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Learner Satisfaction in Online Learning: An Analysis of the Perceived Impact of
Learner-Social Media and Learner-Instructor Interaction

A dissertation

presented to

the faculty of the Department of Educational Leadership and Policy Analysis

East Tennessee State University

Johnson City, Tennessee

In partial fulfillment

of the requirements for the degree

Doctor of Education in Educational Leadership

by

Jeffery C. Andersen

May 2013

Dr. James Lampley, Chair

Dr. Lee Daniels

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Dr. Cindy Smith

Keywords: online learning, social-media, student-instructor, interaction, Moodle

ABSTRACT

Learner Satisfaction in Online Learning: An Analysis of the Perceived Impact of Learner-Social Media and Learner-Instructor Interaction

by

Jeffery C. Andersen

The purpose of this study was to determine the relationships between general course satisfaction, learner-instructor interaction, and the learner-social media interaction scores of participants. This study used an online survey with 60 questions to gather the participants' demographic data, learner-instructor interaction data, learner-social media interaction data, and general course satisfaction data. Data from the survey were examined through the use of independent sample t-tests, one-way ANOVAs, and Pearson Correlations based on 10 participant demographic variables.

Of the 10 demographic variables, age, GPA, athletic team participation, and work status were found to have a statically significant relationship with the three constructs. The findings indentified statistical significance between age, work status of participants, and the construct of learner-instructor interaction; between gender, athletic team participation, and the construct of social-media interaction; and between the age, GPA, work status, and the construct of general course satisfaction. Furthermore, learner-instructor interaction and learner-social media interaction had a statistically significant relationship with general course satisfaction. Overall, there was a strong positive correlation between both constructs of learner-instructor interaction and learner social media interaction with general course satisfaction.

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DEDICATION

This dissertation is dedicated to those individuals who gave me the support, time, and encouragement I needed throughout this journey. Thank you to my loving and understanding wife who gave me the encouragement, space, time, and understanding that I needed throughout this journey. Thank you to my son who allowed me to work, was understanding when Dad was not there, and gave me encouragement to continue my efforts in accomplishing this goal. I give thanks to my late parents who instilled in me a strong work ethic and understanding of the value of finishing what you start. To all of these individuals I am forever grateful.

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CHAPTER 1

INTRODUCTION

Because of the current global economic conditions, American higher education institutions are being challenged in unprecedented ways (US Department of Education, 2010). These institutions are seen as America's way to compete by providing a pathway to good jobs and higher earning power for Americans (Allen & Seaman, 2010). Results from Hanna's (2003) research showed that the demand for higher education was not being met. To meet that demand an unattainable building of institutions would need to occur. Valentine (1994) cited a study of higher education administrators completed by Basom and Sherritt, which revealed that meeting increased demands with decreasing resources, was the most pressing issue. Johnson, Levine, Smith, and Stone (2010) identified a further critical challenge to institutions of higher education to be that of providing high quality courses to a growing number of online learners with decreasing resources. Increased access to higher education through governments is motivating students to seek out and enroll in online educational opportunities (Stewart, Bachman, & Johnson, 2010). These challenges have resulted in changes by institutions regarding how and when to deliver their product to the students who arrive at their doorsteps. According to LaBay and Comm (2004) for higher educational institutions to remain competitive, they must be offering online learning programs and courses.

In response to this increasing demand, more institutions of higher education are offering online learning. According to Allen and Seaman (2010) online enrollment has been growing faster than traditional face-to-face classroom instruction in recent years. In the fall of 2009, 5,600,000 students were enrolled in at least one online course, which represented a 21% increase over the highest online enrollment in any previous year. Their survey determined that one in four

students was taking online courses, 54% of institutions of higher education experienced an increase demand for online courses, 66% of institutions of higher education had an increased demand for new online courses and programs, and 73% of higher education institutions had an increased demand for existing online courses. These figures from the survey revealed that there was greater competition among institutions for the online learner and growth in the for-profit higher education sector. These challenges, increased demand for online learning, competition for online learners, and growth in the for-profit higher education sector will require that institutions of higher education consider what they deliver from a new perspective.

Low and USA Group, Inc. (2000) concluded that successful institutions shared the following three attributes: "...they focus on the needs of their students; they continually improve the quality of the educational experience, and they use student satisfaction data to shape their future directions" (p. 33). Methods for preparing students are changing and to accomplish this institutions are increasing the use of technology. Many students are facing increased work hours as they attend courses, increased family responsibilities, and a need for learning anytime and anywhere. Students' needs are motivating institutions of higher learning to make significant changes in the way they deliver their learning programs (Frey, Webreck, & Steffens, 2004). This challenge to institutions of higher education requires a paradigm shift by the institution on how and when they deliver their courses and services. Hanna (2003) suggested that institutions of higher education would need to transform the structure of their processes and programs to be both flexible and more responsive to students' needs. Administrators in institutions of higher education are recognizing that online learning programs are critical to their long-term strategy and are increasingly placing this in their institutional strategic planning (Kim & Bonk, 2006).

In 1993 researchers at The Sloan Consortium (2012) coined the now familiar term “asynchronous learning networks” to convey the idea that people learn at various times and places in everyday life (Moore, 2005). These researchers identified a quality framework and five pillars that support quality learning environments (Moore, 2005). Pillars of Quality are used as benchmarks for continuous improvement of teaching and learning in institutions of higher education. Two of the pillars are *cost effectiveness and institutional commitment* and *student satisfaction*. These pillars are reflective of challenges being placed on institutions of higher education. *Student satisfaction* reflects the satisfaction levels of students with their learning environments and *cost effectiveness and institutional commitment* reflects how well institutions manage their resources. Moore (2005) stated that 95% of all for-credit degree oriented instruction in the country followed the Quality Framework model in their online learning environments. The identifiable goal in student satisfaction is based on how pleased students are with their experiences with online learning. The *Cost Effectiveness and Institutional Commitment* pillar identifies goals for continuously improving services while reducing costs. Institutions of higher education that achieve the goals of the Pillars in turn meet the needs of students, improve the quality of their programs, and are able to measure the satisfaction levels of their students. Concurrently, participating institutions are transforming their processes and methods in the delivery of quality online learning.

Online learning is changing the way in which higher education is viewed by students and faculty and is causing a paradigm shift within each group. Craig, Goold, Coldwell, and Mustard (2008) contended that online teaching is changing the roles of students and teachers. Students are increasingly referred to as consumers while demonstrating consumer-like behavior in their choice of learning environments (Howell, Williams, & Lindsay, 2011). Faculty roles in online

learning have been changing to include those of mentors, facilitators, counselors, and coaches. According to Johnson et al. (2010) research has suggested that “the role of the academy – and the way we prepare students for their future lives – is changing” (Johnson et al., 2010, p. 5). This creates a challenge for institutions of higher education to adopt teaching and learning practices that meet the increasing needs of online learners and faculty.

Duderstadt (1999) reported that online learning environments were changing from traditional faculty-centered to learner-centered environments. These changes are affecting both the mission and methodologies in which institutions operate. Such changes have created new challenges faced by institutions delivering online learning. One of the major challenges facing online learning is student attrition rates. Hill (2009) found that online learning program attrition rates were 10% to 20% higher than those in traditional face-to face classes. Hill suggested that such high attrition rates represented critical issues that insitutions of higher education must face. Shaik (2009) also reported that low retention rates represented significant losses of revenue for the insitutions and could have a negative impact on their financial health. Herbert (2006) stated “...a key issue for postsecondary institutions is that of trying to find ways in which student retention in online courses can be improved” (p. 2). Conducting research to determine more effective ways to decrease attrition rates of online learners is critical to both the financial resources and the perceived program quality for institutions of higher education.

Heyman (2010) contended that one of the largest challenges to providers of online learning was that of reducing attrition rates. Research on student retention has been conducted for many years and the focus until recently has been on the traditional student in higher education. Increasing demand for institutions of higher education to become more accountable to students needs requires the institutions to conduct research into the online student satisfaction

levels and the relationship to retention (Herbert, 2006). Researchers have studied at the satisfaction levels of students based on student characteristics, course design structure, course delivery methods, and student expectations. Faculty responsible for the development and design of online learning should take into account students' satisfaction, which could result in increased quality of online learning programs (Sampson, Leonard, Ballenger, & Coleman, 2010). Stewart et al. (2010) suggested that most studies had focused on demographic variables of students and few had focused on the relationship and expectations of the online learners. In order to better serve online students, institutions must understand how satisfied online learners are with their educational experience (Noel-Levitz, Inc., 2009).

With the increase of offerings in online learning, there has been little research to investigate learners' satisfaction in online learning environments (Craig et al., 2008; Hill & Raven, 2000; Mykota & Duncan, 2007; Singh, 2005). Research on satisfaction levels has identified factors having a direct impact on the satisfaction levels of online learners. Vesely, Bloom, and Sherlock (2007) found that increased interaction between faculty and students resulted in an increased satisfaction level for online learners. Song (2004) found a positive correlation between vocational effectiveness and the teaching and learning process and significant differences in satisfaction scores based on the student characteristics such as marital status and reason for taking online courses. Craig et al. (2008) suggested that a mismatch between students' expectations and their experiences decreased student satisfaction levels. Scalese (2001) and Carr (2000) reported that those institutions with higher student satisfaction levels were more likely to reduce their attrition levels. Noel-Levitz, Inc. (2009) found in their study of online learners that higher graduation rates were associated with more highly satisfied students. Hawkins (2009) found that when students' satisfaction levels increased the retention

rate increased as well. When institutions have a full understanding of the factors that affect online learners satisfaction levels, retention rates should increase.

Statement of the Problem

Higher education institutions are being challenged by an increasing demand for programs and courses. To meet this challenge, institutions have turned to technology for assistance with the delivery of their programs. A paradigm shift in higher education has occurred in how learning is delivered to students (El Mansour & Mupinga, 2007). Despite the increased number of institutions providing online learning programs, one of the largest challenges to higher education is the retention of students in online programs (Heyman, 2010). Understanding the factors that increase student satisfaction scores in online learners could provide educators with data needed for the design of online courses and programs that will improve the retention rate of online learners. “By collecting satisfaction data from online learners on a regular basis, campuses are able to determine where they are best serving these students and where there are areas for improvement” (Noel-Levitz, Inc., 2009, p. 2). Because there are a limited number of studies addressing student satisfaction and the use of social media, this study will add knowledge about improving technology in online classes. Finally, the additional knowledge should provide institutions with a foundation in which to improve and enhance their online program delivery and positively affect student satisfaction.

The purpose of this study was to determine if there is a relationship between the use of social-media and students’ satisfaction scores in online classes at the participating college. The second question to be addressed will be to identify the relationship between perceived instructor-learner interaction and students’ satisfaction scores at the participating college. The research

questions addressed in this study will assist in understanding relationship of these variables, use of social media and instructor-student interaction, to student satisfaction scores in online courses.

Significance of Study

Zawacki-Richter, Backer, and Vogt (2009) reported that interaction and communication in online learning communities were frequently rated as the most important factors. Easton (2003) indicated that the instructors' new role required an ability to engage students through virtual communications. The findings of this study should provide online faculty members with course design information that can lead to increased student satisfaction. By surveying students' satisfaction with online learning, best practices to the approach of delivering online learning courses may be identified.

Research Questions

The following research questions guided this study.

Research Question 1: Is there a significant difference in the Learner-Instructor Interaction Scores between male and female students at the participating college?

Research Question 2: Is there a significant difference in the Learner-Social Media Interaction Scores between male and female students at the participating college?

Research Question 3: Is there a significant difference in the General Course Satisfaction Scores between male and female students at the participating college?

Research Question 4: Is there a significant relationship of the Learner-Instructor Interaction Scores among students' reported ages at the participating college?

Research Question 5: Is there a significant relationship of the Learner-Social Media Interaction Scores among students' reported ages at the participating college?

Research Question 6: Is there significant relationship of the General Course Satisfaction Scores among students' reported ages at the participating college?

Research Question 7: Is there a significant relationship of the Learner-Instructor Interaction Scores among the grade-point-average (GPA) groups at the participating college?

Research Question 8: Is there a significant relationship of the Learner-Social Media Interaction Scores among the grade-point-average (GPA) groups at the participating college?

Research Question 9: Is there a significant relationship of the General Course Satisfaction Scores among the grade-point-average (GPA) groups at the participating college?

Research Question 10: Is there a significant difference in the Learner-Instructor Interaction Scores between White and minority students at the participating college?

Research Question 11: Is there significant difference in the Learner-Social Media Interaction Scores between White and minority students at the participating college?

Research Question 12: Is there a significant difference in the General Course Satisfaction Scores between White and minority students at the participating college?

Research Question 13: Is there a significant difference in the Learner-Instructor Interaction Scores between college athletic team members and non-college athletic team members at the participating college?

Research Question 14: Is there a significant difference in the Learner-Social Media Interaction Scores between college athletic team members and non-college athletic team members at the participating college?

Research Question 15: Is there a significant difference in the General Course Satisfaction Scores between college athletic team members and non-college athletic team members at the participating college?

Research Question 16: Is there a significant difference in the Learner-Instructor Interaction

Scores between full-time students and part-time students at the participating college?

Research Question 17: Is there a significant difference in the Learner-Social Media Interaction

Scores between full-time students and part-time students at the participating college?

Research Question 18: Is there a significant difference in the General Course Satisfaction Scores

between full-time students and part-time students at the participating college?

Research Question 19: Is there a significant difference in the Learner-Instructor Interaction

Scores among students classified as Freshman, Sophomore, Junior, Senior, or Graduate

Student at the participating college?

Research Question 20: Is there a significant difference in the Learner-Social Media Interaction

Scores among students classified as Freshman, Sophomore, Junior, Senior, or Graduate

Student at the participating college?

Research Question 21: Is there a significant difference in the General Course Satisfaction Scores

among students classified as Freshman, Sophomore, Junior, Senior, or Graduate Student

at the participating college?

Research Question 22: Is there a significant difference in the Learner-Instructor Interaction

Scores among students who work full time, work part time, or do not work at the

participating college?

Research Question 23: Is there a significant difference in the Learner-Social Media Interaction

Scores among students who work full time, work part time, or do not work at the

participating college?

Research Question 24: Is there a significant difference in the General Course Satisfaction Scores among students who work full time, work part time, or do not work at the participating college?

Research Question 25: Is there a significant relationship of the Learner-Instructor Interaction Scores among the groups of completed Moodle delivered classes at the participating college?

Research Question 26: Is there a significant relationship of the Learner-Social Media Interaction Scores among the groups of completed Moodle delivered classes at the participating college?

Research Question 27: Is there a significant relationship of the General Course Satisfaction Scores among the groups of completed Moodle delivered classes at the participating college?

Research Question 28: Is there a significant relationship between Learner-Instructor Interaction Scores and General Course Satisfaction Scores?

Research Question 29: Is there a significant relationship between Learner-Social Media Interaction Scores and General Course Satisfaction Scores?

Assumptions, Limitations, and Delimitations

This study is limited by the appropriateness of the electronic survey in determining the participants understanding of instructor interaction, social media, and course satisfaction constructs. It is assumed that the survey used for data collection is valid and reliable. It is also assumed that the methodology adequately addressed the research questions. In addition it is assumed that the statistical tests were appropriate and possessed the necessary power to detect differences in the variables if differences are present. It is assumed that participants responded to

the survey honestly and that the sample was representative of the population. This study is also limited by the usefulness of the results to the stakeholders.

This study is delimited to the students enrolled in a Moodle delivered course during July and October, 2012. This study is further delimited by the theoretical framework that was selected for the research. Learner-instructor interaction, learner-social media interaction, and general course satisfaction were measured on a Likert-type scale with an instrument especially designed for this study. This study is also delimited to participants who choose to return a completed survey. The results may not be generalized other online learning communities.

Definition of Terms

Asynchronous Learning Networks: technology-enabled networks for communications and learning communities (Moore, 2005, p. 9).

Blended or Hybrid Course: having between 30% and 80% of the course content delivered online (Allen & Seaman, 2010, p. 5). For the purposes of this study a blended class uses both face-to-face and online discussions.

Face-to-Face Class: courses in which zero to 29% of the content is delivered online; this category includes both traditional and web facilitated courses (Allen & Seaman, 2010, p. 5).

Moodle: an open source software package used for producing internet-based courses and web sites (Moodle, n.d.).

Online Course: defined as those in which at least 80% of the course content is delivered online (MHC). An online course usually has no face to-face-meetings. For the purposes of this study this is a fully online class.

Web Facilitated Course: Course that uses web-based technology to facilitate what is essentially a face-to-face course. May use a course management system (CMS) or web pages to post the syllabus and assignments (Allen & Seaman, 2010, p. 5). Web facilitated courses deliver 1% to 29% of the content online.

Overview of the Study

This study is organized into five chapters. Chapter 1 – Introduction – contains a description of The Population, the Statement of The Problem, Significance of the Study, Research Questions, Limitations and Delimitations, Definition of Terms, and an Overview of the Study. Chapter 2 – Literature Review – contains review of the literature, Online Learning, Online Learning and Learner-Instructor Interactions, Online Learning and Learner-Social Media, and a Summary. Chapter 3 – Research Method – describes how the research was done including the Research Questions and Null Hypotheses, Instrumentation, Population, Data Collection, Data Analysis, and a Summary. Chapter 4 – Analysis of Data – reports the findings of the study and an analysis of the data for each research question. Chapter 5 – Summary of Findings, Conclusions, and Recommendations – provides a Summary of the Findings for each research question, Conclusions for each research question, Recommendations for Future Research, and Recommendations for Practice.

CHAPTER 2

LITERATURE REVIEW

Introduction

Institutions of higher education are facing many new challenges that include how colleges and universities deliver their educational services. These challenges stem in part from the development of technologies that are changing the way higher education institutions operate. Christensen and Eyring (2011) suggested that as a technology, online learning has been changing, including the ways in which higher education delivers its courses, the demographics of the learners, and the organizational structures of higher education institutions. A report by McCarthy, Samors, the Association of Public and Land-Grant Universities, and the Alfred P. Sloan Foundation (2009) focused on including online learning to achieve institutional goals and missions. To capitalize on those challenges, many higher education institutions have transformed the ways they create and deliver their educational services. They do this by establishing online learning courses and programs. Johnson et al. (2010) found that the role of colleges and universities had increasingly focused on key goals and adapting teaching and learning practices to meet the needs of current learners. Lokken and Womer (2007) reported that 70% of the responding institutions stated that demands for online courses were exceeding their current offerings. Colleges and universities are embracing and managing new educational delivery challenges through the creation of online learning programs.

Online Learning Environment

Allen and Seaman (2010) reported that in the fall of 2009 students who were taking online courses had increased by 1,000,000 since 2008. That was the largest single year increase since they had begun reporting on this in 2002. As demand for the delivery of online programs

continues to increase, so are the roles of the faculty and demographics of students. Kim and Bonk (2006) found that successful online instructors were aligned with constructivist principles in the design of online learning communities. They also concluded that the alignment involved the inclusion of interactive project-based learning. Easton (2003) found that online learning was changing the faculty role and limiting their face-to-face contact with students. The faculty role was changing to one of a learning facilitator, software technology expert, and increasingly a specialist in curriculum design. Johnson et al. (2010) suggested that online technology was challenging faculty members to revisit their roles as educators. Faculty members were finding it necessary to rethink the way they designed and integrated technology into their instruction (Howell et al., 2011). Garrison (2000) stated that the challenge to online faculty would be the understanding of delivering learning at a distance. Song and Hill (2009) contended that the instructor's effective facilitation and guidance was needed to produce successful online learning environments. Finally, Glahn and Gen (2002) suggested that the delivery of online learning had moved from process innovation to the adoption of appropriate teaching and learning strategies to ensure student success.

Online learning has been changing the way higher education institutions are delivering their courses, including the removal of geographic barriers. Students with previously limited access to higher education now find an increasing number of educational opportunities. This has resulted in a change in the demographics of the students involved in higher education. A study by the Demos Foundation (as cited in American InterContinental University, 2010) revealed that the number of students under 24 working full-time had increased by 18% since 1972. A US Department of Education study (as cited in American InterContinental University, 2010) showed that 61% of students were working at least 20 hours a week and 23% were also parents. Students

increasingly have been searching for online options that are flexible and can fit into work and family commitments (American InterContinental University, 2010; Herbert, 2006; LaBay & Comm, 2004; Noel-Levitz, Inc., 2009). The changing demographics of the college student population will affect how faculty members plan and deliver online programs. In turn, this will require programs to be designed to incorporate new technologies designed to increase online learning satisfaction.

Changing the method of course delivery to online has required an explosion of new technology to be created in that endeavor. Social media comprises a set of technologies that is increasingly used by students and faculty within online learning environments. Social media has been described as "...the potential to transform from a way of pushing content outward to a way of inviting conversation, of exchanging information, and of invoking unparalleled individual, industry, societal, and even global change" (Moran, Seaman, & Tinti-Kane, 2011, p. 4).

According to Boyd and Ellison (2007) web-based services that allow individuals to (1) construct a public or semipublic profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system.

Smith, Caruso, and the Educause Center for Applied Research (2011) reported that the use of social media by college students continued to remain high. Over 90% of the student respondents from their study indicated that they used social media on a daily basis. Moran et al. (2011) reported that more than 80% of faculty members were incorporating some form of social media into their teaching. Faculty members have also stated that social media represented a valuable tool for collaborative learning.

Online Learning and Learner-Instructor Interactions

Because the online instructor does not have the advantage of meeting each learner face-to-face, the challenge is to create various positive interactive activities in the asynchronous course environment. Woollen and Rabe-Hemp (2009) completed a mixed methodology study to investigate if students' expectations affect their satisfaction with an online course. Data collected indicated a higher level of dissatisfaction among students with a lack of contact with the faculty member. Watwood, Nugent, and Deihl (2009) proposed from their literature review of online learning that it was the method of delivery and the interactions that were different in the online learning environment. Vesely et al. (2007) explored the importance of the development of an online learning community. A survey was used to gather data from 62 university participants. The survey was delivered by email and administered near the end of the semester to allow participants some time for reflection. Data analysis revealed that 85% of the participants perceived that being part of a learning community assisted in the students' success. The participants identified key elements of the learning community as (a) purposeful communication involving encouragement and support, (b) comfortable exchange of ideas in an organized fashion, and (c) a sense of shared purpose. The study emerged with two conclusions: (1) The development of learning communities was encouraged by including structure and collaborative activities, and (2) the inclusion of opportunities for intentional and supportive activities (Vesely et al., 2007). According to Vesely et al. it is incumbent upon the online faculty to play a large leadership role in building the learning community. Instructors may begin this process by modeling the appropriate behavior and creating the environment through course design. The faculty members' presence (interactive activities) must be frequent and effective.

Mupinga, Nora, and Yaw (2006) studied the learning styles and expectations of the online learner and how they can be incorporated into the design of online instruction. They used the *Myers-Briggs Cognitive Style Inventory* and a survey with one open-ended question: “What are your needs and expectations as an Internet student?” (Mupinga et al., 2006, p. 180). The results revealed that the online learner expected instructor interaction. The top two responses can be grouped into communication with the instructor and instructor feedback. Eighty-three percent of the participants stated that they expected the instructor to communicate with them on a regular basis and to make prompt responses to inquiries. They further defined prompt as a maximum of a 24-hour confirmation of receipt of submitted assignments. Seventy-six percent expected the assignments to be graded immediately or at least within 48 hours. The study discussion identified that other instructor interaction expectations were (a) guidance with sample assignments posted, (b) advance course information, and (c) life challenges would be acknowledged by the instructor. All of the expectations represent actions the learner required of the instructor to increase their connection with the course (Mupinga et al., 2006).

A 2007 study by Dennen, Darabi, and Smith examined the perceived importance of 19 instructor actions in online courses, according to both instructors and students. The study participants included 32 online instructors and 171 students from a private university. Students and instructors were asked to rate each of 16 items indicating their perception of the items based on their role. The instructors rated the items on the basis of importance to student performance and satisfaction and the students rated the importance of the items on relationship to the effectiveness of instructor practices. The results mirrored the Mupinga et al. 2006 study by identifying extensive feedback (email, feedback, and forum posting) and information needs (examples and course materials) as having high importance by both the instructors and students.

The discussion highlights the implied belief that learners feel more satisfied when their interpersonal communication needs are met (Dennen et al., 2007).

Sher (2009) studied the relationship between student learning and interaction dynamics in an online learning environment. The sample (208 students at US East Coast University) consisted of students enrolled in 30 class sections in Tourism Administration, project Management, and Health Sciences during the spring 2003 semester. The research identified a significant statistical relationship between the student-instructor interaction and student satisfaction in online learning environments. Sher (2009) concluded the research suggesting that online learning programs must "...provide students with what is valued in education: interaction with instructors and other students" (p. 117).

Ali, Ramay, and Shahzad (2011) compared the associations between several variables of online learning environment with student satisfaction. The variables used in this relationship study were (a) instructor's performance, (b) course evaluation, and (c) student-instructor interaction. The sample of 245 students at Allama Iqbal Open University completed a survey administered at the university. The results revealed that student-instructor interaction was the strongest variable in predicting student satisfaction, followed by instructor's performance, and finally course evaluations. Over 68% of the participants indicated that instructor encouragement for them to become actively involved in course discussion was an important factor. Once again, the researchers indicated the importance of the instructor's actions in the online learning environment and its relationship with student satisfaction.

Sun et al. (2008) researched the critical factors associated with learner satisfaction with online learning. Of the 645 surveys distributed to students in 16 courses, only 295 surveys were

returned and usable for the study. Seven of the 13 variables had a statistically significant relationship with online learner satisfaction:

1. online course quality,
2. diversity in assessment,
3. learner perceived ease of use,
4. learner perceived usefulness of online learning,
5. instructor attitude toward online learning,
6. online course flexibility, and
7. learner computer anxiety (Sun et al. 2008).

An interesting finding of this study, which is different from findings discussed in other studies, was that there was not a statistically significant relationship between the instructor's response time and online learner satisfaction. The researchers suggested it might be that students were working and may not have noticed the instructor's timeliness (Sun et al., 2008).

A study of 917 undergraduate students, using the Distance Education Learning Environments Survey (DELES), was completed by Sahin (2007). Sahin explored the relationship between student satisfaction and six predictor variables where four were found to be statistically significant and positively related to student success:

- personal relevance,
- instructor support,
- active learning, and
- authentic learning.

Student autonomy and student interaction and collaboration were not found to be statistically significant related to student success. Sahin (2007) suggested that timely help by the instructor,

useful instructor feedback, and easy communication by the instructor were key factors in student satisfaction.

Online Learning and Learner-Social Media

Lokken and Womer (2007) reported that online learning is increasingly attractive to *Millennials* who are also known as *Net Generation* students. Such students are well versed and active in the use of social media such as Facebook, Twitter, and iTunes (Gleason, 2008; Herbert, 2006; Sampson et al., 2010). Many online instructors have been incorporating the use of social media into their courses as a way to engage online learners. Tinti-Kane, Seaman, and Levy (2011) found that 30% of faculty members who completed their social media use survey reported the use of social media to communicate with students. While there have been few studies on the relationship between social media and student satisfaction, there have been some that have shown a positive relationship between the two. Rath (2011) completed a study to explore the use of Twitter in an online learning environment. The study involved 39 students taking an online class that incorporated Twitter into the learning environment. At the end of 13 weeks, the participants received a 10-question multiple-choice survey with one open-ended question. Data from that survey revealed that using Twitter in the course was associated with an 86% agreement that a sense of community was created. Other findings of the study, when compared to other social media, such as, Facebook and LinkedIn, revealed that 38% of the participants suggested there was no uniqueness to Twitter as a social medium (Rath, 2011). Lin and van't Hooft (2008) researched the impact blogs have on student satisfaction and found that the increased level of interactivity of blogs increased the students' learning satisfaction. Lin and van't Hooft (2008) used mixed methods in their study of 28 undergraduate students who were enrolled in a Taiwan university. They concluded that a majority of students were in favor of the use of blogs in

blended learning environments. According to Lin and van't Hooft educators should be encouraged to design learning environments that facilitate social interaction.

Another study by Rutherford (2010) that examined the use of social media in an online learning environment was completed. That study found a positive correlation between students' use of a variety of social media resources and how students evaluated the quality of their learning experience and overall program quality. The participants were 675 teachers in an 8-month preservice education program. The study assessed the perceived impact of social media use on student engagement. The survey used was similar to the National Survey of Student Engagement (NSSE) and was delivered to the participants through an email prompt. The social media identified by participants as being used most often for course work collaboration included (a) email, (b) Twitter, (c) LMS, (d) Facebook, and (e) wikis. Rutherford concluded that understanding the use of social media resources may assist in motivating lowly engaged students.

A 2002 study by Thurmond, Wambach, Connors, and Frey compared the relationship between each of several environmental variables in an online learning environment to student satisfaction. The environmental variables were based on the principles discussed by Chickering and Gamson (1987) in *Seven Principles for Good Practice in Undergraduate Education*. Included in these are engaging in active learning and providing quick feedback. The participants were students from three different university nursing programs who completed a 57-item questionnaire to evaluate their online nursing courses. The findings revealed that there is a statistically significant relationship between the environmental variables (communication from and with the instructor) to student satisfaction. The study also found that a strong predictor of student satisfaction was having opportunities to work in teams or groups (Thurmond et al., 2002).

To examine social interaction, Oestmann and Oestmann (2005) assessed the association between class size and learner interaction in forums and discussions. The participants of this study were enrolled in five sections of the same course. The classes ranged in size from less than 10 to more than 20 students in a class. The study findings indicated that there were more significantly different substantive discussion posts in large classes as compared to small classes. A discussion of the study revealed that this datum could be used by online administrators in the structuring of class size and by instructors in creating online learning environments.

Summary

A review of the literature has shown that the instructor's role has changed with the onset of online learning. The use of social media and interactions that the instructor should have with students has been identified as highly important. The research shows that students want to interact with the instructor and peers and expect this in an online learning environment. Delaney, Johnson, Johnson, and Treslan (2010) investigated students' perceptions of effective teaching and how instructors demonstrated these characteristics. The responses to an open-ended online survey from both face-to-face and online students were grouped into nine categories of effective instructional behaviors. Both research groups identified three effective instructional behaviors associated with the learner-instructor interaction: approachable, engaging, and communicative and responsive.

Dabbagh (2007) described in her article about emerging characteristics and pedagogical implications for the online learner that the instructor should focus on designing online learning environments that engage the learner. Further, Baghdadi (2011) suggested that a best practice for an online instructor included "The online instructor must actively participate in all dimensions of the online classroom" (Best practices: Instructor, para. 1). This study focused on how two

variables of the online learning environment are associated with student satisfaction: 1) Use of media in the online learning environment and 2) Instructor-learner interaction in online learning environments.

CHAPTER 3

RESEARCH METHOD

The purpose of this study was to determine the relationships between or among the mean general course satisfaction, learner-instructor interaction, and the learner-social media interaction scores of participants. This chapter identifies the quantitative research design, population, instrument used, data collection methods, and data analysis methods. This quantitative study consisted of a data analysis based on the responses to an online survey that I sent electronically to students enrolled in Moodle delivered courses during the months of July and October 2012. The instrument used is a modification of The Online Satisfaction Survey (see Appendix A) developed by Strachota (2003). I asked the participants surveyed to respond to specific questions about student-instructor interactions and instructor use of social media in their online courses.

Research Questions and Null Hypotheses

Twenty-nine research questions and associated null hypotheses were used to guide this study.

Research Question 1. Is there a significant difference in the Learner-Instructor Interaction Scores between male and female students at the participating college?

Ho1: There is no significant difference in the Learner-Instructor Interaction Scores between male and female students at the participating college.

Research Question 2. Is there a significant difference in the Learner-Social Media Interaction Scores between male and female students at the participating college?

Ho2: There is no significant difference in the Learner-Social Media Interaction Scores between male and female students at the participating college.

Research Question 3. Is there a significant difference in the General Course Satisfaction Scores between male and female students at the participating college?

Ho3 There is no significant difference in the General Course Satisfaction Scores between male and female students at the participating college.

Research Question 4. Is there a significant relationship of the Learner-Instructor Interaction Scores among students' reported ages at the participating college?

Ho4: There is no significant relationship of the Learner-Instructor Interaction Scores among students' reported ages at the participating college.

Research Question 5. Is there a significant relationship of the Learner-Social Media Interaction Scores among students' reported ages at the participating college?

Ho5: There is no significant relationship of the Learner-Social Media Interaction Scores among students' reported ages at the participating college.

Research Question 6. Is there significant relationship of the General Course Satisfaction Scores among students' reported ages at the participating college?

Ho6: There is no significant relationship of the General Course Satisfaction Scores among students' reported ages at the participating college.

Research Question 7. Is there a significant relationship of the Learner-Instructor Interaction Scores among the grade-point-average (GPA) groups at the participating college?

Ho7: There is no significant relationship of the Learner-Instructor Interaction Scores among the grade-point-average (GPA) groups at the participating college.

Research Question 8. Is there a significant relationship of the Learner-Social Media Interaction Scores among the grade-point-average (GPA) groups at the participating college?

Ho8: There is no significant relationship of the Learner-Social Media Interaction Scores among the grade-point-average (GPA) groups at the participating college.

Research Question 9. Is there a significant relationship of the General Course Satisfaction Scores among the grade-point-average (GPA) groups at the participating college?

Ho9: There is no significant relationship of the General Course Satisfaction Scores among the grade-point-average (GPA) groups at the participating college.

Research Question 10. Is there a significant difference in the Learner-Instructor Interaction Scores between White and minority students at the participating college?

Ho10: There is no significant difference in the Learner-Instructor Interaction Scores between White and minority students at the participating college.

Research Question 11. Is there significant difference in the Learner-Social Media Interaction Scores between White and minority students at the participating college?

Ho11: There is no significant difference in the Learner-Social Media Interaction Scores between White and minority students at the participating college.

Research Question 12. Is there a significant difference in the General Course Satisfaction Scores between White and minority students at the participating college?

Ho12: There is no significant difference in the General Course Satisfaction Scores between White and minority students at the participating college.

Research Question 13. Is there a significant difference in the Learner-Instructor Interaction Scores between college athletic team members and non-college athletic team members at the participating college?

Ho13: There is no significant difference in the Learner-Instructor Interaction Scores between college athletic team members and non-college athletic team members at the participating college.

Research Question 14. Is there a significant difference in the Learner-Social Media Interaction Scores between college athletic team members and non-college athletic team members at the participating college?

Ho14: There is no significant difference in the Learner-Social Media Interaction Scores between college athletic team members and non-college athletic team members at the participating college.

Research Question 15. Is there a significant difference in the General Course Satisfaction Scores between college athletic team members and non-college athletic team members at the participating college?

Ho15: There is no significant difference in the General Course Satisfaction Scores between college athletic team members and non-college athletic team members at the participating college.

Research Question 16. Is there a significant difference in the Learner-Instructor Interaction Scores between full-time students and part-time students at the participating college?

Ho16: There is no significant difference in the Learner-Instructor Interaction Scores between full-time students and part-time students at the participating college.

Research Question 17. Is there a significant difference in the Learner-Social Media Interaction Scores between full-time students and part-time students at the participating college?

Ho17: There is no significant difference in the Learner-Social Media Interaction Scores between full-time students and part-time students at the participating college.

Research Question 18. Is there a significant difference in the General Course Satisfaction Scores between full-time students and part-time students at the participating college?

Ho18: There is no significant difference in the General Course Satisfaction Scores between full-time students and part-time students at the participating college.

Research Question 19. Is there a significant difference in the Learner-Instructor Interaction Scores among students classified as Freshman, Sophomore, Junior, Senior, or Graduate Student at the participating college?

Ho19: There is no significant difference in the Learner-Instructor Interaction Scores among students classified as Freshman, Sophomore, Junior, Senior, or Graduate Student at the participating college.

Research Question 20. Is there a significant difference in the Learner-Social Media Interaction Scores among students classified as Freshman, Sophomore, Junior, Senior, or Graduate Student at the participating college?

Ho20: There is no significant difference in the Learner-Social Media Interaction Scores among students classified as Freshman, Sophomore, Junior, Senior, or Graduate Student at the participating college.

Research Question 21. Is there a significant difference in the General Course Satisfaction Scores among students classified as Freshman, Sophomore, Junior, Senior, or Graduate Student at the participating college?

Ho21: There is no significant difference in the General Course Satisfaction Scores among students classified as Freshman, Sophomore, Junior, Senior, or Graduate Student at the participating college.

Research Question 22. Is there a significant difference in the Learner-Instructor Interaction Scores among students who work full time, work part time, or do not work at the participating college?

Ho22: There is no significant difference in the Learner-Instructor Interaction Scores among students who work full time, work part time, or do not work at the participating college.

Research Question 23. Is there a significant difference in the Learner-Social Media Interaction Scores among students who work full time, work part time, or do not work at the participating college?

Ho23: There is no significant difference in the Learner-Social Media Interaction Scores among students who work full time, work part time, or do not work at the participating college.

Research Question 24. Is there a significant difference in the General Course Satisfaction Scores among students who work full time, work part time, or do not work at the participating college?

Ho24: There is no significant difference in the General Course Satisfaction Scores among students who work full time, work part time, or do not work at the participating college.

Research Question 25. Is there a significant relationship of the Learner-Instructor Interaction Scores among the groups of completed Moodle delivered classes at the participating college?

Ho25: There is no significant relationship of the Learner-Instructor Interaction Scores among the groups of completed Moodle delivered classes at the participating college.

Research Question 26. Is there a significant relationship of the Learner-Social Media Interaction Scores among the groups of completed Moodle delivered classes at the participating college?

Ho26: There is no significant relationship of the Learner-Social Media Interaction Scores among the groups of completed Moodle delivered classes at the participating college.

Research Question 27. Is there a significant relationship of the General Course Satisfaction Scores among the groups of completed Moodle delivered classes at the participating college?

Ho27: There is no significant relationship in the General Course Satisfaction Scores among the groups of completed Moodle delivered classes at the participating college.

Research Question 28. Is there a significant relationship between Learner-Instructor Interaction Scores and General Course Satisfaction Scores?

Ho28: There is no significant relationship between Learner-Instructor Interaction Scores and General Course Satisfaction Scores.

Research Question 29. Is there a significant relationship between Learner-Social Media Interaction Scores and General Course Satisfaction Scores?

Ho29: There is no significant relationship between Learner-Social Media Interaction Scores and General Course Satisfaction Scores.

Instrumentation

The survey instrument used to gather the data on student satisfaction in online courses was a modified version of The Online Student Satisfaction Survey (see Appendix A) created by Strachota (2003). Strachota tested this survey instrument for reliability and validity through the use of field experts and a pilot test. I completed a survey development activity with 15 undergraduate students at the participating college during the Spring 2012 semester. This activity was completed to ensure the clarity of survey questions and resulted in some modifications to the survey questions. With the permission of the author (Strachota, 2003) (see Appendix B), several modifications were made. (See Appendix D)

The survey instrument included 10 demographic question items, eight items to measure learner-instructor interaction, 28 items to measure learner-social media interaction, and 14 items to measure general course satisfaction. The instrument used a Likert-type scale of 1-4 with (4) strongly agree, (3) agree, (2) disagree, and (1) strongly disagree; 21 of the learner-social media interaction items also used a zero (0) value for those that were (N/A) not applicable. The not applicable items were discarded.

Population

The population of this study consisted of 424 undergraduate and graduate students enrolled in the participant college's courses that were delivered using Moodle during the Summer and Fall 2012 semesters. The electronic survey was completed by 171 participants which consisted of 64% female and 36% male; 75% white and 25% minorities; 25% who participated on athletic teams and 75 % who did not participate on athletic teams; 93% undergraduates and 7% graduate students; and 89% full-time students and 11% part-time students.

Data Collection

I sent an email to the participating college to determine the contact person for institutional research. Upon receiving this information I sent a request for permission to gather the data for this study. Upon receiving permission, I sent an email to the institution's Moodle Administrator to alert him to the upcoming survey and to encourage him to assist in the notification of students surveyed.

A cover letter (see Appendix C) was included in the survey that informed participants about the purpose of the survey and directions for completing the survey. The survey was converted into an electronic form using the online *Survey Monkey* software program. The survey's URL link was delivered electronically to the participant Moodle administrator where it was posted onto each of the course Moodle sites. At the end of week-1 and at week-2 a reminder was sent out to increase the response rate. Participants voluntarily completed the survey and the identity of each student was protected.

Data Analysis

The instrument questions used for this study gathered the following participant data: questions 1-10 gathered demographic data; questions 11-18 gathered the learner-instructor interaction data; questions 19-46 gathered the learner-social media interaction data; and questions 47-60 gathered the general course satisfaction data. Questions 11-18 and 26-60 required participants to indicate their level of agreement with the statements presented. Strongly agree was assigned a score of 4, agree was assigned a score of 3, disagree was assigned a score of 2, strongly disagree was assigned a score of 1.

After the data collection period, descriptive statistics means, and standard deviations, were analyzed for each research construct. Independent Samples *t* tests, Pearson Correlations, and one-way ANOVAs, were completed to determine if there were any statistically significant relationships among the demographic variables and responses. An independent samples *t* test was used to evaluate the null hypothesis for research questions 1, 2, 3, 10, 11, 12, 13, 14, 15, 16, 17, and 18. A Pearson correlation was used to evaluate the null hypothesis for research questions 4, 5, 6, 7, 8, 9, 25, 26, 27, 28, and 29. A one-way ANOVA was used to evaluate the null hypothesis for research questions 19, 20, 21, 22, 23, and 24. IBM-SPSS 19 was used to analyze the data gathered by The Online Satisfaction Survey.

Summary

Chapter 3 detailed the research method used for this study, including the purpose, research questions and null hypotheses, instrumentation, population, data collection processes, and data analysis. Quantitative research methods were used to gather data on student satisfaction in online classes from the participating college.

CHAPTER 4

RESULTS

The purpose of this study was to determine the relationships between or among the mean general course satisfaction, learner-instructor interaction, and the learner-social media interaction scores of participants. The survey instrument used to collect the data for this study contained statements related to the three constructs researched and contained 10 demographic items, eight items to measure learner-instructor interaction, 28 items to measure learner-social interaction, and 14 items to measure general course satisfaction. The survey was posted on the participating college's electronic course site for students to complete during July and October of 2012.

The study's convenience sample of 171 participants consisted of 64% female and 36% male; 75% white and 25% minorities; 25% who participated on athletic teams and 75% who did not participate on athletic teams; 93% undergraduates and 7% graduate students; and 89% full-time students and 11% part-time students.

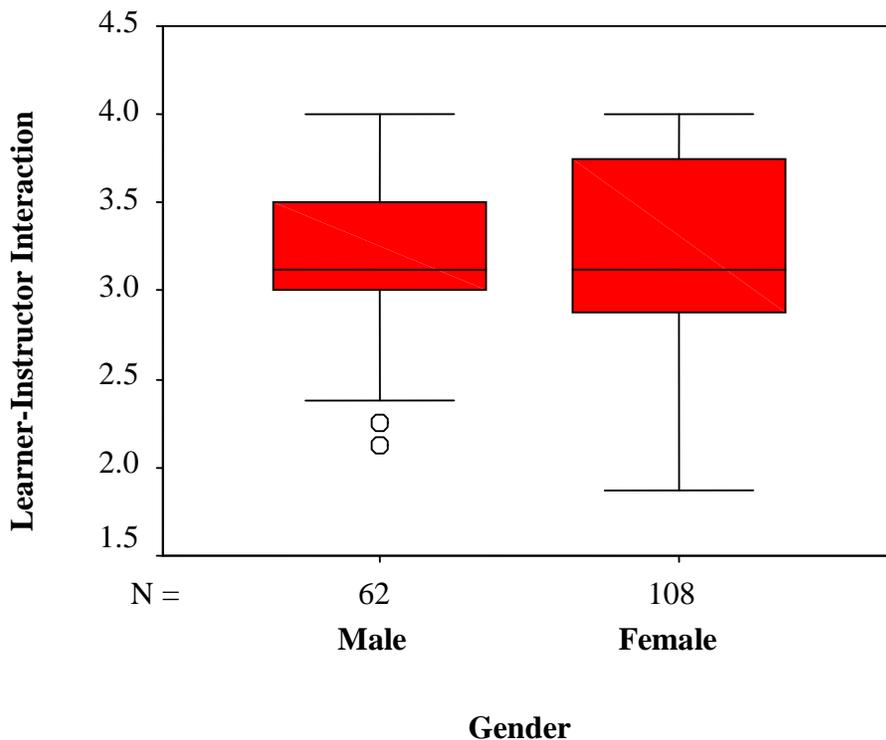
Research Questions

Twenty-nine research questions were used to direct the focus of this study. In order to determine data relationships the 29 null hypotheses were used to answer the 29 research questions. Results of the evaluations are shown for each question.

Research Question 1. Is there a significant difference in the Learner-Instructor Interaction Scores between male and female students at the participating college?

Ho1: There is no significant difference in the Learner-Instructor Interaction Scores between male and female students at the participating college.

An independent samples *t*-test was conducted to evaluate the mean difference in learner-instructor interaction scores based on gender. Levene’s Test for Equality of Variances showed that equal variances could not be assumed, $F(1,168) = 4.82, p = .030$. Therefore, the independent samples *t*-test that did not assume equal variances was used. The independent samples *t* test, $t(144) = .83, p = .410$, was not statistically significant. Therefore, the null hypothesis was retained. The effect size as measured by η^2 was small ($<.01$). That is less than 1% of the variance in learner-instructor interaction was accounted for by gender. The mean learner-instructor interaction for males ($M = 3.20, SD = 0.44$) was slightly lower than the mean for females ($M = 3.26, SD = 0.51$). The 95% confidence interval for the difference in means was $-.21$ to $.09$. The boxplot for learner-instructor interaction by gender is shown in Figure 1.



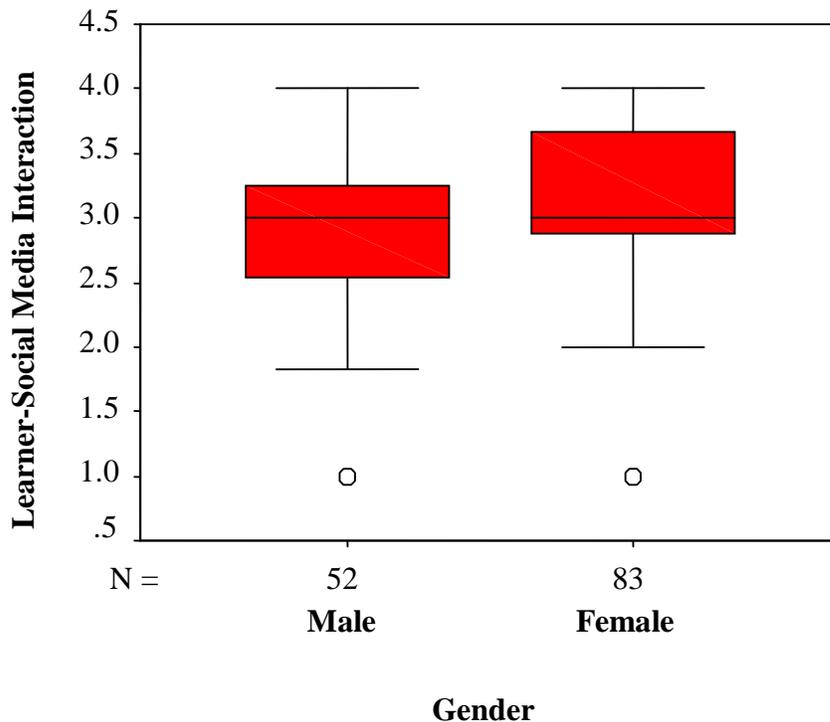
o = an observation between 1.5 times to 3.0 times the interquartile range

Figure 1. Boxplot for Learner-Instructor Interaction by Gender

Research Question 2. Is there a significant difference in the Learner-Social Media Interaction Scores between male and female students at the participating college?

Ho2: There is no significant difference in the Learner-Social Media Interaction Scores between male and female students at the participating college.

An independent samples *t*-test was conducted to evaluate the mean difference in learner-social media interaction scores based on gender. The independent samples *t*-test, $t(133) = 2.50$, $p = .014$, was statistically significant. Therefore, the null hypothesis was rejected. The effect size as measured by η^2 was small (.04). That is 4% of the variance in learner-social media interaction was accounted for by gender. The mean learner-social media interaction for males ($M = 2.90$, $SD = .64$) was just about the same as the mean for females ($M = 3.17$, $SD = .59$). The 95% confidence interval for the difference in means was -.48 to -.06. The boxplot for learner-social media interaction by gender is shown in Figure 2.



o = an observation between 1.5 times to 3.0 times the interquartile range

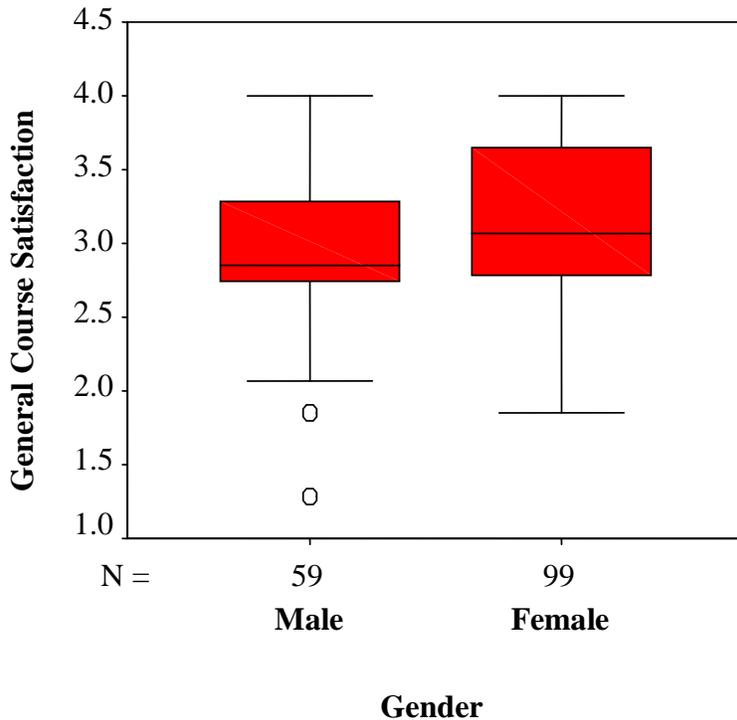
Figure 2. Boxplot for Learner-Social Media Interaction by Gender

Research Question 3. Is there a significant difference in the General Course Satisfaction Scores between male and female students at the participating college?

Ho3 There is no significant difference in the General Course Satisfaction Scores between male and female students at the participating college.

An independent samples *t*-test was conducted to evaluate the difference between mean scores in General Course Satisfaction based on gender. The independent samples *t*-test, $t(156) = 1.80$, $p = .074$, was not statistically significant. Therefore, the null hypothesis was retained. The effect size, as measured by η^2 was small (.02). That is 2% of the variance in general course satisfaction was accounted for by gender. The mean general course satisfaction for males ($M =$

2.98, $SD = .54$) was lower than the mean for females ($M = 3.14$, $SD = .55$). The 95% confidence interval for the difference in means was $-.34$ to $.02$. The boxplot for learner-social media interaction by gender is shown in Figure 3.



o = an observation between 1.5 times to 3.0 times the interquartile range

Figure 3. Boxplot for General Course Satisfaction by Gender

Research Question 4. Is there a significant relationship of the Learner-Instructor Interaction Scores among students' reported ages at the participating college?

Ho4: There is no significant relationship of the Learner-Instructor Interaction Scores among students' reported ages at the participating college.

A Pearson correlation coefficient tested the relationship between mean learner-instructor interaction scores and the student reported age. Results of the analysis revealed a weak positive correlation between the variables. The correlation was statistically significant, $r(170) = .23$, p

=.002. Therefore, the null hypothesis was rejected. The r^2 (.05) indicated that 5% of the variance in learner-instructor interaction was shared with the student reported age. Figure 4 shows the scatterplot for learner-instructor interaction and the student reported age.

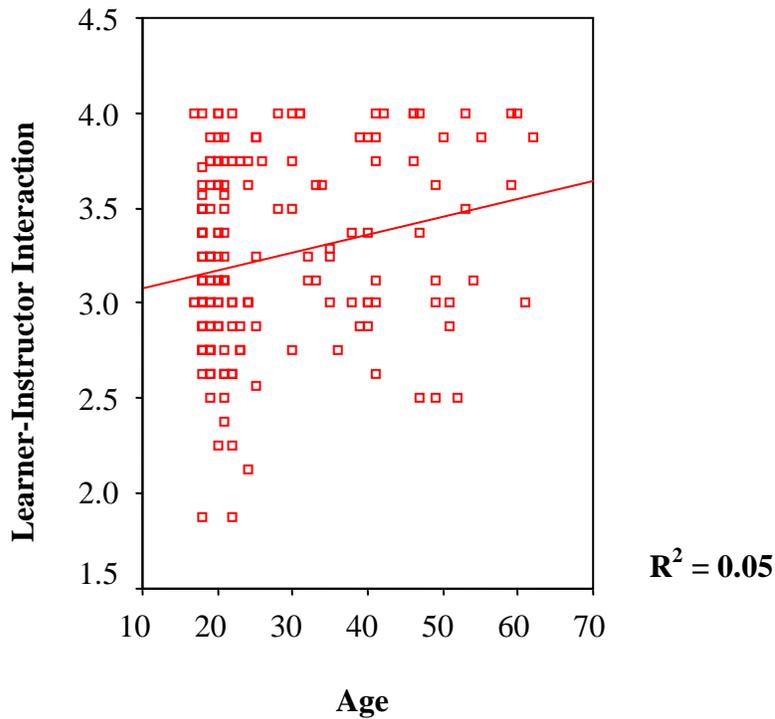


Figure 4. Scatterplot for Learner-Instructor Interaction by Student Reported Age

Research Question 5. Is there a significant relationship of the Learner-Social Media Interaction Scores among students' reported ages at the participating college?

Ho5: There is no significant relationship of the Learner-Social Media Interaction Scores among students' reported ages at the participating college.

A Pearson correlation coefficient tested the relationship between mean learner-social media interaction scores and the student reported age. Results of the analysis revealed a weak positive correlation between the variables. The correlation was not statistically significant, $r(135) = .16, p = .072$. Therefore, the null hypothesis was retained. The r^2 (.02) indicated that 2% of the

variance in learner-social media interaction was shared with the student reported age. Figure 5 shows the scatterplot for learner-social media interaction and the student reported age.

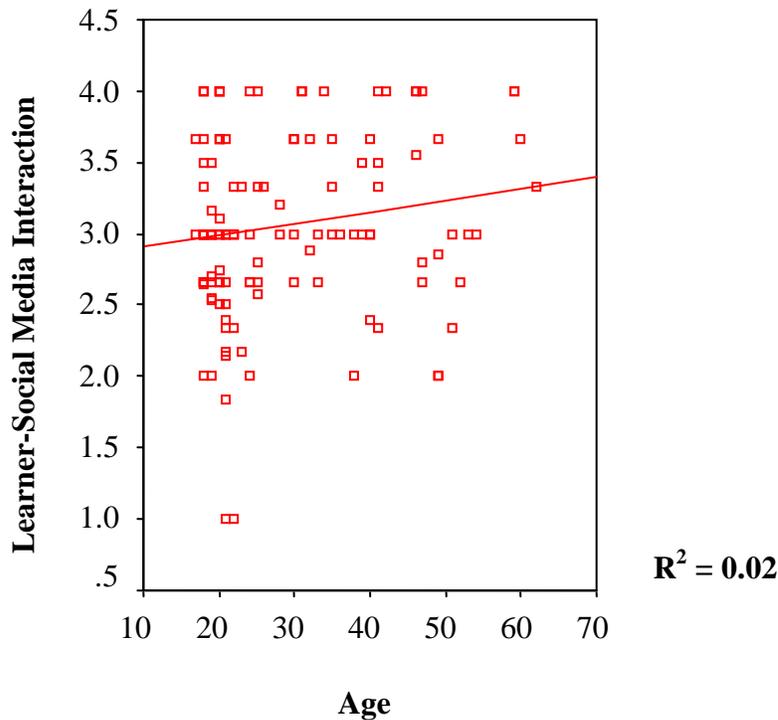


Figure 5. Scatterplot for Learner-Social Media Interaction by Student Reported Age

Research Question 6. Is there significant relationship of the General Course Satisfaction Scores among students' reported ages at the participating college?

Ho6: There is no significant relationship of the General Course Satisfaction Scores among students' reported ages at the participating college.

A Person correlation coefficient tested the relationship between mean general course satisfaction scores and the student reported age. Results of the analysis revealed a moderate positive correlation between the variables. The correlation was statistically significant, $r(158) = .30, p < .001$. Therefore, the null hypothesis was rejected. The r^2 (.09) indicated that 9% of the

variance in general course satisfaction was shared with the student reported age. Figure 6 shows the scatterplot for general course satisfaction and the student reported age.

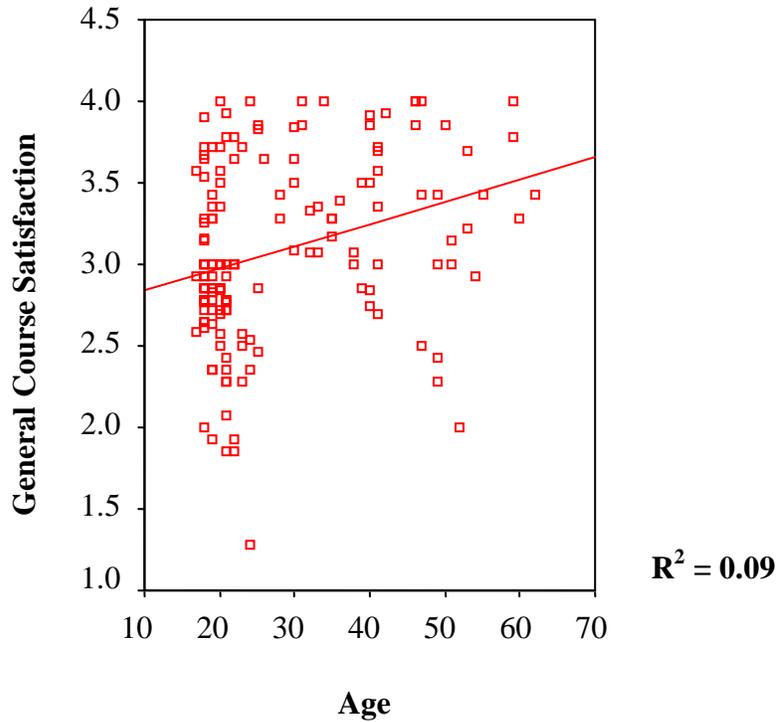


Figure 6. Scatterplot for General Course Satisfaction by Student Reported Age

Research Question 7. Is there a significant relationship of the Learner-Instructor Interaction Scores among the grade-point-average (GPA) groups at the participating college?

Ho7: There is no significant relationship of the Learner-Instructor Interaction Scores among the grade-point-average (GPA) groups at the participating college.

A Person correlation coefficient tested the relationship between mean learner-instructor interaction scores and the student reported GPA. Results of the analysis revealed a weak positive correlation between the variables. The correlation was not statistically significant, $r(144) = .11, p = .174$. Therefore, the null hypothesis was retained. The $r^2 (.01)$ indicated that 1% of the variance

in learner-instructor interaction was shared with the student reported GPA. Figure 7 shows the scatterplot for learner-instructor interaction and the student reported GPA.

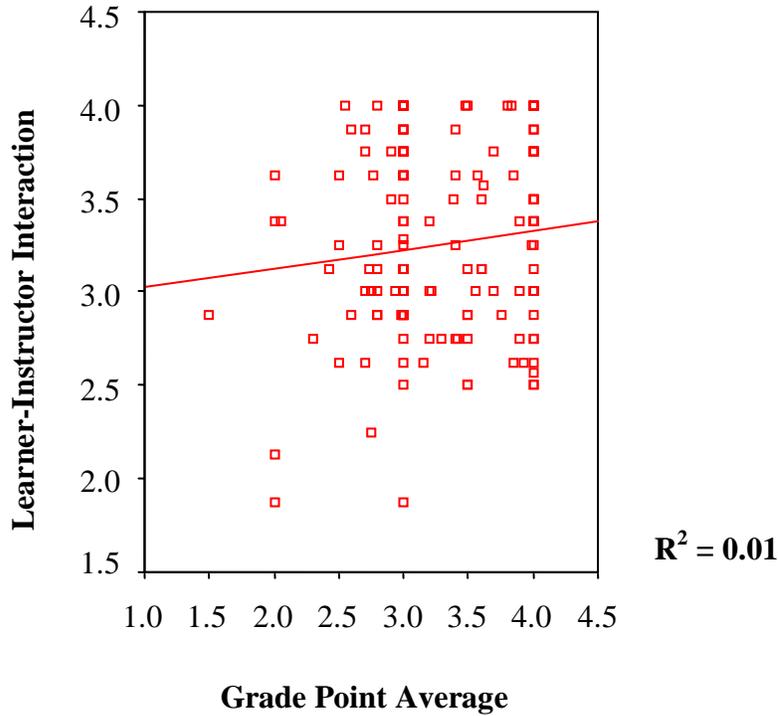


Figure 7. Scatterplot for Learner-Instructor Interaction by Student Reported GPA

Research Question 8. Is there a significant relationship of the Learner-Social Media Interaction Scores among the grade-point-average (GPA) groups at the participating college?

Ho8: There is no significant relationship of the Learner-Social Media Interaction Scores among the grade-point-average (GPA) groups at the participating college.

A Person correlation coefficient tested the relationship between mean learner-social media interaction scores and the student reported GPA. Results of the analysis revealed a weak positive correlation between the variables. The correlation was not statistically significant, $r(115) = .01, p = .900$. Therefore, the null hypothesis was retained. The $r^2 (<.01)$ indicated that less than

1% of the variance in learner-social media interaction was shared with the student reported GPA.

Figure 8 shows the scatterplot for learner-social media interaction and the student reported GPA.

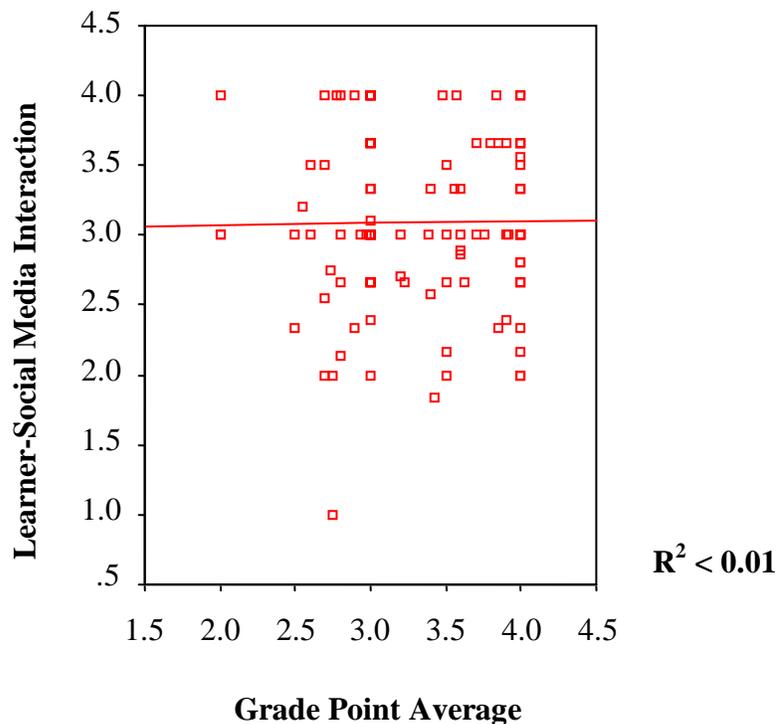


Figure 8. Scatterplot for Learner-Social Media Interaction by Student Reported GPA

Research Question 9. Is there a significant relationship of the General Course Satisfaction Scores among the grade-point-average (GPA) groups at the participating college?

Ho9: There is no significant relationship of the General Course Satisfaction Scores among the grade-point-average (GPA) groups at the participating college.

A Person correlation coefficient tested the relationship between mean general course satisfaction scores and the student reported GPA. Results of the analysis revealed a weak positive correlation between the variables. The correlation was statistically significant, $r(133) = .21, p = .015$. Therefore, the null hypothesis was rejected. The r^2 (.04) indicated that 4% of the

variance in general course satisfaction was shared with the student reported GPA. Figure 9 shows the scatterplot for general course satisfaction and the student reported GPA.

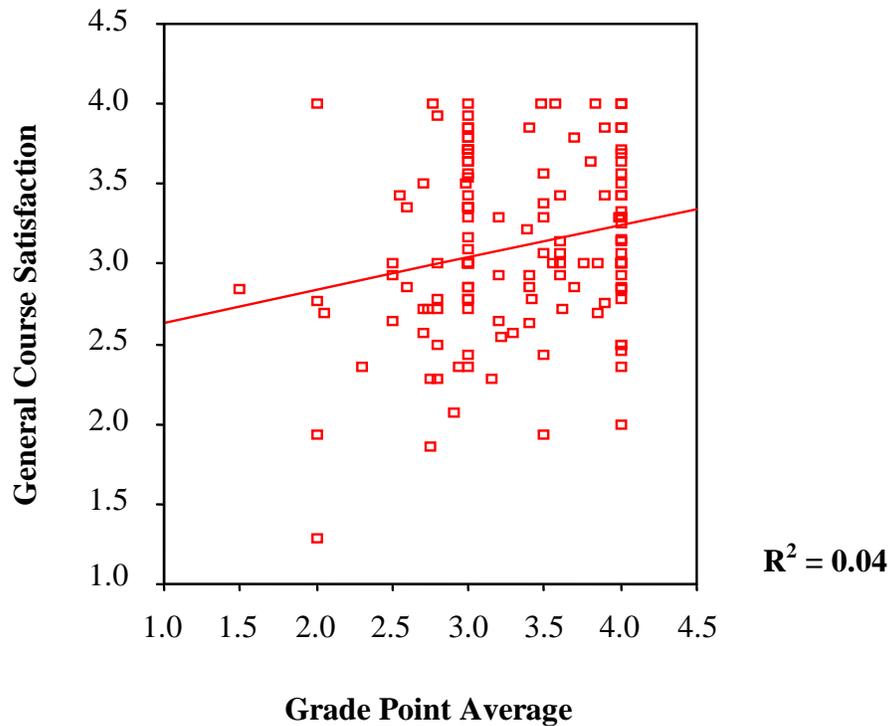


Figure 9. Scatterplot for General Course Satisfaction by Student Reported GPA

Research Question 10. Is there a significant difference in the Learner-Instructor Interaction Scores between White and minority students at the participating college?

H₀10: There is no significant difference in the Learner-Instructor Interaction Scores between White and minority students at the participating college.

An independent samples *t*-test was conducted to evaluate the mean difference in learner-instructor interaction scores based on ethnicity. The independent samples *t*-test, $t(167) = .60$, $p = .550$, was not statistically significant. Therefore, the null hypothesis was retained. The effect size as measured by η^2 was small ($<.01$). That is less than 1% of the variance in learner-instructor interaction was accounted for by ethnicity. The mean learner-instructor interaction for White

students ($M = 3.25$, $SD = .48$) was slightly more than the mean for minority students ($M = 3.20$, $SD = .50$). The 95% confidence interval for the difference in means was $-.22$ to $.12$. The boxplot for learner-instructor interaction by ethnicity is shown in Figure 10.

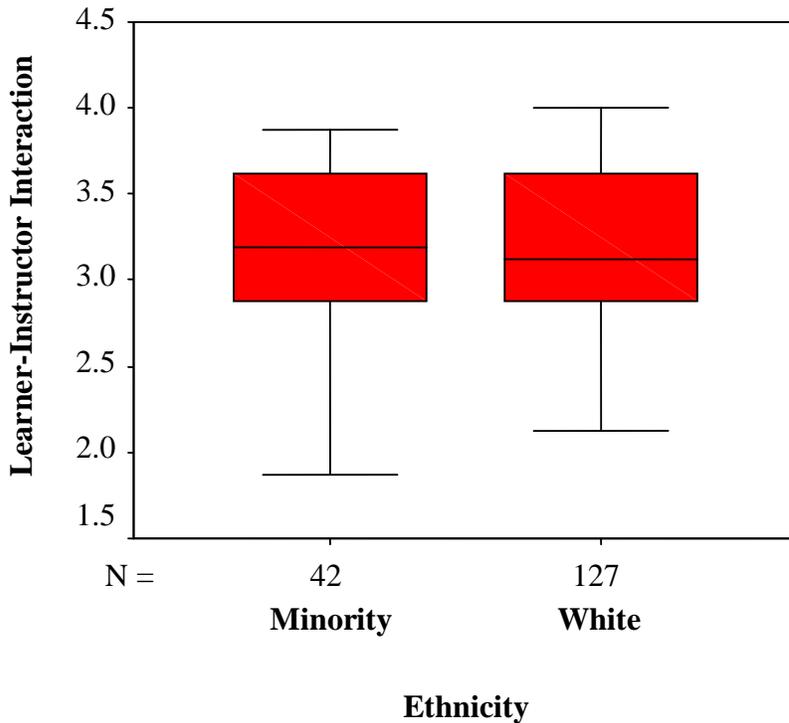


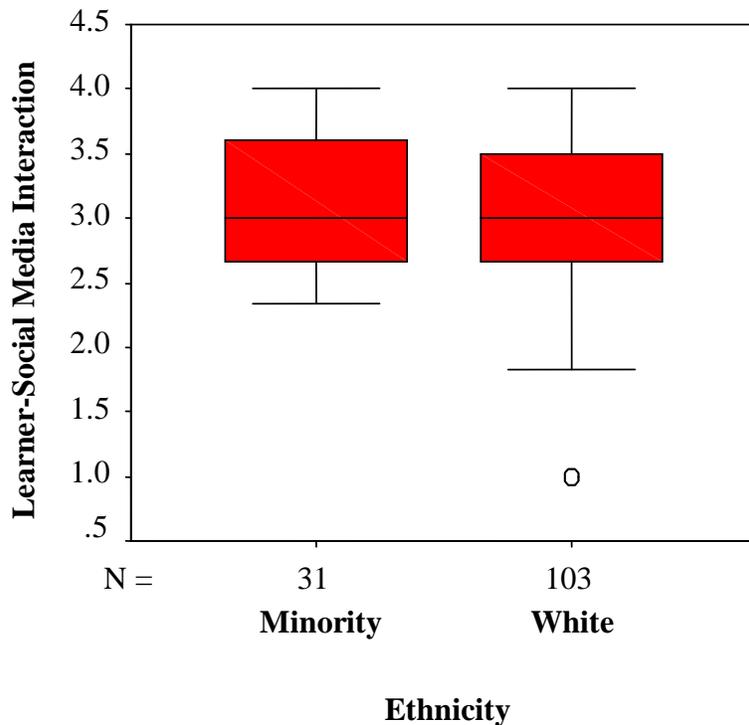
Figure 10. Boxplot for Learner-Instructor Interaction by Ethnicity

Research Question 11. Is there significant difference in the Learner-Social Media Interaction Scores between White and minority students at the participating college?

Ho11: There is no significant difference in the Learner-Social Media Interaction Scores between White and minority students at the participating college.

An independent samples t -test was conducted to evaluate the mean difference in learner-social media interaction scores based on ethnicity. The independent samples t -test, $t(132) = .73$, $p = .466$, was not statistically significant. Therefore, the null hypothesis was retained. The effect size as measured by η^2 was small ($<.01$). That is less than 1% of the variance in learner-social

media interaction was accounted for by ethnicity. The mean learner-social media interaction for White students ($M = 3.04$, $SD = .64$) was less than the mean for minority students ($M = 3.13$, $SD = .53$). The 95% confidence interval for the difference in means was $-.16$ to $.34$. The boxplot for learner-social media interaction by ethnicity is shown in Figure 11.



o = an observation between 1.5 times to 3.0 times the interquartile range

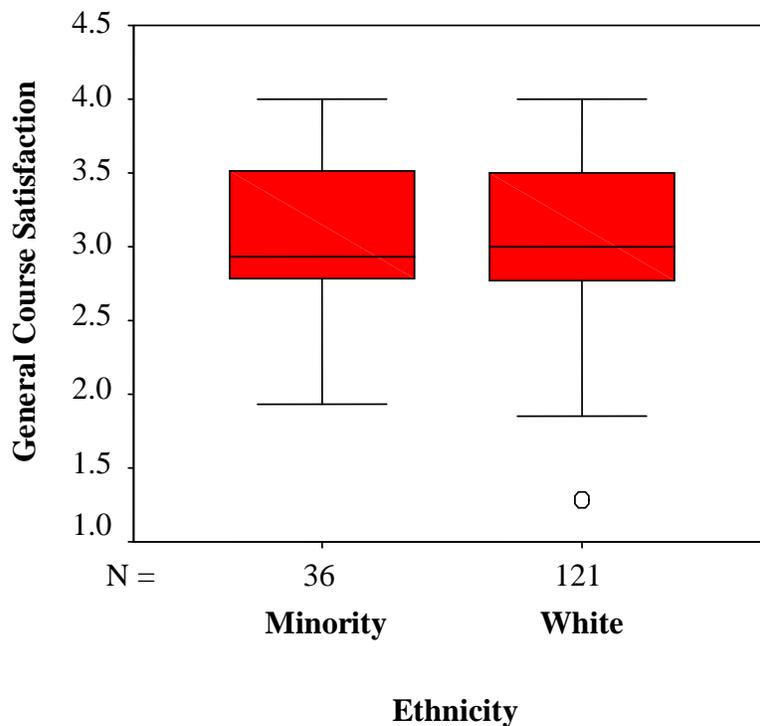
Figure 11. Boxplot for Learner-Social Media Interaction by Ethnicity

Research Question 12. Is there a significant difference in the General Course Satisfaction Scores between White and minority students at the participating college?

Ho12: There is no significant difference in the General Course Satisfaction Scores between White and minority students at the participating college.

An independent samples t -test was conducted to evaluate the mean difference in general course satisfaction scores based on ethnicity. The independent samples t -test, $t(155) = .25$, $p =$

.805, was not statistically significant. Therefore, the null hypothesis was retained. The effect size as measured by η^2 was small ($<.01$). That is less than 1% of the variance in general courses satisfaction scores was accounted for by ethnicity. The mean general course satisfaction scores for White students ($M = 3.09, SD = .56$) was slightly more than the mean for minority students ($M = 3.06, SD = .53$). The 95% confidence interval for the difference in means was $-.23$ to $.18$. The boxplot for general course satisfaction by ethnicity is shown in Figure 12.



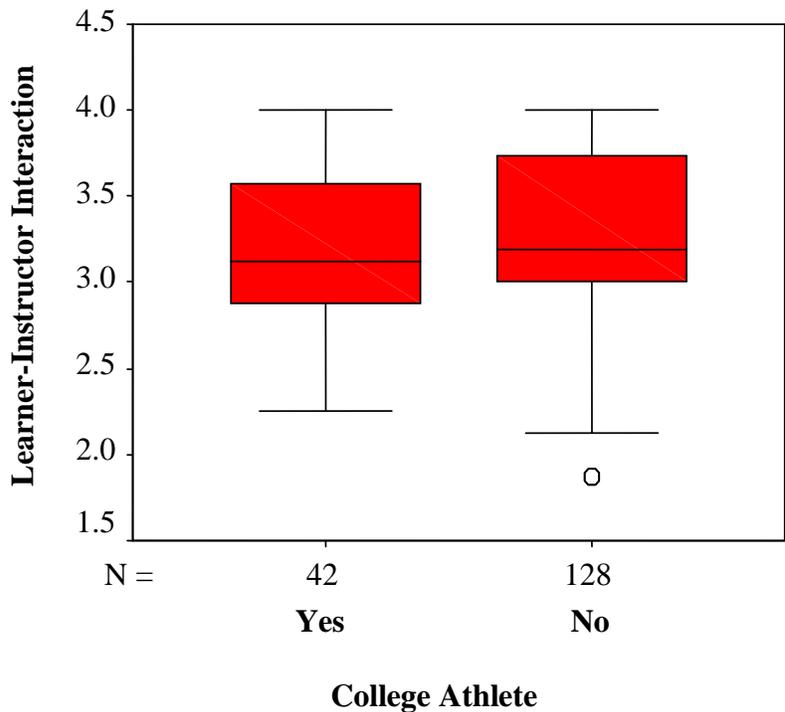
o = an observation between 1.5 times to 3.0 times the interquartile range

Figure 12. Boxplot for General Course Satisfaction by Ethnicity

Research Question 13. Is there a significant difference in the Learner-Instructor Interaction Scores between college athletic team members and non-college athletic team members at the participating college?

Ho13: There is no significant difference in the Learner-Instructor Interaction Scores between college athletic team members and non-college athletic team members at the participating college.

An independent samples *t*-test was conducted to evaluate the mean difference in learner-instructor interaction scores based on athletic team participation. The independent samples *t*-test, $t(168) = 1.09$, $p = .279$, was not statistically significant. Therefore, the null hypothesis was retained. The effect size, as measured by η^2 was small (.01). That is 1% of the variance in learner-instructor interaction was accounted for by athletic team participation. The mean learner-instructor interaction for participants on athletic teams ($M = 3.17$, $SD = .45$) was lower than the mean for non-participants on athletic teams ($M = 3.27$, $SD = .50$). The 95% confidence interval for the difference in means was $-.27$ to $.08$. The boxplot for learner-instructor interaction by athletic team participation is shown in Figure 13.



o = an observation between 1.5 times to 3.0 times the interquartile range

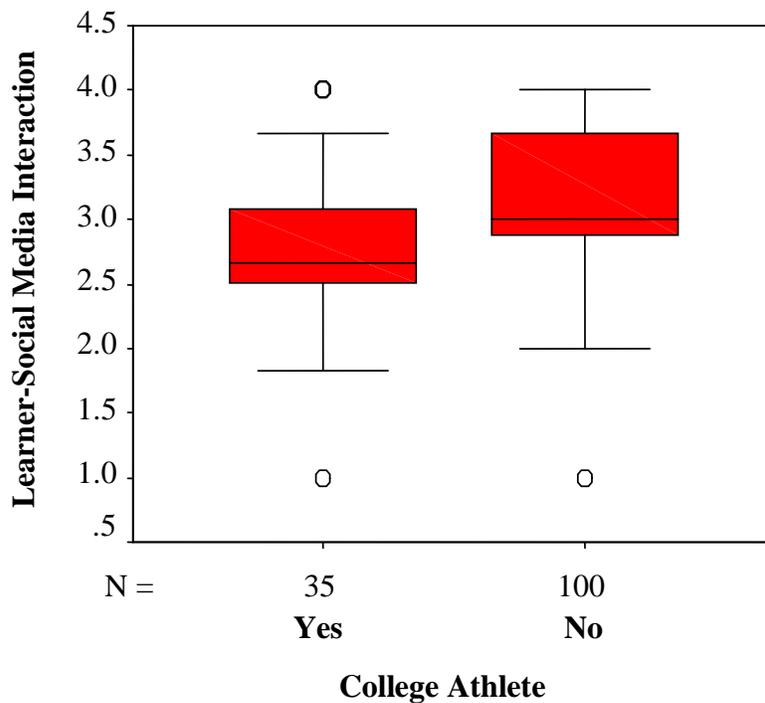
Figure 13. Boxplot for Learner-Instructor Interaction by Athletic Team Participation

Research Question 14. Is there a significant difference in the Learner-Social Media Interaction Scores between college athletic team members and non-college athletic team members at the participating college?

H₀14: There is no significant difference in the Learner-Social Media Interaction Scores between college athletic team members and non-college athletic team members at the participating college.

An independent samples *t*-test was conducted to evaluate the mean difference in learner-social media interaction scores based on athletic team participation. The independent samples *t*-test, $t(133) = 3.00$, $p = .003$, was statistically significant. Therefore, the null hypothesis was rejected. The effect size, as measured by η^2 was medium (.06). That is 6% of the variance in

learner-social media interaction was accounted for by athletic team participation. The mean learner-social media interaction for nonparticipants on athletic teams ($M = 3.16$, $SD = .58$) was higher than the mean for participants on athletic teams ($M = 2.80$, $SD = .68$). The 95% confidence interval for the difference in means was $-.59$ to $-.12$. The boxplot for learner-social media interaction by athletic team participation is shown in Figure 14.



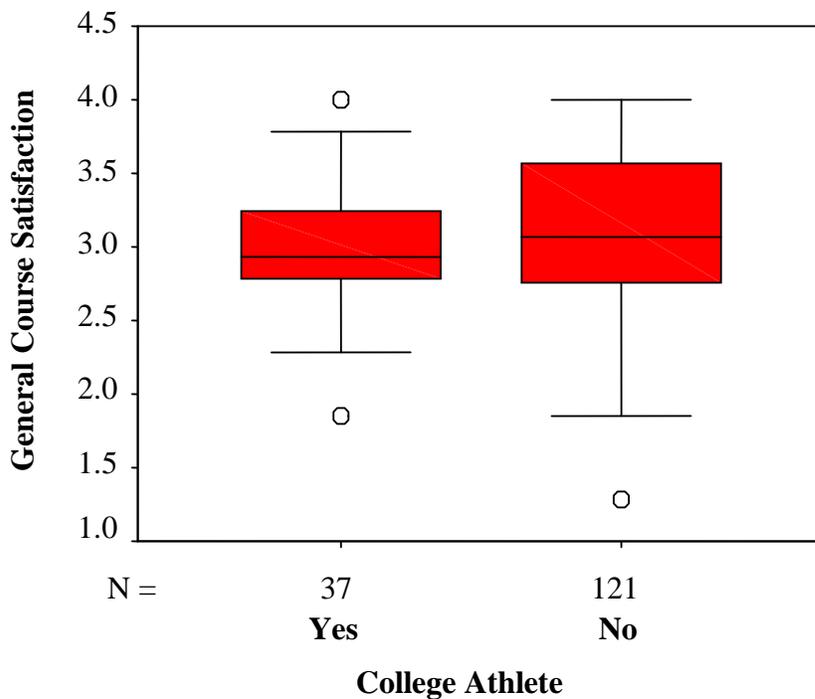
o = an observation between 1.5 times to 3.0 times the interquartile range

Figure 14. Boxplot for Learner-Social Media Interaction by Athletic Team Participation

Research Question 15. Is there a significant difference in the General Course Satisfaction Scores between college athletic team members and non-college athletic team members at the participating college?

Ho15: There is no significant difference in the General Course Satisfaction Scores between college athletic team members and non-college athletic team members at the participating college.

An independent samples *t*-test was conducted to evaluate the mean difference in general course satisfaction scores based on athletic team participation. The Levene's Test for Equality of Variances showed that equal variances could not be assumed, $F(1,156) = 6.60, p = .011$. Therefore, the independent samples *t* test that did not assume equal variances was used. The independent samples *t*-test, $t(77) = 1.27, p = .208$, was not statistically significant. Therefore, the null hypothesis was retained. The effect size as measured by η^2 was small (.01). That is 1% of the variance in general course satisfaction was accounted for by athletic team participation. The mean general course satisfaction for nonparticipants on athletic teams ($M = 3.11, SD = .58$) was higher than the mean for participants on athletic teams ($M = 3.00, SD = .44$). The 95% confidence interval for the difference in means was $-.29$ to $.06$. The boxplot for general course satisfaction by athletic team participation is shown in Figure 15.



o = an observation between 1.5 times to 3.0 times the interquartile range

Figure 15. Boxplot for General Course Satisfaction by Athletic Team Participation

Research Question 16. Is there a significant difference in the Learner-Instructor Interaction Scores between full-time students and part-time students at the participating college?

Ho16: There is no significant difference in the Learner-Instructor Interaction Scores between full-time students and part-time students at the participating college.

An independent samples *t*-test was conducted to evaluate the mean difference in learner-instructor interaction scores based on student enrollment status. Levene's Test for Equality of Variances showed that equal variances could not be assumed, $F(1,168) = 7.12, p = .008$. Therefore, the independent samples *t*-test that did not assume equal variances was used. The independent samples *t*-test, $t(21) = 1.24, p = .228$, was not statistically significant. Therefore, the null hypothesis was retained. The effect size as measured by η^2 was small (.01). That is 1% of the variance in learner-instructor interaction was accounted for by student enrollment status. The mean learner-instructor interaction for full-time students ($M = 3.22, SD = .47$) was lower than the mean for part-time students ($M = 3.40, SD = .63$). The 95% confidence interval for the difference in means was -.49 to .12. The boxplot for learner-instructor interaction by student enrollment status is shown in figure 16.

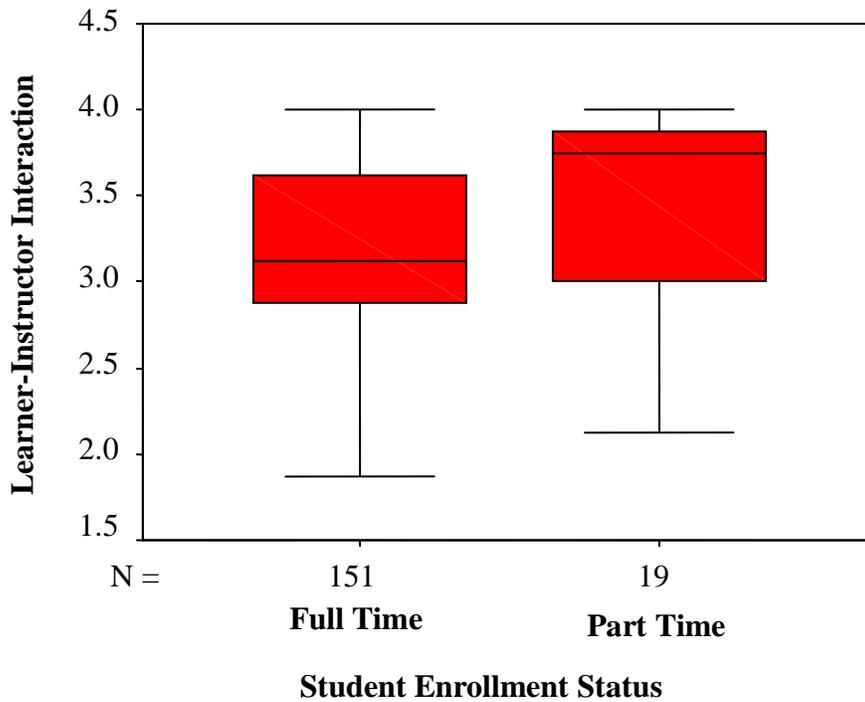


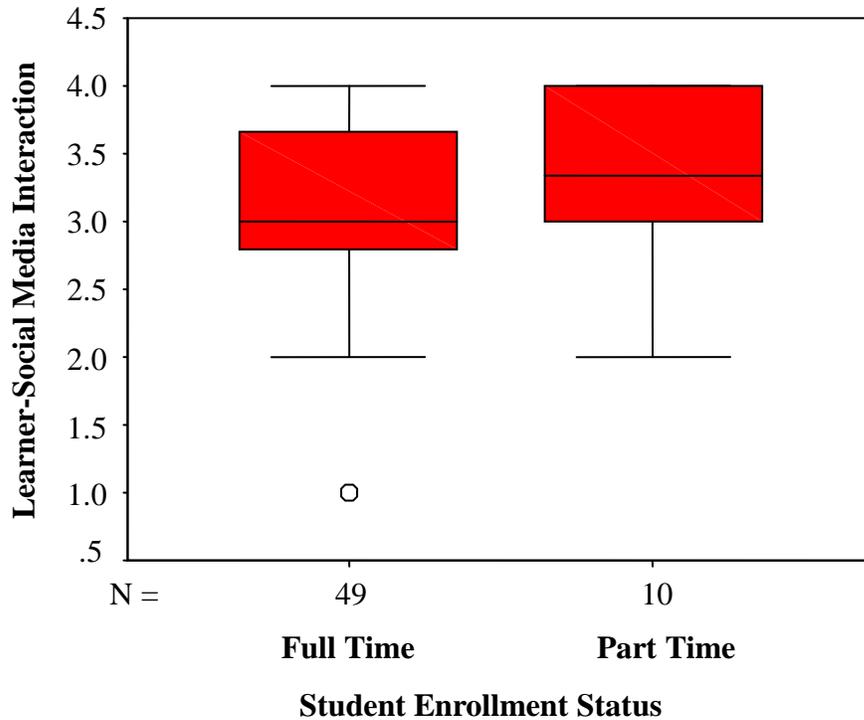
Figure 16. Boxplot for Learner-Instructor Interaction by Student Enrollment Status

Research Question 17. Is there a significant difference in the Learner-Social Media Interaction Scores between full-time students and part-time students at the participating college?

Ho17: There is no significant difference in the Learner-Social Media Interaction Scores between full-time students and part-time students at the participating college.

An independent samples *t*-test was conducted to evaluate the mean difference in learner-social media interaction based on student enrollment status. The independent samples *t*-test, $t(57) = .77$, $p = .446$, was not statistically significant. Therefore, the null hypothesis was retained. The effect size as measured by η^2 was small (.01). That is 1% of the variance in learner-social media interaction was accounted for by student enrollment status. The mean learner-social media interaction for full-time students ($M = 3.10$, $SD = .61$) was lower than the mean for parttime students ($M = 3.27$, $SD = .64$). The 95% confidence interval for the difference in means was $-.60$

to .27. The boxplot for learner-social media interaction by student enrollment status is shown in figure 17.



o = an observation between 1.5 times to 3.0 times the interquartile range

Figure 17. Boxplot for Learner-Social Media Interaction by Student Enrollment Status

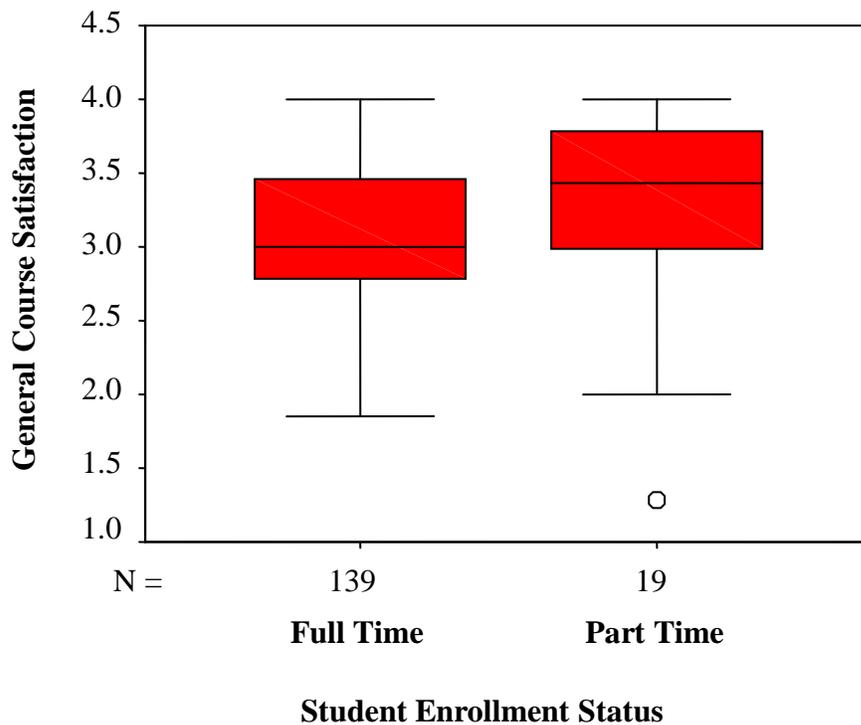
Research Question 18. Is there a significant difference in the General Course Satisfaction Scores between full-time students and part-time students at the participating college?

Ho18: There is no significant difference in the General Course Satisfaction Scores between full-time students and part-time students at the participating college.

An independent samples *t*-test was conducted to evaluate the mean difference in general course satisfaction scores based on student enrollment status. Levene's Test for Equality of Variances showed that equal variances could not be assumed, $F(1,156) = 4.45, p = .036$.

Therefore, the independent samples *t* test that did not assume equal variances was used. The

independent samples t -test, $t(20) = 1.00, p = .328$, was not statistically significant. Therefore, the null hypothesis was retained. The effect size as measured by η^2 was small (.01). That is 1% of the variance in general course satisfaction was accounted for by student enrollment status. The mean general course satisfaction for full-time students ($M = 3.06, SD = .51$) was less than the mean for part-time students ($M = 3.24, SD = .76$). The 95% confidence interval for the difference in means was $-.55$ to $.19$. The boxplot for general course satisfaction by student enrollment status is shown in Figure 18.



o = an observation between 1.5 times to 3.0 times the interquartile range

Figure 18. Boxplot for General Course Satisfaction by Student Enrollment Status

Research Question 19. Is there a significant difference in the Learner-Instructor Interaction Scores among students classified as Freshman, Sophomore, Junior, Senior, or Graduate Student at the participating college?

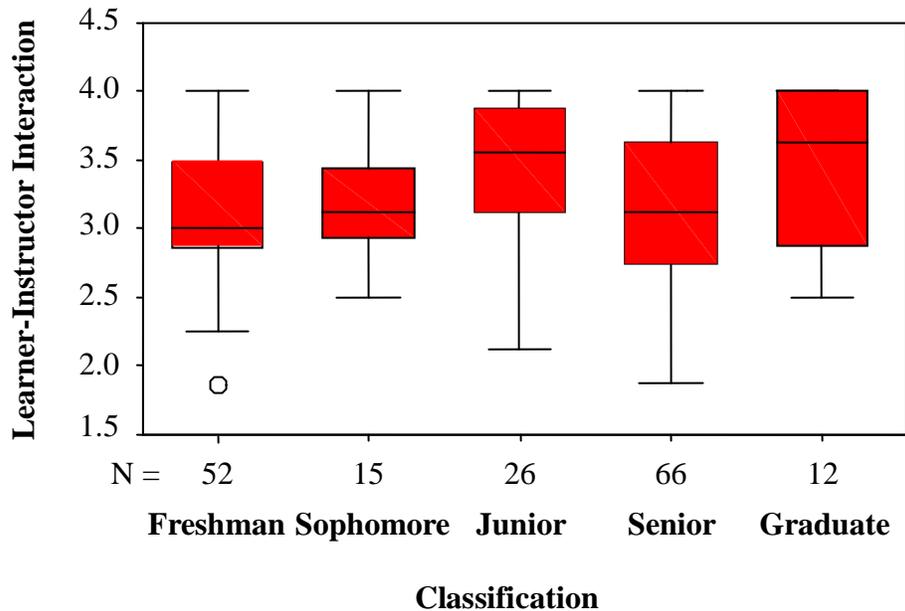
Ho19: There is no significant difference in the Learner-Instructor Interaction Scores among students classified as Freshman, Sophomore, Junior, Senior, or Graduate Student at the participating college.

A one-way analysis of variance (ANOVA) was conducted to evaluate the relationship between learner-instructor interaction and student classification (freshman, sophomore, junior, senior, and graduate). The independent variable was student classification and the dependent variable was the learner-instructor interaction score. The one-way ANOVA, $F(4,166) = 2.31$, $p = .060$, was not statistically significant. Therefore, the null hypothesis was retained. The strength of the relationship as measured by η^2 was small (.05). That is 5% of the variance in the learner-instructor interaction score was accounted for by student classification. With less than a one-point difference in each, the results indicated no significant effect in learner-instructor interaction scores by student classification. The means and standard deviations for the learner-instructor interaction by student classification are shown in Table 1; Figure 19 shows the boxplot for learner-instructor interaction by student classification.

Table 1

Means and Standard Deviations of Student Classification Learner-Instructor Interaction

Classification	<i>N</i>	<i>M</i>	<i>SD</i>
Freshman	52	3.17	.45
Sophomore	15	3.22	.47
Junior	26	3.45	.47
Senior	66	3.18	.49
Graduate Student	12	3.44	.58



o = an observation between 1.5 times to 3.0 times the interquartile range

Figure 19. Boxplot for Learner-Instructor Interaction by Student Classification

Research Question 20. Is there a significant difference in the Learner-Social Media Interaction Scores among students classified as Freshman, Sophomore, Junior, Senior, or Graduate Student at the participating college?

Ho20: There is no significant difference in the Learner-Social Media Interaction Scores among students classified as Freshman, Sophomore, Junior, Senior, or Graduate Student at the participating college.

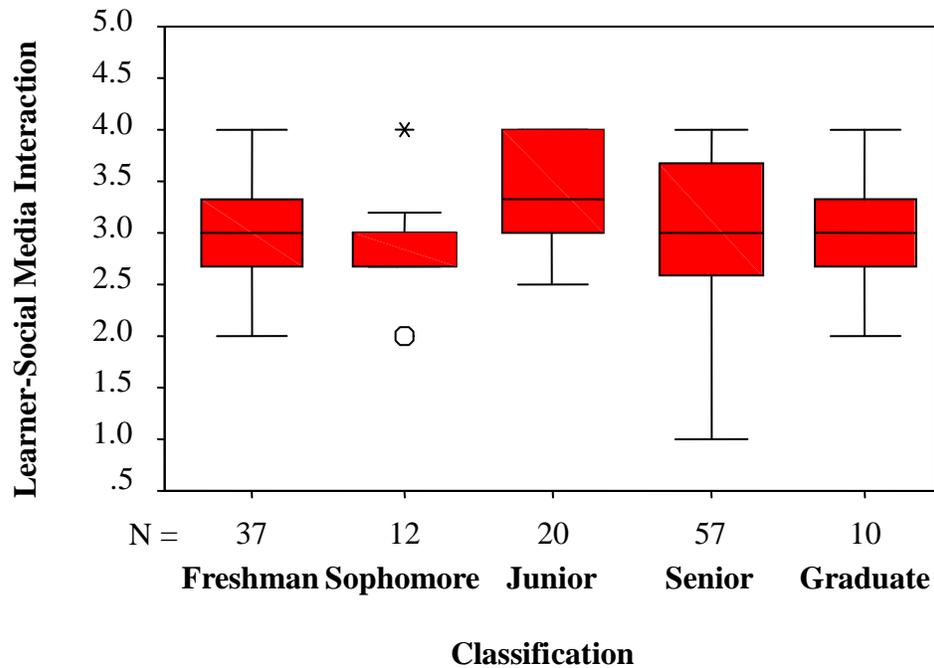
A one-way analysis of variance (ANOVA) was conducted to evaluate the relationship between learner-social media interaction and student classification (freshman, sophomore, junior, senior, and graduate). The independent variable was student classification and the dependent variable was the learner-social media interaction score. The one-way ANOVA, $F(4,131) = 1.78$, $p = .138$, was not statistically significant. Therefore, the null hypothesis was retained.

The strength of the relationship as measured by η^2 was small (.05). That is 5% of the variance in the learner-social media interaction score was accounted for by student classification. With less than a one-point difference in each, the results indicated no significant effect in learner-social media interaction scores by student classification. The means and standard deviations for the learner-social media interaction by student classification are shown in Table 2; Figure 20 shows the boxplot for learner-social media interaction by student classification.

Table 2

Means and Standard Deviations of Student Classification Learner-Social Media Interaction

Classification	<i>N</i>	<i>M</i>	<i>SD</i>
Freshman	37	3.07	.50
Sophomore	12	2.92	.46
Junior	20	3.38	.51
Senior	57	2.98	.73
Graduate Student	10	3.03	.55



o = an observation between 1.5 times to 3.0 times the interquartile range
 * = an observation more than 3.0 times the interquartile range

Figure 20. Boxplot for Learner-Social Media Interaction by Student Classification

Research Question 21. Is there a significant difference in the General Course Satisfaction Scores among students classified as Freshman, Sophomore, Junior, Senior, or Graduate Student at the participating college?

Ho21: There is no significant difference in the General Course Satisfaction Scores among students classified as Freshman, Sophomore, Junior, Senior, or Graduate Student at the participating college.

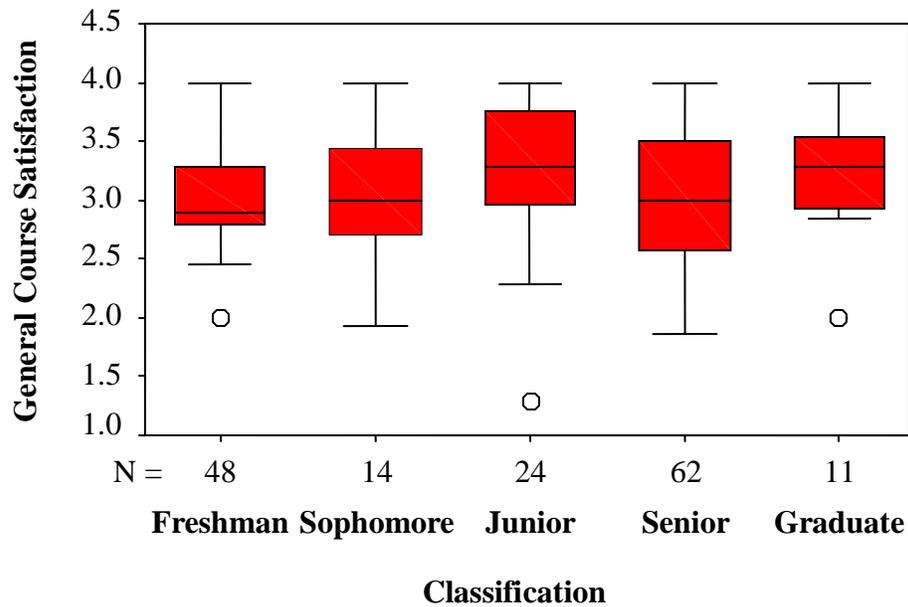
A one-way analysis of variance (ANOVA) was conducted to evaluate the relationship between general course satisfaction and student classification (freshman, sophomore, junior, senior, and graduate). The independent variable was student classification and the dependent variable was the general course satisfaction score. The one-way ANOVA, $F(4,154) = .76$, $p = .554$, was not statistically significant. Therefore, the null hypothesis was retained.

The strength of the relationship as measured by η^2 was small (.02). That is 2% of the variance in the general course satisfaction score was accounted for by student classification. With less than a one-point difference in each, the results indicated no significant effect in general course satisfaction scores by student classification. The means and standard deviations for the learner-social media interaction by student classification are shown in Table 3; Figure 21 shows the boxplot for learner-social media interaction by student classification.

Table 3

Means and Standard Deviations of Student Classification General Course Satisfaction

Classification	<i>N</i>	<i>M</i>	<i>SD</i>
Freshman	48	3.04	.41
Sophomore	14	3.08	.60
Junior	24	3.24	.64
Senior	62	3.05	.59
Graduate Student	11	3.20	.54



o = an observation between 1.5 times to 3.0 times the interquartile range

Figure 21. Boxplot for General Course Satisfaction by Student Classification

Research Question 22. Is there a significant difference in the Learner-Instructor Interaction Scores among students who work full time, work part time, or do not work at the participating college?

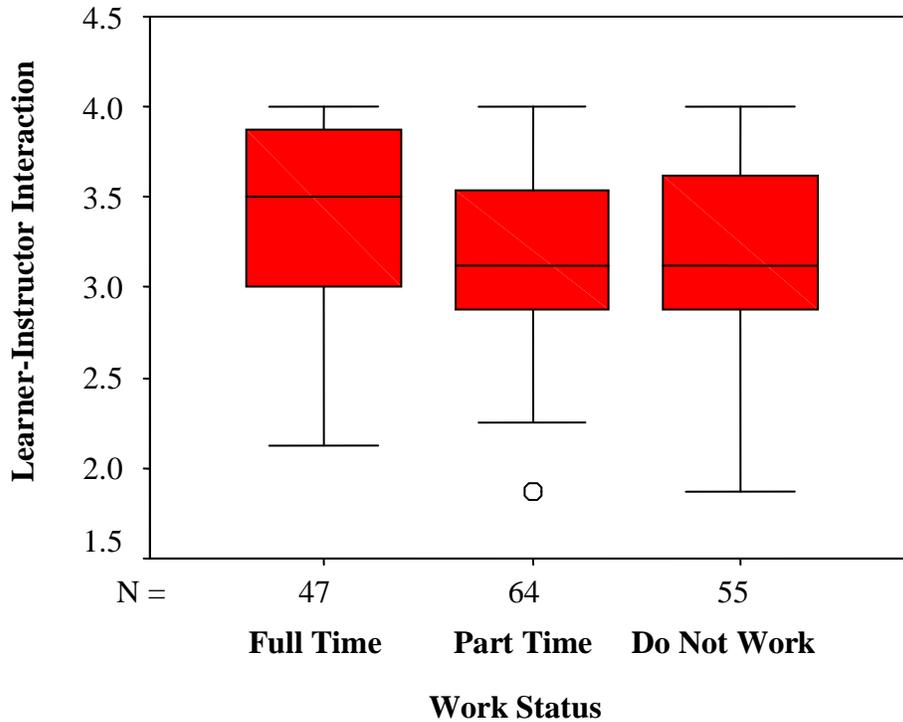
Ho22: There is no significant difference in the Learner-Instructor Interaction Scores among students who work full time, work part time, or do not work at the participating college.

A one-way analysis of variance (ANOVA) was conducted to evaluate the relationship between learner-instructor interaction and student work status (work full time, work part time, and do not work). The independent variable was student work status and the dependent variable was the learner-instructor interaction score. The one-way ANOVA, $F(2,163) = 3.22, p = .042$, was statistically significant. Therefore, the null hypothesis was rejected. The effect size was small (.04). That is 4% of the variance in the learner-instructor interaction score was accounted

for by student work status. Because the overall F test was statistically significant, post hoc tests were conducted to evaluate the pairwise differences in the means. A Tukey procedure was used because equal variances were assumed, $F(2,163) = .92, p = .400$. The Tukey procedure showed that there was a significant difference in the learner–instructor interaction means between students who work full time and students who work part time ($p = .050$). However, there was no difference between students who worked full time and students who do not work ($p = .076$) and no difference between students who worked part time and students who do not work ($p = .998$). The means and standard deviations for the learner-instructor interaction by student work status and the 95% confidence intervals for the pairwise differences in means are shown in Table 4; Figure 22 shows the boxplot for learner-instructor interaction by student work status.

Table 4
Means and Standard Deviations with 95% Confidence Intervals of Pairwise Differences for Learner-Instructor Interaction by Student Work Status

Work Status	N	M	SD	Full Time	Part Time
Full Time	47	3.40	.51		
Part Time	64	3.18	.45	<.01 to .43	
Do Not Work	55	3.19	.48	-.02 to .43	-.21 to .20



o = an observation between 1.5 times to 3.0 times the interquartile range

Figure 22. Boxplot for Learner-Instructor Interaction by Student Work Status

Research Question 23. Is there a significant difference in the Learner-Social Media Interaction Scores among students who work full time, work part time, or do not work at the participating college?

Ho23: There is no significant difference in the Learner-Social Media Interaction Scores among students who work full time, work part time, or do not work at the participating college.

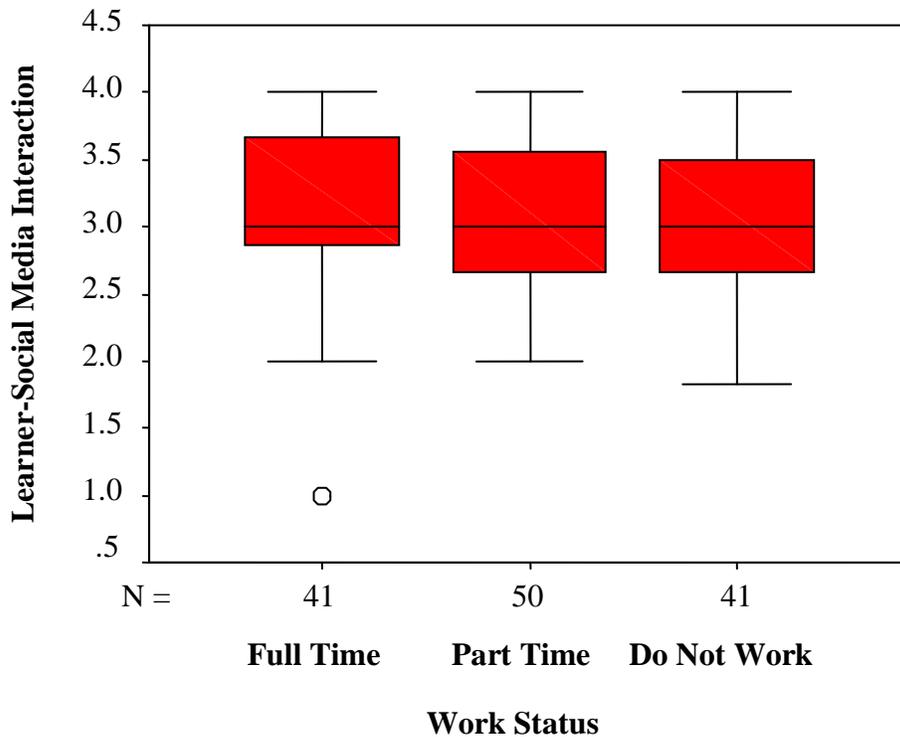
A one-way analysis of variance (ANOVA) was conducted to evaluate the relationship between learner-social media interaction and student work status (work full time, work part time, and do not work). The independent variable was student work status and the dependent variable was the learner-social media score. The one-way ANOVA, $F(2,129) = .01, p = .991$, was not

statistically significant. Therefore, the null hypothesis was retained. The strength of the relationship as measured by η^2 was small ($<.01$). That is less than 1% of the variance in the learner-social media score was accounted for by student work status. With less than a one-point difference in each, the results indicated no significant effect in general course satisfaction scores by student work status. The means and standard deviations for the learner-social media interaction by student work status are shown in Table 5; Figure 23 shows the boxplot for learner-social media interaction by student work status.

Table 5

Means and Standard Deviations for Learner-Social Media Interaction by Student Work Status

Work Status	<i>N</i>	<i>M</i>	<i>SD</i>
Full Time	41	3.0686	.6756
Part Time	50	3.0856	.5351
Do Not Work	41	3.0767	.5914



o = an observation between 1.5 times to 3.0 times the interquartile range

Figure 23. Boxplot for Learner-Social Media Interaction by Student Work Status

Research Question 24. Is there a significant difference in the General Course Satisfaction Scores among students who work full time, work part time, or do not work at the participating college?

Ho24: There is no significant difference in the General Course Satisfaction Scores among students who work full time, work part time, or do not work at the participating college.

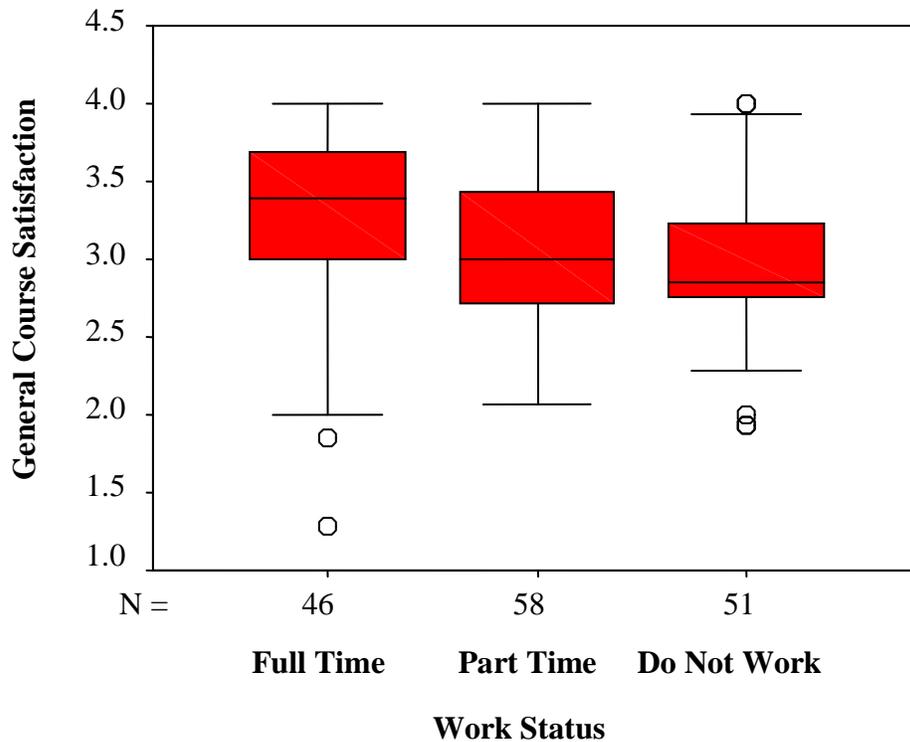
A one-way analysis of variance (ANOVA) was conducted to evaluate the relationship between general course satisfaction and student work status (work full time, work part time, and do not work). The independent variable was student work status and the dependent variable was the general course satisfaction score. The one-way ANOVA, $F(2,152) = 4.33$, $p = .015$, was statistically significant. Therefore, the null hypothesis was rejected.

The effect size was small (.05). That is 5% of the variance in the general course satisfaction score was accounted for by student work status. Because the overall F test was statistically significant, post hoc tests were conducted to evaluate the pairwise differences in the means. A Tukey procedure was used because equal variances were assumed, $F(2,152) = 1.14$, $p = .323$. The Tukey procedure showed that there was a significant difference in the general course satisfaction means between students who work full time and students who do not work ($p = .011$). However, there was no difference between students who work full time and students who work part time ($p = .106$) and no difference between students who work part time and students who do not work ($p = .591$). The means and standard deviations for the general course satisfaction by student work status and the 95% confidence intervals for the pairwise differences in means are shown in Table 6; Figure 24 shows the boxplot for general course satisfaction by student work status.

Table 6

Means and Standard Deviations with 95% Confidence Intervals of Pairwise Differences for General Course Satisfaction by Student Work Status

Work Status	N	M	SD	Full Time	Part Time
Full Time	46	3.27	.60		
Part Time	58	3.06	.50	-.03 to .45	
Do Not Work	51	2.96	.49	.06 to .56	-.14 to .34



o = an observation between 1.5 times to 3.0 times the interquartile range

Figure 24. Boxplot for General Course Satisfaction by Student Work Status

Research Question 25. Is there a significant relationship of the Learner-Instructor Interaction Scores among the groups of completed Moodle delivered classes at the participating college?

Ho25: There is no significant relationship of the Learner-Instructor Interaction Scores among the groups of completed Moodle delivered classes at the participating college.

A Pearson correlation coefficient tested the relationship between mean learner-instructor interaction scores and the number of Moodle classes completed. Results of the analysis revealed a weak positive correlation between the variables. The correlation was not statistically significant, $r(162) = .01$, $p = .948$. Therefore, the null hypothesis was retained. The $r^2 (<.01)$ indicated that less than 1% of the variance in learner-instructor interaction was shared with the

number of Moodle classes completed. Figure 25 shows the scatterplot for learner-instructor interaction and the number of Moodle classes completed.

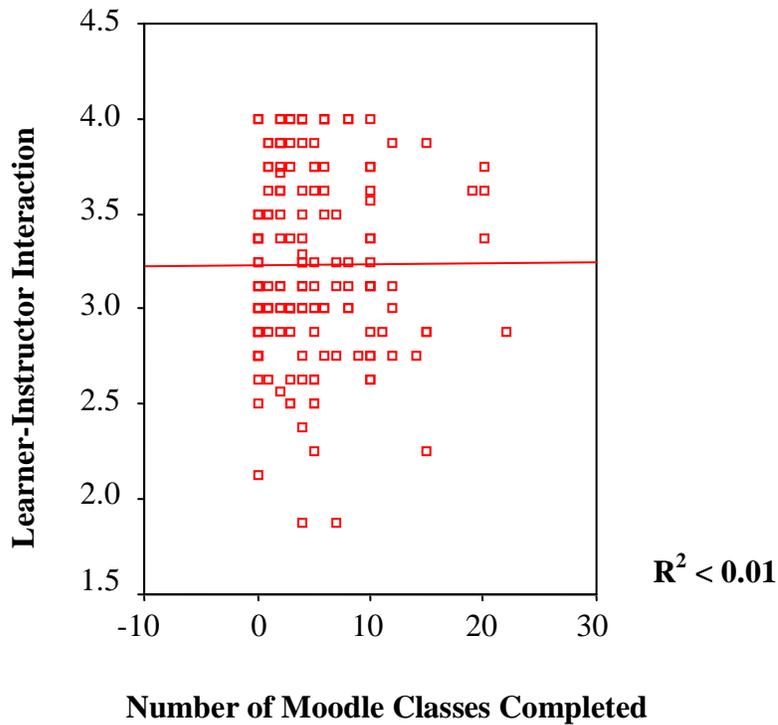


Figure 25. Scatterplot for Learner-Instructor Interaction by Number of Moodle Courses Completed

Research Question 26. Is there a significant relationship of the Learner-Social Media Interaction Scores among the groups of completed Moodle delivered classes at the participating college?

Ho26: There is no significant relationship of the Learner-Social Media Interaction Scores among the groups of completed Moodle delivered classes at the participating college.

A Pearson correlation coefficient tested the relationship between mean learner-social media interaction scores and the number of Moodle classes completed. Results of the analysis revealed a weak negative correlation between the variables. The correlation was not statistically

significant, $r(131) = .08, p = .397$. Therefore, the null hypothesis was retained. The r^2 (.01) indicated that 1% of the variance in learner-social media interaction was shared with the number of Moodle classes completed. Figure 26 shows the scatterplot for learner-social media interaction and the number of Moodle classes completed.

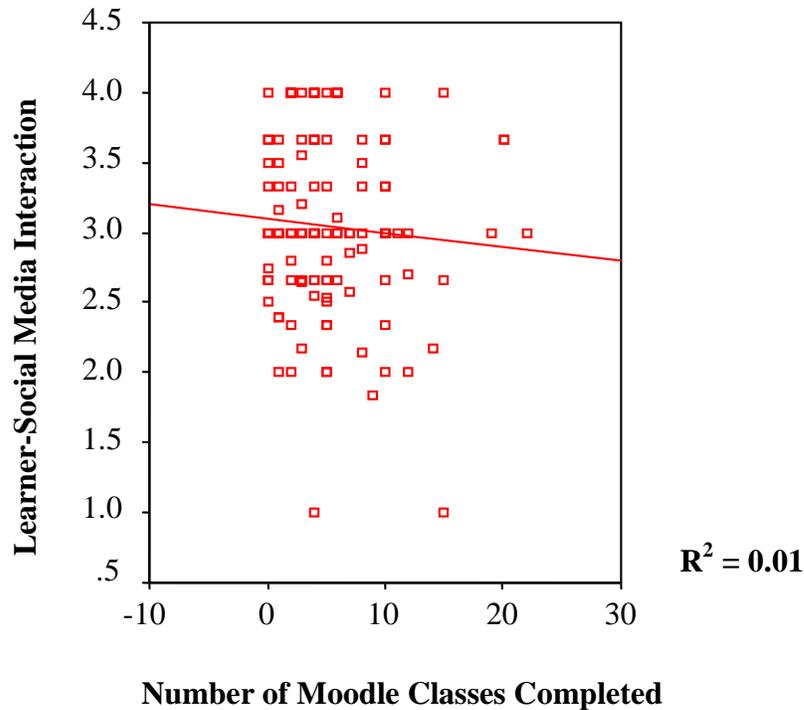


Figure 26. Scatterplot for Learner-Social Media Interaction by Number of Moodle Classes Completed

Research Question 27. Is there a significant relationship of the General Course Satisfaction Scores among the groups of completed Moodle delivered classes at the participating college?

Ho27: There is no significant relationship of the General Course Satisfaction Scores among the groups of completed Moodle delivered classes at the participating college.

A Pearson correlation coefficient tested the relationship between mean general course satisfaction scores and the number of Moodle classes completed. Results of the analysis revealed a weak positive correlation between the variables. The correlation was not statistically significant, $r(154) = .05$, $p = .581$. Therefore, the null hypothesis was retained. The $r^2 (<.01)$ indicated that less than 1% of the variance in general course satisfaction was shared with the number of Moodle classes completed. Figure 27 shows the scatterplot for general course satisfaction and the number of Moodle classes completed.

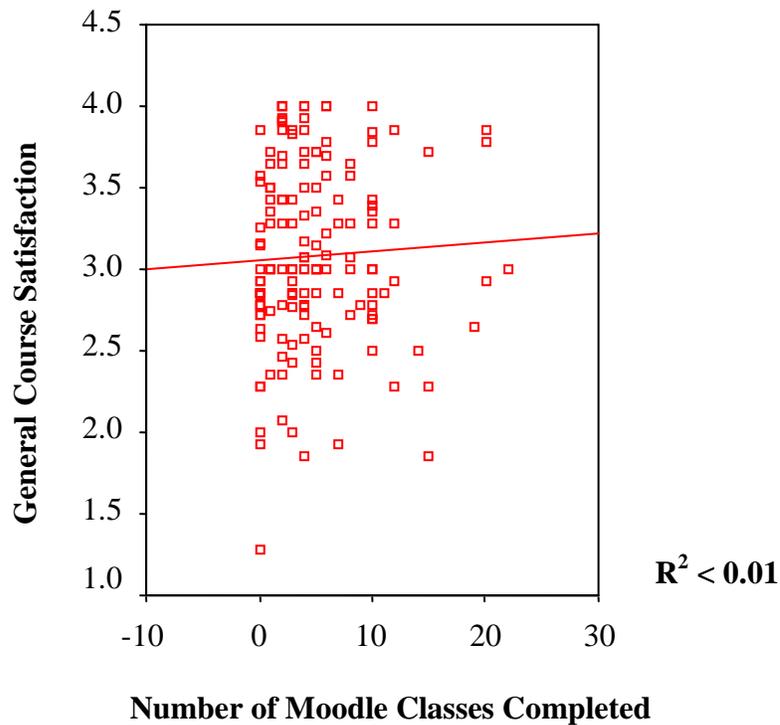


Figure 27. Scatterplot for General Course Satisfaction by Number of Moodle Classes Completed

Research Question 28. Is there a significant relationship between Learner-Instructor Interaction Scores and General Course Satisfaction Scores?

Ho28: There is no significant relationship between Learner-Instructor Interaction Scores and General Course Satisfaction Scores.

A Pearson correlation coefficient tested the relationship between mean general course satisfaction scores and mean learner-instructor interaction scores. Results of the analysis revealed a strong positive correlation between the variables. The correlation was statistically significant, $r(159) = .78, p = <.001$. Therefore, the null hypothesis was rejected. The r^2 (.61) indicated that 61% of the variance in general course satisfaction was shared with learner-instructor interaction. Figure 31 shows the scatterplot for general course satisfaction and learner-instructor interaction.

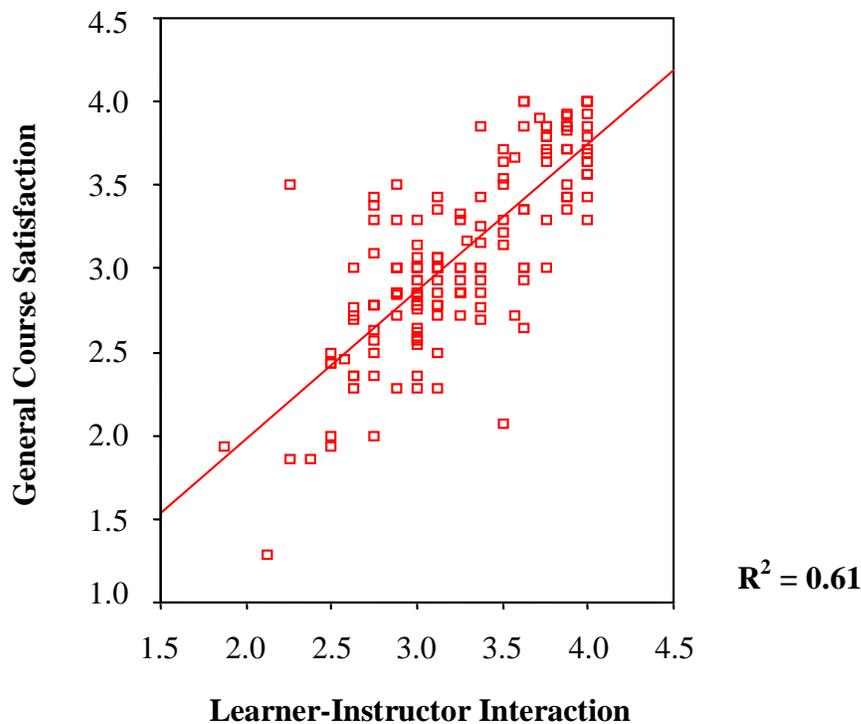


Figure 28. Scatterplot for General Course Satisfaction by Learner-Instructor Interaction

Research Question 29. Is there a significant relationship between Learner-Social Media Interaction Scores and General Course Satisfaction Scores?

Ho29: There is no significant relationship between Learner-Social Media Interaction Scores and General Course Satisfaction Scores.

A Pearson correlation coefficient tested the relationship between mean general course satisfaction scores and mean learner-social media interaction scores. Results of the analysis revealed a strong positive correlation between the variables. The correlation was statistically significant, $r(131) = .72, p = <.001$. Therefore, the null hypothesis was rejected. The r^2 (.53) indicated that 53% of the variance in general course satisfaction was shared with learner-social media interaction. Figure 29 shows the scatterplot for general course satisfaction and learner-social media interaction.

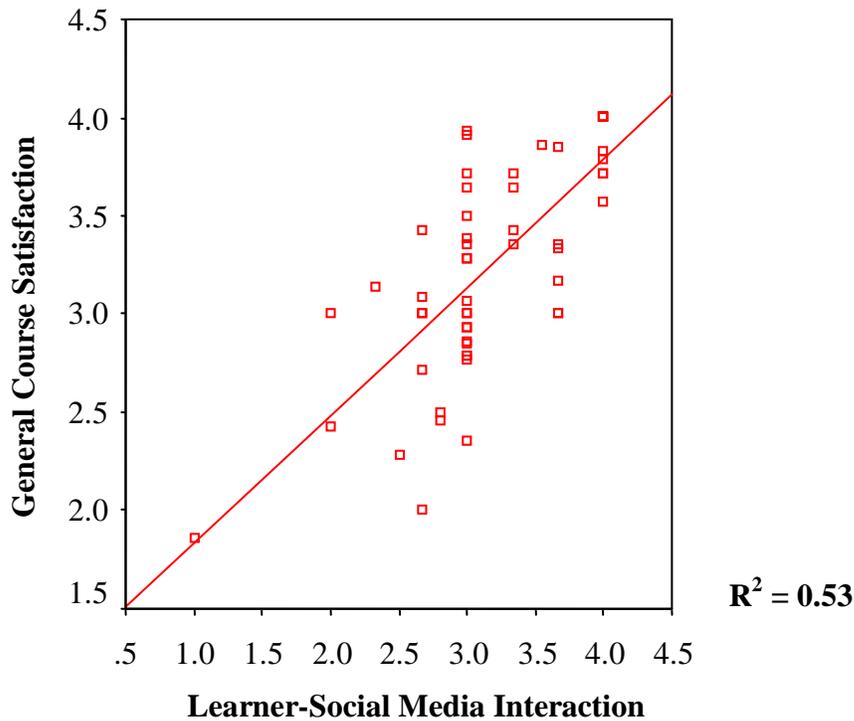


Figure 29. Scatterplot for General Course Satisfaction by Learner-Social Media Interaction

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter contains the summary of findings, conclusions, and recommendations for further research. The purpose of this study was to determine the relationships between general course satisfaction, learner-instructor interaction, and the learner-social media interaction scores of participants. Data were collected using an online survey to test 29 research questions. The population of this study included 171 students at a small private liberal arts college enrolled in classes during the Summer and Fall 2012 semesters.

Summary of Findings

Twenty-nine research questions were used to guide the statistical analyses in this study. An independent samples *t*-test was used to analyze questions 1, 2, 3, 4, 10, 11, 12, 13, 14, 15, 16, 17, and 18. A Pearson correlation was used to analyze questions 4, 5, 6, 7, 8, 9, 25, 26, 27, 28, and 29. And a one-way ANOVA was used to analyze research questions 19, 20, 21, 22, 23, and 24. The level of significance applied in the statistical analysis was set at the 0.05 level.

Findings from this study revealed 9 of 29 research questions had statistically significant findings. Within learner-instructor interaction, the student age and work status were statistically significant; within learner-social media interaction, the student gender and athletic team participation were statistically significant; and within general course satisfaction, the student age, GPA, work status, learner-instructor interaction and social media interaction were statistically significant. Data collected from responses based on student ethnicity, enrollment status, grade level classification, and number of Moodle delivered courses taken revealed no statistically significant differences.

Key Findings

Of the nine learner demographics studied, only five (gender, age, GPA, athletic team participation, and work status) were found to be statistically significant among the three constructs. Discussion of these findings is presented here.

Learner-Instructor Interaction

The findings of this study revealed that the learner's age and work status had statistically significant relationships with learner-instructor interaction. While the learner's age was statistically significant, $r(170) = .23$, $p = .002$, with learner-instructor interaction it was a weak positive correlation. Specifically, these results suggested that older students tended to have more instructor interaction.

The learner's work status revealed a statistically significant relationship between learners' work status and learner-instructor interaction ($p = .050$). There was not a significant difference for those students who did not work and those who worked part time ($p = .998$) and between students who did not work and those who worked full time ($p = .076$). However, learner-instructor interaction means between students working full time and students working part time revealed a statistically significant difference. These results revealed that a student's work status had a significant relationship with learner-instructor interaction. These significant differences may be reflective of the students' age and maturity level.

These findings are reflective of the idea that the instructor has a large role in the development of interaction in online learning environments. Without this interaction the students become dissatisfied and uninterested in the online learning experience (Woollen & Rabe-Hemp, 2009). Further, it is the instructor's presence in the online learning environment that can have a positive effect on the student's learning and satisfaction (Vesely, et al., 2007).

Learner-Social Media Interaction

Learner-social media interaction was found to be statically significant based on a student's gender and athletic team participation. An independent samples *t*-test revealed a statistically significant difference between male and female students, $t(133) = 2.50, p = .014$. Specifically, females ($M = 3.17, SD = .59$) reported a higher learner-social media interaction score than males ($M = 2.9, SD = .64$). The findings suggest that female participants were more satisfied than males with learner-social media interaction. These findings are supported in previous research (Hawkins, 2009)

Learner social media interaction scores between student athletic team members and student non-athletic team members were found to be statistically significant. An independent samples *t*-test revealed a significant difference based on student athletic team membership, $t(133) = 3.00, p = .003$. The learner-social media interaction mean for nonparticipants on athletic teams ($M = 3.16, SD = .58$) was higher than the mean for participants on athletic teams ($M = 2.80, SD = .68$). These results indicated that students who were nonparticipants on an athletic team were more satisfied with learner-social media interaction than students who were participants on athletic teams.

General Course Satisfaction

The findings of this study revealed a statistically significant relationship in general course satisfaction within student age, GPA, and work status variables. Students' age was statistically significant $r(158) = .30, p = <.001$ with general course satisfaction. It was a moderate positive correlation. Specifically, these results suggested that older students are more satisfied with their courses.

Student GPA revealed a statistically significant relationship $r(133) = .21, p = .015$ with general course satisfaction. These results suggested that students with higher GPA were more satisfied with their courses. There was a statistically significant difference ($F(2,152) = 1.14, p = .011$) in the general course satisfaction means between students who work full time ($M = 3.27, SD = .60$) and students who do not work ($M = 2.96, SD = .49$). Specifically, the results suggested that students who work full time had a higher level of course satisfaction.

Statistically significant findings, $r(159) = .78, p = <.001$, were found in the relationship between learner-instructor interaction and general course satisfaction. Overall, there was a strong positive correlation between learner-instructor interaction and general course satisfaction. Strachota's (2003) study supports these findings and revealed that learner-instructor interaction was the most important criteria for online satisfaction. These results give support to Chickering's and Gamson's (1987) principles of good practice in undergraduate education. Specifically, the principle of good practice encourages student-faculty contact and encourages cooperation among students. Further, Mupinga et al. (2006) reported that students identified extensive feedback from the instructor as having high importance in an online learning environment. Generally, as an instructor increased his or her interaction with the student, the student had a greater satisfaction with courses. Therefore, instructor-learner interaction should be encouraged in the online learning environment.

Statistically significant findings, $r(131) = .72, p = <.001$, were found in the relationship between learner-social media interaction and general course satisfaction. Overall, there was a strong positive correlation between learner-social media and general course satisfaction. These findings are supportive in research conducted by Rath (2011) that revealed an increased use of social media increased student satisfaction. Lokken and Womer (2007) reported that current

online students are proficient in the use of social media such as Twitter and Facebook. Therefore, as an instructor increased his or her use of social media in the course, the student had a greater satisfaction with the course. Overall, instructors should be including social media in the design of their courses in order to increase student learning and satisfaction.

Learner-instructor interaction revealed a higher strong positive correlation ($r = .78$) than learner-social media interaction ($r = .72$) with general course satisfaction and supports previous research (Creasey, Jarvis, & Knapcik, 2009; Hawkins, 2009; Herbert, 2006; Salyers, Carter, Barrett, & Williams, 2010; Strachota, 2003). This study revealed the relationship of online learning environment design and its effect on student satisfaction. It is evident from this research that the inclusion of various opportunities for students to interact with the instructor and for the instructor to interact in a positive manner with the student leads to a more enriched learning environment.

Conclusion

Young (2011) reported that more than 50% of the college presidents surveyed supported the delivery of courses through the use of technology. He further reported that these college presidents indicated that by 2021 the majority of college students will be taking online classes. Oblinger (2012) described information technology as a game changer because it has changed the way in which learning environments are being delivered and increasing access to an ever increasing number of learners. These factors have moved institutions of higher education into the delivery of their learning environments through the use of technology as online classes. This shift in delivery requires a change in the allocation of limited resources and how faculty design and evaluate their learning environments. As technology use increases at institutions of higher education so will the online learning opportunities. Institutions will need to systematically make

assessments of their online learning environments in order to ensure that they have quality and that resource allocations are justified.

Faculty actions in the design and delivery of online learning environments have an effect on student course satisfaction. During the design process, faculty should create opportunities for interaction with the learner and incorporate the use of social media as part of the learning experience. The results of this study are significant to the field of online learning as they support the Middle States Commission on Higher Education (2011) guidelines, Chickering and Gamson's (1987) principles, The Sloan Consortium (2012) framework, and provide a foundation from which additional research may be pursued.

Recommendations for Practice

The following recommendations for practice are made to increase the instructor's knowledge in online learning environments and students' satisfaction in online learning environments.

1. Institutions should provide instructors with professional course design trainings that include incorporating social media technology within online learning environments.
2. Encourage instructors to incorporate survey questions like those used in this study into their summative course evaluations.
3. Instructors should incorporate many opportunities for instructor-learner interactions within their online learning environment.
4. Instructors should be sharing their knowledge of their use and experiences in the design and delivery of online learning environments.

5. Professional development for faculty should include a discussion of *Seven Principles for Good Practice in Undergraduate Education* (Chickering & Gamson, 1987) and *The Sloan Consortium Quality Framework and the Five Pillars* (Moore, 2005).

Recommendations for Future Research

Higher education institutions are increasingly using technology to create and deliver online learning environments. This study offers insight into the design of online learning environments and provides faculty with the knowledge needed to increase student satisfaction within online learning environments. Future research should be completed to provide a fuller understanding of the variables that effect student satisfaction within online learning environments. Recommendations for future research are presented here.

1. A replicated study could be completed on an entire higher education system.
2. Complete a study that identifies which specific instructor-learner interactions increase student satisfaction.
3. Replicate this study to include large enrollment courses, such as Massive Online Open Courses (MOOCs).
4. Research what other factors within an online learning environments are statistically significant to instructor-learner interaction and general course satisfaction.
5. Research to determine if there is a significant relationship between learner course grade and learner course satisfaction.
6. Research the relationship between introduction to online learning courses and student course satisfaction.
7. Further investigate the relationship between course satisfaction and type of courses.

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APPENDICES

APPENDIX A: Survey Instrument

The Student Satisfaction Survey (Elaine M. Strachota)
Instrument was modified with permission from the author.

1. I am	Male Female
2. I am _____ years old	
3. I have a current GPA of _____	
4. I am	African American Asian Pacific Islander White Latino/a or Hispanic American Indian or Alaska Native Other
5. I participate as a member of a College Athletic Team	Yes No
6. Student Status	Full-time Part-time
7. Student Classification	Freshman Sophomore Junior Senior Graduate Student
8. I work	Full-time Part-time Do not work
9. I have completed _____ Moodle delivered class(es)	
10. I am currently enrolled in: (Check all that apply)	Fully Online Class Face-to-Face Class Blended Class

LEARNER-INSTRUCTOR INTERACTION (Consider <u>ONLY</u> the online class components)				
	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
11. In my course(s) the instructor is an active member of the discussion/forum group offering direction to posted comments				
12. I receive timely feedback (within 24-48 hours) from my instructor				
13. I feel frustrated by the lack of feedback from my instructor				
14. I am able to get individualized attention from my instructor when needed				
15. In my course(s) the instructor functions as the facilitator of the course by continuously encouraging communication				
16. I felt the presence of my instructor in the online modules of my course(s)				
17. The log-in instructions given, course design, and navigation structure are easy to use and understand.				
18. My instructor(s) creates a learner- engaged learning environment				
LEARNER-SOCIAL MEDIA INTERACTION				
19. Participation in the Discussion/Forum Group is:	Discussion/Forum is not used Voluntary Required			
20. Participation in the Chat Group is:	Chat is not used Voluntary Required			
21. Participation in the Facebook Group is:	Facebook is not used Voluntary Required			
22. Participation in the LinkedIn Group is:	LinkedIn Group is not used Voluntary Required			

23. Participation in the Blog Group is:	Blog Group is not used Voluntary Required				
24. Participation in the Wikis Group is:	Wikis Group is not used Voluntary Required				
25. Participation in the Twitter Group is:	Twitter Group is not used Voluntary Required				
	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)	N/A (0)
26. In my course(s) that is/are delivered through Moodle, the Discussion/Forum Group provides opportunity for problem solving with other students (If Discussion/Forum Group is not used in course, Skip to question #29)					
27. In my course(s) that use/uses Moodle, Discussion/Forum Group provides opportunity for critical thinking with other students					
28. In my course(s) that is/are delivered through Moodle, the Discussion/Forum group is/are a waste of time					
29. In my course(s) that is/are delivered through Moodle, the Chat Group provides opportunity for problem solving (If Chat Group is not used in course, Skip to question #32)					
30. In my course(s) that is/are delivered through Moodle, the Chat Group provides opportunity for critical thinking with other students					
31. In my course(s) that is/are delivered through Moodle, the Chat Group is a waste of time					

	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)	N/A (0)
32. In my course(s) that is/are delivered through Moodle, the Facebook Group provides opportunity for problem solving with other students (If Facebook Group is not used in, course Skip to question #35)					
33. In my course(s) that is/are delivered through Moodle, the Facebook Group provides opportunity for critical thinking with other students					
34. In my course(s) that is/are delivered through Moodle, the Facebook Group is a waste of time.					
35. In my course(s) that is/are delivered through Moodle, the LinkedIn Group provides opportunity for problem solving with other students (If LinkedIn group is not used in course, Skip to question #38)					
36. In my course(s) that is/are delivered through Moodle, the LinkedIn Group provides opportunity for critical thinking with other students					
37. In my course(s) that is/are delivered through Moodle, the LinkedIn Group is a waste of time.					
38. In my course(s) that is/are delivered through Moodle, the Blog Group provided opportunity for problem solving with other students (If Blog Group is not used in course, Skip to question #41)					
39. In my course(s) that is/are delivered through Moodle , the Blog Group provides opportunity for critical thinking with other students					
40. In my course(s) that is/are delivered through Moodle , the Blog Group is a waste of time					

	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)	N/A (0)
41. In my course(s) that is/are delivered through Moodle , the Wiki Group provides opportunity for problem solving with other students (If Wiki Group is not used in course, Skip to question #44)					
42. In my course(s) that is/are delivered through Moodle , the Wiki Group provided opportunity for critical thinking with other students					
43. In my course(s) that is/are delivered through Moodle the Wiki Group is a waste of time					
44. In my course(s) that is/are delivered through Moodle , the Twitter Group provides opportunity for problem solving with other students (If Twitter Group is not used in course, Skip to question #47)					
45. In my course(s) that is/are delivered through Moodle , the Twitter Group provided opportunity for critical thinking with other students					
46. In my course(s) that is/are delivered through Moodle , the Twitter Group is a waste of time					

GENERAL COURSE SATISFACTION				
	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
47. I am very satisfied with the interaction opportunities with other students in my course(s)				
48. I would like to take another online or blended course				
49. My courses created a sense of community among students				
50. The social media used in my course(s) encouraged students to discuss ideas and concepts with other students				
51. My online course(s) did not meet my learning needs				
52. I feel online and blended courses are as effective as face-to-face courses				
53. I learned as much in my online and blended course(s) as compared to a face-to-face course				
54. I am very satisfied with the overall experience of my course(s) delivered through Moodle				
55. I am very satisfied with the timeliness of my instructor(s) feedback				
56. I am very satisfied with my instructor(s) course organization				
57. I am very satisfied with my instructor(s) course communication methods				
58. Overall, I feel the use of social media by my instructor(s) increases my course satisfaction				
59. Overall, I am able to ask for course clarification from a fellow student when needed				
60. Overall, my course(s) encouraged students to discuss ideas and concepts covered with other students				

APPENDIX B: Permission Email from Elaine Strachota, Ed.D.

From: Elaine Strachota [strachoe@matc.edu]
Sent: Friday, October 07, 2011 12:36 AM
To: Andersen, Jeff
Subject: Re: Research Survey Use: Student Satisfaction Survey

Jeff,

Yes, you have my permission to modify the survey instrument to meet your needs as long as you reference me as the source of the original instrument in your dissertation. Good luck.

Elaine Strachota, Ph.D., M.S., OTR.
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APPENDIX C: Introduction and Informed Consent

Dear Students:

I am a doctoral student at East Tennessee State University working on a dissertation titled: “Learner Satisfaction in Online Learning: An Analysis of the Perceived Impact of Learner-Social Media and Learner-Instructor Interaction.” This study will involve all students who are enrolled in a course that is using Sakai to deliver course information and assignments. You have been selected to participate in this research because you are enrolled in a Moodle delivered course. Your participation in this study is voluntary and you may end your participation at any time during the survey. The purpose of this study is to determine the impact of the use of social media and instructor interaction on students’ satisfaction. I encourage your participation as this will assist in the continued improvement of online learning environments.

This on-line survey will only take about 15 - 20 minutes to complete. Your answers will be completely confidential and your participation is voluntarily. Your class grades or standing will not be affected by your level of participation in this study.

I thank you for your consideration and voluntary participation in this study.

Sincerely,

Jeffery C. Andersen

Doctoral Candidate/ East Tennessee State University

Email: JAndersen@mhc.edu

APPENDIX D: Survey Instrument Modifications

- Question 10: The word *successfully* was removed.
- Question 10: The word *online* was replaced with Moodle delivered.
- In the Heading: LEARNER-INSTRUCTOR INTERACTION, the statement, *Consider ONLY class online components*, was added.

VITA

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Visiting Lecturer, Western Carolina University, Cullowhee, NC;
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Outdoor Program Director, Girl Scouts of Western North Carolina,
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Outdoor Program Director, Lee County Parks and Recreation,
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