage.
- James, A. N. (2009). *Teaching the female brain*. Thousand Oaks, CA:Corwin/Sage.
- Johnson, S. (2005). *Everything bad is good for you*. New York, NY: Riverhead Books/The Penguin Group.
- Kablan, Z. (2010). The effect of using exercise-based computer games during the process of learning on academic achievement among education majors. *Educational Sciences: Theory & Practice, 10*(1), 351-364.
- Kahu, E. (2013). Framing student engagement in higher education. *Studies in Higher Education, 38*(5). 758-773. doi:10.1080/03075079.2011.598505
- Kearsley, G., & Shneiderman, B. (1999). Engagement theory: A framework for technology based teaching and learning." Retrieved from <http://home.sprynet.com/~gkearsley/engage.htm>

- Kim, C., & Keller, J. M. (2008). Effects of motivational and volitional email messages (MVEM) with personal messages on undergraduate students' motivation, study habits and achievement. *British Journal of Educational Technology*, 39(1), 36-51. doi:10.1111/j.1467-8535.2007.00701.x
- Knowles, M. S., Holton III, E.F., & Swanson, R.A. (2005). *The adult learner* (6<sup>th</sup> ed.). London: Butterworth-Heinemann/Elsevier.
- Kozma, R. B. (1994). Will media influence learning? Reframing the debate. *Educational Technology Research and Development*, 42(2), 7-19.
- Krause, K. (2005, September). Understanding and promoting student engagement in university learning committees. In *Sharing scholarship in learning and teaching: engaging students*. Symposium conducted at the meeting of James Cook University, Townsville/Cairns, Queensland, Australia.
- Krause, K. & Coates, H. (2008). Students' engagement in first-year university. *Assessment and evaluation in higher education*, 33(5), 493-505. doi:10.1080/02602930701698892
- Kuh, G. D. (2001) Assessing what really matters to student learning: Inside the national survey of student engagement. *Change*, 33(3), pp. 10–17. doi:10.1080/00091380109601795
- Kuh, G. D. (2003). What we're learning about student engagement from NSSE. *Change*, 35(2), 24. doi: 10.1080/00091380309604090
- Kuh, G. D. (2009a). The national survey of student engagement: Conceptual and empirical foundations. *New Directions for Institutional Research*, 141, 5-20. doi:10.102/ir.283
- Kuh, G. D. (2009b). What student affairs professionals need to know about student engagement. *Journal of College Student Development*, 50(6), 683-706. doi: 10.1353/csd.0.0099
- Kuh, G. D. & Hu, S. (2001) The effects of student faculty interaction in the 1990s. *Review of Higher Education*, 24(3), pp. 309–332. doi: 10.1353/rhe.2001.0005
- Lave, J. & Wenger, E. (1991). *Situated learning*. Cambridge: Cambridge University Press.
- Lightner, S., Bober, M., & Willi, C. (2007). Team-based activities to promote engaged learning. *College Teaching*, 55(1). 5-18. doi: 10.3200/CTCH.55.1.5-18
- Mann, S. (2001) Alternative perspectives on the student experience: Alienation and engagement, *Studies in Higher Education*, 26(1), 7-19. doi: 10.1080/03075070020030689
- Markwell, D. (2007, January). The challenge of student engagement. In *Teaching and Learning Forum*. Symposium conducted at the meeting of University of Western Australia.

- Mashable. (2013). Air Force expects iPad deployment to save \$50 million over 10 years. Retrieved from <http://mashable.com/2013/05/17/air-force-ipads/>
- McLuhan, M. (1962). *The Gutenberg galaxy*. London: Routledge & Kegan Paul.
- McLuhan, M. (1964). *Understanding media: the extensions of man*. New York, NY: McGraw-Hill.
- Milne, C., & Otieno, T. (2007). Understanding engagement: Science demonstrations and emotional energy. *Science Education*, 91(4), 523-553. doi:10.1002/sce.20203
- National Survey of Student Engagement (NSSE; 2003). *Converting data into action: Expanding the boundaries of institutional improvement: national survey of student engagement 2003 annual report*. Bloomington: Indiana University. Retrieved from [http://cpr.iub.edu/uploads/NSSE%20\(2003\)%20Converting%20Data%20into%20Action.pdf](http://cpr.iub.edu/uploads/NSSE%20(2003)%20Converting%20Data%20into%20Action.pdf)
- National Survey of Student Engagement (NSSE; 2010). *Benchmarks of effective educational practice*. Retrieved from [http://nsse.iub.edu/pdf/nsse\\_benchmarks.pdf](http://nsse.iub.edu/pdf/nsse_benchmarks.pdf)
- New Media Consortium (NMC; 2012). NMC history | The new media consortium. Retrieved from <http://www.nmc.org/about/history>
- New Media Consortium (NMC; 2013). NMC horizon project short list: 2013 higher education edition. Retrieved from <http://www.nmc.org/pdf/2013-horizon-higher-ed-shortlist.pdf>
- New Media Consortium (NMC; 2014). NMC horizon report: 2014 higher education edition. Retrieved from <http://www.nmc.org/pdf/2014-nmc-horizon-report-he-EN.pdf>
- New Media Consortium(NMC)/The Economist. (2008). *The future of higher education: how technology will shape learning*. Retrieved from [http://www.nmc.org/pdf/Future-of-Higher-Ed-\(NMC\).pdf](http://www.nmc.org/pdf/Future-of-Higher-Ed-(NMC).pdf)
- Newmann, F. (1991). Student engagement in academic work: Expanding the perspective on secondary school effectiveness. In J.R. Bliss and W.A. Firestone (Eds.), *Rethinking effective schools: research and practice*. 58-76. Englewood Cliffs, NJ: Prentice-Hall.
- Newmann, F., Wehlage, G. G., & Lamborn, S. D. (1992). The significance and sources of student engagement. In F. Newmann (Ed.), *Student engagement and achievement in American secondary schools*. 11-39. New York, NY: Teachers College Press.
- Newswander, L. K., & Borrego, M. (2009). Engagement in two interdisciplinary graduate programs. *Higher Education*, 58(4), 551-562. doi:10.1007/s10734-009-9215-z
- Payne, S. L., Kleine, K. L. M., Purcell, J., & Carter, G. R. (2005). Evaluating academic challenge beyond the NSSE. *Innovative Higher Education*. 30. 129-146. doi:10.1007/s10755-005-5015-2

- Pew Internet and American Life Project. (2010, February 24). Millennials: a portrait of generation next. Retrieved from <http://www.pewresearch.org/millennials/>
- Pew Social and Demographic Trends. (2009, October 29). College enrollment hits all-time high, fueled by community college surge. Retrieved from <http://www.pewsocialtrends.org/2009/10/29/college-enrollment-hits-all-time-high-fueled-by-community-college-surge/>
- Pew Research Internet Project. (2011, July 11). Smartphone adoption and usage. Retrieved from <http://www.pewinternet.org/2011/07/11/smartphone-adoption-and-usage/>
- Piaget, J. (1985) *The equilibration of cognitive structures: the central problem of intellectual development*. Chicago: University of Chicago Press.
- Pike, G. R. & Kuh, G. D. (2005) A typology of student engagement for American colleges and universities. *Research in Higher Education*, 46 (2), pp. 185–209.
- Pink, D. H. (2010). *Drive: the surprising truth about what motivates us*. New York, NY: Riverhead Books.
- Porter, S. R. (2011). Do college student surveys have any validity? *The Review of Higher Education*. 35(1). 45-76. Baltimore: The Johns Hopkins University Press
- Prensky, M. (2001a). Digital natives, digital immigrants (Pt 1).” Retrieved from <http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf>
- Prensky, M. (2001b). “Digital natives, digital immigrants (Pt 2: do they really think differently?).” Retrieved from <http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part2.pdf>
- Reeve, J., & Tseng, C. M. (2011). Agency as a fourth aspect of students’ engagement during learning activities. *Contemporary Educational Psychology*, 36(4), 257-267. doi:10.1016/j.cedpsych.2011.05.002
- Robinson, C. C. (2006). *New benchmarks in higher education: Student engagement in online learning*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Order No. 3211944)
- Rosen, L.D. (2010). *Rewired: understanding the iGeneration and the way they learn*. New York, NY: Palgrave MacMillan.
- US Department of Defense (USDOD). (2013). Military rider. Retrieved from [http://www.defense.gov/home/features/2012/0412\\_militaryrider/](http://www.defense.gov/home/features/2012/0412_militaryrider/)
- Sagayadevan, V. & Jeyaraj, S. (2012, September) The role of emotional engagement in lecturer-student interaction and the impact on academic outcomes of student achievement and learning. *Journal of the Scholarship of Teaching and Learning*, 12(3), 1-30.

- Salmela-Aro, K., & Upadyaya, K. (2014). School burnout and engagement in the context of demands-resources model. *British Journal Of Educational Psychology*, 84(1), 137-151. doi:10.1111/bjep.12018
- Schulman, L. S. (2002). Making differences: a tale of learning. *Change*, 34(6), 36-45. doi:10.1080/00091380209605567
- Schwartz , D. & Bransford, J. (1998). A time for telling. *Cognition and Instruction*, 16(4), 475-522.
- Shirky, C. (2008). *Here comes everybody*. New York, NY: Penguin.
- Shirky, C. (2010). *Cognitive surplus*. New York, NY: Penguin.
- Skinner, E., Furrer, C., Marchand, G., & Kindermann, T. (2008). Engagement and disaffection in the classroom: Part of a larger motivational dynamic? *Journal of Educational Psychology*, 100(4), 765-781. doi:10.1037/a0012840
- Skinner, E. A. & Pitzer, J. R. (2012). Developmental dynamics of student engagement, coping, and everyday resilience. In Christenson, S. L., Reschly, A. L., & Wylie, C. (Eds.) *Handbook of Research on Student Engagement*, p. 26. New York, NY: Springer.
- Slocum, J., & Rhoads, R. A. (2009). Faculty and student engagement in the Argentine grassroots rebellion: Toward a democratic and emancipatory vision of the university. *Higher Education*, 57(1), 85-105. doi:10.1007/s10734-008-9134-4
- Small, G. & Vorgan, G. (2008). *iBrain: Surviving the technological alteration of the modern mind*. New York, NY: Harper Collins.
- Smith, K. A., Sheppard, S. D., Johnson, D. W., & Johnson, R. T. (2005). Pedagogies of engagement: classroom-based practices. *Journal of Engineering Education*, 94(1), 87-101. doi:10.1002/j.2168-9830.2005.tb00831.x
- Stanford Research Institute (SRI). (2009). SRI International: Douglas Engelbart and personal computing. Retrieved from <http://www.dougelbart.org/pubs/augment-3906.html>
- Stibbe, M. (2013, May 30). U.S. Air Force will save \$50M with iPad electronic flight bags. *Forbes Magazine*. Retrieved from <http://www.forbes.com/sites/matthewstibbe/2013/05/30/u-s-air-force-will-save-50m-with-ipad-electronic-flight-bags/>
- Tapscott, D. (2009). *Growing up digital*. New York, NY: The McGraw-Hill Companies.
- Taylor, L. & Parsons, J. (2011). Improving student engagement. *Current Issues in Education*, 14(1). Retrieved from <http://cie.asu.edu/ojs/index.php/cieatasu/article/view/745/162>
- Tough, A. (1979). *The adult's learning projects: A fresh approach to theory and practice in adult learning*. Toronto: Ontario Institute for Studies in Education.



Trowler, V. (2010). Student engagement literature review. York: Higher Education Academy. Retrieved from <http://www-new2.heacademy.ac.uk/assets/documents/studentengagement/StudentEngagementLiteratureReview.pdf>

Vygotsky, L. I. (1978). *Mind in society*. Cambridge: Harvard University Press.

Willingham, D. T. (2010). Have technology and multitasking rewired how students learn? *American Educator*, Summer 2010, 23-28, 42.

Whitman, A. (1981, January 1). Marshall McLuhan, author, dies; declared 'medium is the message.' *The New York Times*. NP (Obituaries). Retrieved from <http://www.nytimes.com/books/97/11/02/home/mcluhan-obit.html>

Zyngier, D. (2008). (Re)conceptualizing student engagement: Doing education not doing time. *Teaching and Teacher Education*, 24, 1765-1776. doi: 10.1016/j.tate.2007.09.004

## APPENDIX A

### NSSE Five Benchmarks of Student Engagement

#### 1. Level of Academic Challenge (LAC)

Challenging intellectual and creative work is central to student learning and collegiate quality. Colleges and universities promote high levels of student achievement by emphasizing the importance of academic effort and setting high expectations for student performance.

Activities and conditions:

- I. Time spent preparing for class (studying, reading, writing, rehearsing, and other activities related to your academic program);
- II. Worked harder than you thought you could to meet an instructor's standards or expectations;
- III. Number of assigned textbooks, books, or book-length packs of course readings;
- IV. Number of written papers or reports of 20 pages or more;
- V. Number of written papers or reports between 5 and 19 pages;
- VI. Number of written papers or reports fewer than 5 pages;
- VII. Coursework emphasizes: Analyzing the basic elements of an idea, experience, or theory;
- VIII. Coursework emphasizes: Synthesizing and organizing ideas, information or experiences;
- IX. Coursework emphasizes: Making judgments about the value of information, arguments or methods;
- X. Coursework emphasizes: Applying theories or concepts to practical problems or in new situations; and
- XI. Campus environment emphasizes spending significant amounts of time studying and on academic work.

## 2. Active and Collaborative Learning (ACL)

Students learn more when they are intensely involved in their education and are asked to think about and apply what they are learning in different settings. Collaborating with others in solving problems or mastering difficult material prepares students to deal with the messy, unscripted problems they will encounter daily during and after college.

Activities:

- I. Asked questions in class or contributed to class discussions;
- II. Made a class presentation;
- III. Worked with other students on projects during class;
- IV. Worked with classmates outside of class to prepare class assignments;
- V. Tutored or taught other students;
- VI. Participated in a community-based project as part of a regular course; and
- VII. Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)

## 3. Student-Faculty Interaction (SFI)

Students see first-hand how experts think about and solve practical problems by interacting with faculty members inside and outside the classroom. As a result, their teachers become role models, mentors, and guides for continuous, life-long learning.

Activities:

- I. Discussed grades or assignments with an instructor;
- II. Talked about career plans with a faculty member or advisor;
- III. Discussed ideas from your readings or classes with faculty members outside of class;
- IV. Worked with faculty members on activities other than coursework (committees, orientation, student-life activities, etc.);
- V. Received prompt written or oral feedback from faculty on your academic performance; and
- VI. Worked with a faculty member on a research project.

#### 4. Supportive Campus Environment (SCE)

Students perform better and are more satisfied at colleges that are committed to their success and cultivate positive working and social relations among different groups on campus.

Conditions:

- I. Campus environment provides support you need to help you succeed academically.
- II. Campus environment helps you cope with your non-academic responsibilities (work, family, etc.).
- III. Campus environment provides the support you need to thrive socially.
- IV. Quality of relationships with other students.
- V. Quality of relationships with faculty members.
- VI. Quality of relationships with administrative personnel and offices.

#### 5. Enriching Educational Experiences (EEE)

Complementary learning opportunities inside and outside the classroom augment the academic program. Experiencing diversity teaches students valuable things about themselves and other cultures. Used appropriately, technology facilitates learning and promotes collaboration between peers and instructors. Internships, community service, and senior capstone courses provide students with opportunities to synthesize, integrate, and apply their knowledge. Such experiences make learning more meaningful and, ultimately, more useful because what students know becomes a part of who they are.

Activities and conditions:

- I. Talking with students with different religious beliefs, political opinions, or values.
- II. Talking with students of a different race or ethnicity.
- III. An institutional climate that encourages contact among students from different economic, social, and racial or ethnic backgrounds.
- IV. Using electronic technology to discuss or complete assignments

- V. Participating in:
  - i. Internships or field experiences
  - ii. Community service or volunteer work
  - iii. Foreign language coursework
  - iv. Study abroad
  - v. Independent study or self-assigned major
- VI. Culminating senior experience
- VII. Co-curricular activities
- VIII. Learning communities (NSSE, 2010)

## APPENDIX B

### Sample Student Survey

What is your gender? M/F

What is your age?

Are you an Undergraduate or Graduate student? UG/G

Are you currently pursuing a degree at this university? Y/N

Are you employed full-time? Y/N

Are you employed part-time? Y/N

Are you active-duty military or a reservist? Y/N

If you are in the military, are you currently serving on a military base? Y/N

If you are a civilian, are you currently working or living on a military base? Y/N

Have you been through a technology orientation provided by the university? Y/N

To what technologies do you currently have access? Please check all that apply:

- |  |   |
|--|---|
| <input type="checkbox"/> PC Desktop    | <input type="checkbox"/> iPhone                             |
| <input type="checkbox"/> Apple Desktop | <input type="checkbox"/> Android Phone                      |
| <input type="checkbox"/> PC Laptop     | <input type="checkbox"/> Android Tablet                     |
| <input type="checkbox"/> Apple Laptop  | <input type="checkbox"/> Smartphone (other)                 |
| <input type="checkbox"/> iPod          | <input type="checkbox"/> Drawing Tablet (e.g. Wacom Bamboo) |
| <input type="checkbox"/> iPad          | <input type="checkbox"/> Other (Please specify) _____       |

On a scale of 1 (lowest) to 5 (highest), how likely would you be to use the following technologies for your Holland coursework?

	NOT AT ALL LIKELY	NOT VERY LIKELY	SOMEWHAT LIKELY	VERY LIKELY	EXTREMELY LIKELY
Desktop Computer	1	2	3	4	5
Laptop Computer	1	2	3	4	5
iPod	1	2	3	4	5
iPad	1	2	3	4	5
iPhone	1	2	3	4	5
Android Phone	1	2	3	4	5
Android Tablet	1	2	3	4	5
Smartphone (other)	1	2	3	4	5
Drawing Tablet	1	2	3	4	5
Other	1	2	3	4	5

(Please specify) \_\_\_\_\_

What operating systems do you use daily? Please check all that apply:

- Microsoft Windows
- Apple iOS
- Linux
- Unix
- Ubuntu
- Chrome
- Other (Please specify) \_\_\_\_\_

Which of Online's "Choose How You Learn" modalities have you used? Please check all that apply:

- Live Classroom
- Online/Asynchronous
- Blended Courses (Classroom and Online)
- HawkVision (streaming live via the Internet to Holland classroom sites)
- HawkVision Home (streaming live via the Internet to your computer)



Considering the “Online’s “Choose How You Learn” modalities which you have used, to what extent do you AGREE or DISAGREE with the following on a scale of 1-5 (1 lowest; 5 highest)? If you have not experienced a particular learning environment, please respond N/A (not applicable).

	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
I prefer Live Classroom courses.	1	2	3	4	5
I prefer Online/Asynchronous courses.	1	2	3	4	5
I prefer Blended Courses	1	2	3	4	5
I prefer using HawkVision.	1	2	3	4	5
I prefer using HawkVision Home.	1	2	3	4	5

To what extent do you AGREE or DISAGREE with the following on a scale of 1-5 (1 lowest; 5 highest)?

	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
I have Internet connectivity at home.	1	2	3	4	5
I have Internet connectivity at work.	1	2	3	4	5
I have Internet connectivity at school.	1	2	3	4	5

	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
I have Internet connectivity in a remote location (library, café, etc.).	1	2	3	4	5

To what extent do you AGREE or DISAGREE with the following on a scale of 1-5 (1 lowest; 5 highest)?

	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
My Internet connectivity at home is adequately fast and reliable for my needs related to courses.	1	2	3	4	5
My Internet connectivity at work is adequately fast and reliable for my needs related to courses.	1	2	3	4	5
My Internet connectivity at school is adequately fast and reliable for my needs related to courses.	1	2	3	4	5
My Internet connectivity in remote locations is adequately fast and reliable for my needs related to courses.	1	2	3	4	5

To what extent do you AGREE or DISAGREE with the following on a scale of 1-5 (1 lowest; 5 highest)?

	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
I regularly encounter Internet security issues(sites blocked, firewalls, etc.)at home.	1	2	3	4	5
I regularly encounter Internet security issues(sites blocked, firewalls, etc.)at work.	1	2	3	4	5
I regularly encounter Internet security issues(sites blocked, firewalls, etc.)at school.	1	2	3	4	5
I regularly encounter Internet security issues(sites blocked, firewalls, etc.)in remote locations (library, café, etc.).	1	2	3	4	5

On a scale of 1 (lowest) to 5 (highest), how much do you AGREE or DISAGREE with the following:

If the university provided me with ONE device that had all of the technologies I needed installed on it, it would improve my learning experience.

STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	2	3	4	5

On a scale of 1 (lowest) to 5 (highest), how much do you AGREE or DISAGREE with the following:

If the university provided me with ONE device that had all of the technologies I needed installed on it, I would prefer that the device be a

	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
...a Windows desktop.	1	2	3	4	5
...a Windows laptop.	1	2	3	4	5
...an Apple desktop computer.	1	2	3	4	5
...an Apple laptop.	1	2	3	4	5
...an iPad.	1	2	3	4	5
...an Android tablet.	1	2	3	4	5
...an iPhone.	1	2	3	4	5
...an Android smartphone.	1	2	3	4	5
...a Windows smartphone.	1	2	3	4	5

Do you have access to a mobile device (iPhone, iPad, smartphone, etc.)? Y/N

What kind of mobile device(s) do you currently have? Please select all that apply.

- |                                 |   |
|---------------------------------|---|
| <input type="checkbox"/> iPod   | <input type="checkbox"/> Android Phone      |
| <input type="checkbox"/> iPad   | <input type="checkbox"/> Android Tablet     |
| <input type="checkbox"/> iPhone | <input type="checkbox"/> Smartphone (other) |

Which technologies do you PREFER to use for your coursework? Please list all that apply.

Which technologies do you prefer NOT to use for your coursework? Please list all that apply.

What technologies would you like us to add to our courses in the future (if any)? Please list all that apply.

Please consider the following definitions of student engagement:

- A. "... [student engagement means] that all student activities involve active cognitive processes such as creating, problem-solving, reasoning, decision-making, and evaluation. In addition, students are intrinsically motivated to learn due to the meaningful nature of the learning environment and activities" (Kearsley & Shneiderman, 1999).
- B. Student engagement is "the time and effort students devote to activities that are empirically linked to desired outcomes of college and what institutions do to induce students to participate in these activities" (Kuh, 2009a)
- C. [Student] [e]ngagement is a broad construct intended to encompass...academic as well as...non-academic aspects of the student experience, including
  - i. Active and collaborative learning
  - ii. Participation in challenging academic activities
  - iii. Formative communication with academic staff;
  - iv. Involvement in enriching educational experiences; and
  - v. Feeling legitimated and supported by university learning communities. (Coates, 2007; NSSE, 2003)

Of the three definitions of student engagement listed above, to which one do you most relate (which one do you think most accurately reflects how you feel student engagement should be defined)?

Definition 1 (Kearsley & Shneiderman, 1999)

Definition 2 (Kuh, 2009a)

Definition 3 (Coates, 2007; NSSE, 2003)

Based on the definition of student engagement to which you most closely relate, do you feel that Online courses are engaging? Why or why not? Please explain.

Based on the definition of student engagement to which you most closely relate, what kinds of course activities do you find to be most engaging? Please describe all that apply.

## APPENDIX C

### Sample Faculty Survey

Please consider the following definitions of student engagement:

1. "... [student engagement means] that all student activities involve active cognitive processes such as creating, problem-solving, reasoning, decision-making, and evaluation. In addition, students are intrinsically motivated to learn due to the meaningful nature of the learning environment and activities" (Kearsley & Shneiderman, 1999).
2. Student engagement is "the time and effort students devote to activities that are empirically linked to desired outcomes of college and what institutions do to induce students to participate in these activities" (Kuh, 2009a)
3. [Student] [e]ngagement is a broad construct intended to encompass...academic as well as...non-academic aspects of the student experience, including
  - vi. Active and collaborative learning
  - vii. Participation in challenging academic activities
  - viii. Formative communication with academic staff;
  - ix. Involvement in enriching educational experiences; and
  - x. Feeling legitimated and supported by university learning communities. (Coates, 2007; NSSE, 2003)



Of the three definitions of student engagement listed above, to which one do you most relate (which one do you think most accurately reflects how you feel student engagement should be defined)?

Definition 1 (Kearsley & Shneiderman, 1999)

Definition 2 (Kuh, 2009a)

Definition 3 (Coates, 2007; NSSE, 2003)

Based on the definition of student engagement to which you most closely relate, do you feel that Online courses are engaging? Why or why not? Please explain.

Based on the definition of student engagement to which you most closely relate, what kinds of course activities do you find to be most engaging? Please describe all that apply.

## APPENDIX D

### Verbatim Student Survey Responses

(*n*=137)

Yes, especially with required discussion board posts and responses, it is a good way to be able to think about a response to classmates that normally happens in "real time" in class.

Somewhat engaging

Yes-they allow and encourage students to use creativity and innovation.

Sort of, the engagement by the school is really just to keep track of work and ensure enough activity is going on to keep the accreditation. I have had one class where I felt that the instructor provide real feedback regarding grading and just overall coursework discussion.

Yes most are; however, I will submit that student engagement is directly linked to instructor engagement which is in many cases lacking at best.

I agree with that statement. Most all courses provide such an atmosphere.

I am engaged in my learning due to the fact that my grades are something that I'd like to see stay high.

Learning is something that I am choosing to pursue.

Yes, Holland Online is an engaging environment. Why? Because we stick with learning and not other nonsense!

The majority of the online courses I have taken have been engaging - group activities and timely and specific feedback from instructors has been great.

Yes, The online courses provided by Online embody that defined student experience.

a

Yes, I feel that the online classes that I personally have taken are very engaging. I feel apart of the classroom even though there is no classroom.

For the most part yes; however, some instructors are better at it than others.

Yes, the weekly activities involve active and collaborative learning

No, most of the course work only requires recall with a little creating for essay composition. There is no problem solving, reasoning...

No. Absolutely not. I am an online professor who is attending Holland for a degree outside of my current field. Students in my teaching courses are expected to begin their discussions no later

than 11:59PM on Wednesday, but Holland does not have such a standard. To not promote it means I have witnessed Discussion Board forums remaining near empty until Saturday evening. This would be like sitting in a three-hour course and having no student (or hardly the instructor) say anything until the final 15 minutes! I expected Holland-W to be at the level of the full Holland reputation. I have a handful of classes left, and I am still hoping to find a group that is engaged.

The Online courses are engaging. Online courses offer activities that touch on all of the defining points in definition C above.

Active collaborative learning

A because we cannot interact with staff, or participate in any activities on college campus

Yes, because they require us to use all the skills listed to produce quality papers

Worldwide courses are semi-engaging. It is difficult to do any group work which I think is essential when engaging students. It promotes a different level of interaction which can be beneficial to learning.

The Online courses are engaging because of the great professors, relevant content and experienced students.

There is a media/venue for student interaction through group tasks and the discussion bulletin boards

The opportunity is there but only a few partake of it.

yes and no. I have had instructors that gave feedback quickly at times and others I waited until the end of the week.

Yes. I found the first two courses more interesting than I thought they would be. First class was "The Air Transport System," and second class was "Human Factors in Aviation."

def 2

yes depending on the classes. My classes this semester have been more engaging than other due to the fact the instructor promotes and wants interaction.

I feel that WW online courses are engaging. However, the online learning environment doesn't necessarily support motivation.

Some coursework does not seem meaningful

It depends. Online/Asynchronous is definitely NOT as engaging as it should be.

Most are engaging, some don't meet the definition selected.

the course instructor is significant in establishing an engaging environment. My instructors have been very participative. Some more than others, but the students are always very engaging and that supplements when instructors are less engaging

yes. i work at my pace.

yes. forum style...

Yes they are engaging. I find that online format the Holland WW offers provides me with the opportunity to learn subjects from several aspects (text book, discussions, video, and online research)

Yes. Discussion boards and case studies challenge students to understand and relate information to course work and life

They could be more engaging. However, being able to create a well thought out class discussion board post could benefit other classmates than rather responding a little in a whole classroom of people (trying to get a word in). I like having the freedom to present my findings to the class in my own time and also reading other classmates' post to learn more. It's a different kind of engaging that has different benefits.

They are engaging but could be improved to reflect a more encompassing community for online/worldwide students to align with Definition 3 that encompasses the whole student.

Yes, as long as I am not required to join a group activity or task.

I do feel they are engaging if the instructor keeps it that way. I find that instructors who have a vested interest to teach are the best.

Sometimes the instructors are not engaged enough in the discussion boards and the discussion are not as active as they could be.

Yes. I am given a task with detailed instructions on how I am to complete it. Then I am evaluated on how I complete the task.

Yes; they encourage critical thinking and stimulate debate as well as developing concepts in solving-problems.

yes, The activities have stimulated and have me involved in what i do. i dont just read and learn i apply the things i learn to everyday life.

Not always, courses vary widely

Somewhat. Most of the material is geared towards self-exploration, lacking in debate and multiple views, instructors don't participate as much as in live courses, feedback not as enticing.

Yes, but it is extremely difficult to network with other students.

No. The video they provide are short and useless. When problems are explained, they are not explained thoroughly.

Quite often short non-precise answers are posted in discussion groups. While those are often OK, it does not seem to challenge thinking processes. Instructor participation is critical to steer discussions to higher thinking.

I do feel the courses are engaging because in my limited experience, the courses have been an active learning experience for me.

Some, most WW instructors are not very engaging. I have only experienced two that engaged the students constantly

yes, you get what you put into it

Some classes are, others are not. There is a vast difference from syllabus to syllabus, instructor to instructor. For example, every class will always have these 3 classifications of "student engagement" in them. What determines the overall outcome of the class is the balance of these classifications, how the syllabus is written, and how the instructor uses available tools to prepare the weekly lesson plan.

Somewhat. The required discussions are relatively pointless, not so much discussions as required comments to a blog. Last term's instructor was very engaging and enjoyable, which provided a better experience than this term. Wish there were other, elective opportunities to engage which were related to the curriculum and involved online interaction with other students.

Online courses can be engaging when the instructor and students communicate on the weekly posts and students get some feedback from instructors besides just a grade.

Yes, they require discussion among everyone in the class. This aids in learning new ideas that I may have not thought about.

For the most part yes. However, it varies from course to course.

They are. The classes live or online are what each student makes of them.

No, I feel that some of the work is busy work that adds no value.

This depends on the type of course taken. Stats courses required individualized problem solving.

However, I found most courses with group work to be stressful since all group members do not live by the same schedules or study/work habits. Meeting times are engaging but group work can be disjointed and unequally distributed

Yes, it depends on the faculty.

They're adequate. I'm not interested in learning, I'm interested in getting a piece of paper at the end for furthering my career.

There are coursework assignments that require critical thinking and problem solving.

Yes. They force active collaboration among instructors, and classmates; allow multiple ways to communicate; and provide varied ways to learn.

Yes, I feel that Online courses are engaging and keep me very involved in the curriculum.

Yes

Yes because the coursework allows me to be creative without confined to a "textbook" explanation.

There is active learning, group projects, and research papers all which take time

Yes, the fact that Online course are presented in an electronic communication means, this is a huge advantage to students pursuing online degrees. Overall, the work force is a changing environment, and by applying communication via e-comm, this will set many students up for success in cases when face-to-face collaboration is not an option.

Yes. With required Blackboard participation, I do believe that WorldWide courses provide adequate student engagement.

Yes. The online environment and its instructors encourage student participation

Yes, they are challenging, requires more personal effort with the benefit of having classroom discussions regularly recorded on the forums. To me this is the most valuable asset and resource to learning. There are no missed notes, "what'd she/he say", and rapid instructor response at least feels more personalized, not trying to nail someone down in the hallway, or make an appt, or other time consuming efforts to gain an individual audience. My experience is WW instructors will even make themselves available via telephone, which is not my experience with my past experience at other universities.

Yes

Yes, the courses have group projects where student interaction is intended. Allowing for the same outcome of student engagement as regular colleges.

I do feel that the courses are engaging since most of the courses are geared towards aviation. Where I become disengaged is when the courses have too much busy work. A lot of busy work sometimes is less effective since it begins to be redundant.

yes, the discussion board is engaging and thought provoking for students

I feel they are engaging enough. I think the professor needs to interact more with the students in discussion threads.

Most of the courses are engaging, however some of the data such as references and links to references should be updated.

Some are, many courses are not, it depends more on your interaction with students/teachers than coursework. If I wanted to be more engaged I would have gone to a campus school anyway.

Yes, because they require students to do their own research and communicate with each other regularly through the discussion boards.

My courses help me relate the material to real-life situations. I do NOT think team work in the worldwide setting has any benefit.

I do. Having to relate to and discuss with classmates, and read their work, and collaborate on projects, is a good thing.

Sort of, There is limited student interactivity, and the difference of engagement varies between class professors.

yes, the interaction with the group

I feel that I am more engaged in courses where I can work in a blended format, I do not feel as engaged in online only learning as I never get to really know my teacher or classmates.

Yes, these courses provided me the flexibility to complete the coursework and keep my life schedule.

yes

It varies depending on the instructor, however, more instructor effort and participation would help with definition 3

Online courses are mildly engaging

for the most part, yes, the courses are designed to enforce the importance of student and instructor interactions or get penalized for not doing so

it depends. Some of them are really engaging, while others are not.

I believe the online coursework is cramed in to be more "busy-work" in a short time to make the student feel like they are spending money wisely

I feel that they are engaging with having interaction between student & teacher along with Student to Student

Online courses are artificially engaging due to the structure forcing students to participate in forums and group work. While this is required to force the student to become involved in the course, students are engaged because they have to and not because they want to.

Yes

They are engaging but need more collaboration with video. Discussion Boards can be too narrow focused.

Yes. Activities assigned involves active cognitive processes such as creating, problem-solving, reasoning, decision-making, and evaluation

Most of the time but, do to the separation of the body through the Internet it is hard for students to share dedicated disciplines.

Within reason, most courses I have taken are engaging. I have not yet had the chance to take an HawkVision course, however, the online courses provide a good mix of individual, group, and online discussions that I have found facilitates a positive learning environment.

yes, even though they are online courses they requier us to have weekly discussions within the online class

I do feel the courses are engaging. The student communication, which is usually a requirement helps individuals to share and post ideas.

yes, I do not have time to enjoy traditional classroom learning

Yes, but could be improved with live stream video when needed between students and course instructors for better explanations and tutoring.

I have been surprised at how engaged the online courses have been. It would be nice to be more connected to the university itself, but the format doesn't led itself to this well and I understand this.

After much internal debate definition 3 was chosen because much of what engages me in various classes is the real life examples and topics. Especially since I have been in the aerospace industry for over 20 years and every class I have taken has had real life applications (non-academic) in my day to day job.

Every class!

Yes, so far I have been challenged to look for and create answers not just regurgitate what is presented in the reading material.

Yes and no. I feel that a more adequate and relevant discussion can take place with the current blackboard program if stricter guidelines to stimulate discussion were available (i.e. more interaction on behalf of instructors). Group projects are a joke. No meaningful discussions take place due to group members lack of interest, different schedules, and different time zones. Based on both of these factors, and the fact that there is no physical interaction in the classroom, perhaps more instructor interaction is necessary in both the discussion board assignments and group projects.



Yes - good feedback, better variety of student backgrounds, no restrictions by time

Yes, Online promotes independent study and encourages students to go outside classroom environment to problem solve and establish a relationship between the classroom and real world.

Yes. Because the classes require you to research information that isn't found in the textbooks and active participation in providing discussion points to other student's responses are mandatory.

Yes and no. Would like to see more professors post videos for lectures.

Online courses are engaging to an extent. But there are limitations due to the separation of distance and time (asynchronous).

Yes, they are engaging to some extent. But I certainly feel that the university prescribes several textbooks that are of no use during the course. This is mainly because the same content is available online for access. Hence, students end up paying several hundred dollars in textbooks and other material which do not go well with the eagle vision and BB. Typically, students would need the E-textbooks so that they may access it anywhere and anytime. The best form of engagement is via videos and we are clearly not asked to watch many videos through our course content.

Online courses are as engaging as an online course can be. Being able to view and respond to fellow students class work, gives the opportunity to learn from their point of view.

No, I feel that the Online courses are just full of busy work and do not have formative communication with academic staff. I feel that the professors could be anyone with or without a degree in the field who grade papers. There is no instruction going on so as a student I just struggle to teach myself by reading a textbook. The professors bring no added value to the courses and keeping students engaged.

online courses are moderately engaging and can range dramatically based on the involvement of the instructors, particularly on the discussion boards

I feel the worldwide courses are currently more engaging than in years past.

Yes I find that they are broadening my work and personal life with new technologies and learning concepts.

They are engaging. Especially, Hawk Vision. The courses are design to promote interaction and keep students engaged in class.

c

At this point I do not. The lag time for on line communication is too much at times. Also I have only taken part of one truly active and engaging team project. Most of the time the team activities are a bust because equal participation does not happen. There are always one or two

people who do not share the load. The other drawback is that the tuition seems to be paid to teach ourselves. Generally there is no interaction with the instructor other than posting predesigned notes and or reviews. I am okay with teaching myself since I am motivated but a lot of students cannot.

No. Four out of the five Online courses I have taken did NOT provide "Formative communication with academic staff" (C. iii.). Only in MGMT 524 did the instructor genuinely invest in communicating regularly with students and provide meaningful formative feedback.

No, the worldwide courses are not engaging. Most instructors just run the course curriculum that was developed by the department and are unwilling to (or maybe incapable of) addressing questions that are not part of the course plan. In my current MS course I asked my instructor for some "check numbers" for an assignment to see if I was on track, or to let me know if I had the concepts down. His response was it would be unfair to the other students to provide such feedback. This particular instructor lacks the desire to grow his students to better understand the topic, his perspective is one of; you submit it, I'll grade it and then you'll find out how you've grasped the concepts. Why should I pay \$495 per unit to get such an attitude? If I wasn't currently enrolled in my 11th course out of 12 to complete my MS I'd look for a different school.

they are not real life; the managerial accounting course is a complete waste of time unless you're wanting to be a CPA; Discussion boards need to more meaningful & tie into the overall course tests- best exam I ever took was in Business ENGL which required you to do a form for everything you'd learned in class - great

Yes, I believe that the Online courses are engaging. In my opinion, those who choose to participate in online learning are more motivated to learn than someone who just sits in a classroom everyday. With that in mind it seems to me that the online courses I have taken have been geared towards that student mindset and are by nature engaging...at least to me anyway.

Yes, we use real life and workplace scenarios. Classes seem to relate and understand them better than straight textbook learning. Critical thinking and replies from a management prospective also provide value.

Yes

They are engaging, but follow more in line with definition 3. The nature of Blackboard, and "respond to two classmates" lends itself to this definition more than definition 2.

Yes, I am interested in the discussion aspect of the courses, I want to be informed when I answer a question so I go out and do research for discussion questions that require it.

Yes, based on the definition I most relate to I feel that Online courses are engaging. The online courses that I have had experience with are structured in a way that requires student interaction to facilitate learning. From my experience, actively engaged students learn more from each other's perspective than from course facilitator involvement.

I feel Online courses are very engaging because of the increased requirement to participate in every aspect of a term

#### ONLINE DISCUSSION

Yes... you get out what you put in though. Some don't say much while others discuss. I enjoy the breadth of experiences in worldwide.

Yes; I believe Holland touches on items i.-v. quite effectively, and I've had sincere/earnest help throughout all of my courses at Holland whether it was for my Undergraduate or Graduate level course work.

To definition B, I do not think the pure online courses are engaging enough, the effort is completely on the student side and you can or cannot get engage, it is up to the student (I think more interactive activities should be part of these courses)

Yes to the degree possible.

Yes, I only have time for the minimum required amount of work, but I am usually suprised at how interested and engaged I am in the material.

## APPENDIX E

### Verbatim Faculty Survey Responses (n=31)

Not much. Of course, i only know my courses as with all other faculty. Text only communication is too limited for real engagement.

No, the students seem to worry only about their grade, what they learn does not seem to be a concern.

Primarily, yes. The opportunity for student engagement is present in all courses, but not all students will become engaged.

Hlghly variable. Some courses hit on all five parts of defn(C). Others really miss the boat.

Yes, individuals must be engaged to complete activities because they involve cognitive processes. As well, the environment allows pursuit of higher education at a time most convenient.

Some courses align with definition #3 where other courses are basic and require the student to have NO SKIN IN THE GAME.

I teach composition, in paritcualr technical communication. My students constantly have a composition assignment (varies) to prepare based on text reading and the evaluative assessments of their work that I give. Further, the Dbs they are asked to post and respond to require their critical and evaluative abilities in combination with the writing abilities. So, I think that my cours, as constructed for online, is extrmely engaging.

Yes, they use various instruments to encourage engagement - discussions, teams, etc.

yes online classes are engaging because there are learning activities and learning materials and learning experiences online

No. I teach math and physics. The courses run pretty much on their own. Their is little engagement of students in active lessons. There is little collaboration as well. The discussion boards offer some of this, but I find it difficult to invent meaningful discussion boards for math. Physics is a little better, but still lacks much of this

I think the design of ASCI 202 is meant to encouragement engagement. I think the students fail to engage as much as they could though. The discussions are approached by some (not all) students as just another task to complete. Little effort of involvement and cognitive thinking are displayed with some students. The intent of the sharing of websites in the Web Assignments is often overlooked. These papers are meant to be shared among the students and the students are encouraged to "check them out" to see if they are helpful to them in their studies or career. I get the feeling this is not happening.

Yes. Students must interact with professors and fellow students on many activities in order to do well in the class.

Yes - provide the instructor and course developer provide the right structure and guidance.

I do believe the Holland Online courses engage the student in data evaluation, critical thinking, and the written expression of thoughts and feelings.

Yes, correlated with the real world.

Yes, weekly discussion posting and group activities are stressed in many courses.

To an extent. I do believe that the student will not engage if there is no support and interaction offered by the instructor and fellow classmates.

Yes because my class meets all five criteria listed

Yes, the online course work incorporates all five of the key elements of the definition.

These courses permit the student to explore in a differentiation type of learning

Not entirely. Many of the course I teach do not actively engage students. For example, discussion questions are not designed to engage the thought process.

The curriculum is well written and the resources, text and supplemental information is also provided for the students/

No! Now that all of the courses are 'online', I feel the interaction between students and faculty, as well as other students is missing. The classroom experiences and field trips can't be duplicated. The small talk that happens during breaks is also part of the learning process. Mentorship takes place in person. Sometimes there are too many assignments that reduce the amount of real thought that can be put into any one assignment.

Yes because the very nature of asynchronous online learning requires academic and non-academic involvement and encompasses items i through v above.

Yes because Online courses require students to learn, participate, communicate, formulate answers and engage

Yes, I feel that they are engaging. They offer a great opportunity to interact with students and share ideas, assuming the instructor is motivated and willing to keep that exchange going.

They are engaging. Our courses have depth and try to engage the student's best learning method for learning. He/she can choose several class setting and pick one best suited. Sometimes they need the structure of the classroom, and other times an online class will fit their needs.

No. My courses have required participation but it is formulaic in approach rather than a true discussion.

I've not taught an Holland course since 2001.

Online course are engaging for those students who want to be engaged and embrace the academic life to its fullest. The WW course encompass all 5 elements of the definition.

Yes. Rigorous course structures give students a sense of accomplishment after completion due to the student centered approach of Online Learning.

APPENDIX F

GPS IRB Approval Notice

# PEPPERDINE UNIVERSITY

Graduate & Professional Schools Institutional Review Board

September 20, 2013

Protocol #: E0713D11

Project Title: Views of Engagement in Asynchronous Online Courses Among Adult Online Students and Faculty

Dear Ms. Berger:

Thank you for submitting your application, *Views of Engagement in Asynchronous Online Courses Among Adult Online Students and Faculty*, for exempt review to Pepperdine University's Graduate and Professional Schools Institutional Review Board (GPS IRB). The IRB appreciates the work you and your faculty advisor, Dr. Eric Hamilton, have done on the proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations (45 CFR 46 - <http://www.nihtraining.com/ohsrsite/guidelines/45cfr46.html>) that govern the protections of human subjects. Specifically, section 45 CFR 46.101(b)(1) states:

(b) Unless otherwise required by Department or Agency heads, research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from this policy:

**Category (1) of 45 CFR 46.101**, Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as:

- a) research on regular and special education instructional strategies, or
- b) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

In addition, your application to waive documentation of consent, as indicated in your **Application for Waiver or Alteration of Informed Consent Procedures** form has been approved.

Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit a **Request for Modification Form** to the GPS IRB. Because your study falls under exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the GPS IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the GPS IRB as soon as possible. We will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the GPS IRB and the appropriate form to be used to report this information can be found in the *Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual* (see link to "policy material" at <http://www.pepperdine.edu/irb/graduate/>).

Please refer to the protocol number denoted above in all further communication or correspondence related to this approval. Should you have additional questions, please contact Veronica Jimenez, GPS IRB Manager at [gpsirb@pepperdine.edu](mailto:gpsirb@pepperdine.edu). On behalf of the GPS IRB, I wish you success in this scholarly pursuit.

Sincerely,



Thema Bryant-Davis, Ph.D.

Chair, Graduate and Professional Schools IRB

cc: Dr. Lee Kats, Vice Provost for Research and Strategic Initiatives  
Ms. Alexandra Roosa, Director Research and Sponsored Programs  
Dr. Eric Hamilton, Graduate School of Education and Psychology