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Students' Motivations and Barriers to Online Education

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Abstract

The problem explored in this study stems from the paradox between the growing number of online classes and the decreasing retention rate of students who take online classes. In order to understand the reasons behind this decreasing retention rate the study is aimed at revealing barriers students encounter when taking online courses. The second main area of the study is to determine whether or not differences exist between students who want to take online classes and those who do not want to take online classes. Answers to the first research question were obtained by gathering and analyzing survey responses.

Multiple Mann-Whitney U Tests were conducted to answer the second research question. The p-value was calculated in order to determine whether a significant difference exists between groups at $p < .005$. In addition, means and standard deviations were reported to compare and contrast the results between groups of students. Summarizing students' concerns towards online education, interaction and collaboration, as well as confusing layout/organization, were reported as areas that cause barriers in online and hybrid environments.

The use of asynchronous, collaborative tools is recommended for improvement of students' motivation and attitudes towards online learning. For mandatory online classes in which the majority of enrolled students do not want to take an online class, the course organization should be very simple. Email or text messaging should be used for nearly each type of collaboration. In addition, the instructor should be mindful of course layout and response time to student questions.

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Chapter One: Introduction

Problem Statement

The advent of new technologies is providing educators with opportunities to create a variety of effective learning environments; however, many adult students still prefer traditional, academic settings. The purpose of this study is to analyze student perceptions about online courses in the context of current literature on pedagogical aspects of online learning so that instructors have guidance for improving online course environments.

Importance of the Problem and Rationale for the Study

The number of online courses in post-secondary education continues to grow rapidly. The number of students taking at least one online course has increased by no less than 9.3% each year for the last ten years, reaching an estimated 6.7 million in 2013 (Allen & Seaman, 2013). However, a major barrier to the growth of online courses is a low retention rate across all types of institutions (Allen & Seaman, 2013). As more students are growing up familiar and comfortable with internet-based technologies, many students are still opposed to taking online courses. A need exists to examine the challenges students perceive, and what can be done to meet student expectations. Students are increasingly being offered online educational experiences, whether through hybrid/blended learning environments or a shift in greater use of technology even in the traditional classroom environment. Thus, a need to define the real difficulties that students have in taking online courses exists along with determining pedagogical approaches that can address those difficulties and increase the likelihood of a successful online teaching and learning. This current research identifies and builds upon specific

areas of online education that students perceive to be unclear or ambiguous and thus present barriers for their successful learning.

This research also focuses on analyzing the differences in perceptions of online classes between students who want to take online classes and those who do not want to take online classes. Little research exists that provides an analysis of student approaches between these groups of students in a single study. The purpose of this study is to determine the differences between students who want to take online classes and those who do not, and offer suggestions for improving the online learning environment.

Background of the Problem

Early research on adopting technologies into learning environments indicates that there is a connection between direct instructions and effective learning (Grundmann, Wielbo, & Tebbett, 2010; Januszewski & Molenda, 2007; Zen, 2008). With great advancements in the field students are considered, not as recipients of knowledge, but as constructors of knowledge. The role of technology, from providing drill and practice (controlling learning), has shifted to providing tools and a creative environment for students to solve problems (supported learning) (Januszewski & Molenda, 2007).

Online courses are often associated with extensive use of technology. Some scholars believe that the format of a course challenges or influences student success (Dunbar, 2004; Jagger et.al, 2013). These scholars are primarily concerned with identifying the best tools to use for successful learning in online courses (Dunbar, 2004), and argue that student technical and non-academic skills are behind their success in online courses. Grundmann (2010) argued that lack of laboratory and hands-on experience within the format of online courses is viewed as a major disadvantage,

specifically for students in the field of science. However, he also discovered the format of instruction (online or traditional) does not affect the successful achievement of learning outcomes for science related lessons.

More recently, scholars are suggesting *the instructor* influences the effectiveness of an online course more so than the student. These scholars state that student success in achieving learning outcomes of a course does not depend on the format of the course (whether it is online or traditional) but on use of appropriate pedagogy, interaction between students and the instructor, and quality of instruction (Driscoll, Jicha, Hunt, Tichavsky, & Thompson, 2012; Estelami, 2012; Zen, 2008). The majority of online education scholars have determined that because of the nature of online courses, communication is of primary importance to student success. They argue that effective communication between instructors and students must be established to motivate students to learn and to facilitate cognition processes in online environments (Brindley, Walti, & Blaschke, 2009; Jackson, Jones, & Rodriguez, 2010).

Following the current literature suggesting the influence of the instructor on student success, the questions that still remain are, what are student perceptions about online courses, and how can the results impact the development of pedagogy to create positive online learning environments that encourage adult students to learn?

Statement of Purpose

The purpose of this study is to better understand student perceptions about online learning. Specifically, the purpose of this study is to analyze student barriers to online learning in the context of current literature on online learning. Moreover, a purpose is to identify whether differences exist between students who have a positive attitude toward

online education and want to take an online course and those students who do not want to take an online or hybrid/online class in the future. Results generated, and recommendations provided, should help instructors improve online course environments to better enable student learning.

This study was conducted at a midsized public university in the Midwest during the winter semester of 2015. A sample population was surveyed about the concerns they encounter when deciding to take an online course and barriers they experience while taking an online course. Data were collected and analyzed in order to determine future areas of research and produce clear recommendations on pedagogy for faculty conducting online courses at this public university, regardless of their field of expertise. Results should provide direction for effective structure, content delivery, and communication within the online course setting.

Research Questions

1. What barriers do students encounter when taking online courses?
2. What differences exist between students who want to take online classes and those who do not want to take online classes?

Research Design, Data Collection and Analysis

Answers to the first research question were obtained by gathering and analyzing survey responses. The participant responses are analyzed in aggregate, because the purpose of the first question is to understand the reasons that demotivate any student from pursuing online class experiences.

Multiple Mann-Whitney U Tests were used to determine the answer to the second research question, which is, "What differences exist between students who want to take

online classes and those who do not want to take online classes?" The first analysis was conducted between students without online class experience. This population was divided into two groups, those students who do not want to take an online course in the future (Group 1) and those students who indicated that they would like to take an online course (Group 2). The second test compares and contrasts students who have taken at least one online course. This population was also divided into two groups, one being students who do not want to take an online class again in the future (Group 3) and students who do want to take an online course again (Group 4). The data are analyzed against current research to determine clear recommendations on pedagogy for faculty conducting online courses.

Definition of Terms

Course format – The manner in which instruction is delivered, whether face-to-face, hybrid, or online.

Course structure – The pedagogy behind the course format. Includes means of communication and content delivery.

Traditional course – The "de facto delivery method" (Online Education Council, 2014). Students meet together and with an instructor face-to-face in a physical environment.

Hybrid course – A course in which the instructor deliberately replaces some face-to-face instruction with online activities.

Online course – "A course where the instructor has replaced all in-class instruction with online instruction. Students and instructors never come to class" (GVSU, 2015).

Retention Rate – Percent of students who continue taking online classes after participating in at least one online class.

Synchronous communication – Collaboration between students and instructor that is happening in real time. Can be arranged through Blackboard Collaborate, Skype, ooVoo with ability to have video calls (conferences), instant messages, web-tours, or screen-sharing.

Asynchronous communication – Collaboration between an instructor and students with a time delay. It could be done using email, discussion boards, or posts.

Teacher-centered – A type of on-line course where students should follow an instructor's directions and instructions in the form of lecture, presentation, and drills.

Student-centered/oriented – A type of on-line course where learning initiative goes to students. Students are given freedom in selecting topics and have the ability to work in groups and communicate with peers.

Delimitation of the Study

An administrator at the sponsoring university selected the sample of this study and controlled all communication to recruit participants. The administrator contacted potential participants and determined the number of students to be contacted. To control for potential bias, the researcher had multiple content area experts evaluate the items used in the survey. Additionally, the sphere of online education is not limited to a specific learning management system or technology. This study encompasses many aspects of online teaching and learning. The results should be generalizable to all students who take online classes at the selected institution as well as institutions with similar demographics, which increase the external validity of this study. SPSS is used to manage and analyze the qualitative data collected.

Limitation of the Study

Time constraints only allow one university to be studied, which could affect the generalizability of the study. Time also did not allow the instrument to be piloted, and therefore validated, prior to being administered. The researcher has no control over the process of selection of students who received the survey as well as the time needed to send the survey to selected students via email. Additionally, because this survey was administered to students through email, the survey data only include those students who monitor their university email account and respond to online surveys.

Organization of the Study

The purpose of this thesis is to synthesize scientific results about student perceptions of online courses and analyze them against pedagogical practices. Chapters are organized in the following manner:

Chapter 2 is a review of literature that discusses the development of online courses and the variety of approaches to pedagogy.

Chapter 3 describes the research design and how data were collected for this study.

Chapter 4 provides results and analyses of the data.

Chapter 5 contains pedagogical suggestions based on the results for course designers and faculty to consider when developing an effective online course.

Chapter Two: Literature Review

Introduction

The current study is aimed at determining barriers students encounter when taking online courses. The literature review is focused and organized around criteria that make online education substantially different from traditional, face-to-face education, and diverse pedagogies that can be used to meet student expectations for online education. The literature is organized by components and characteristics of effective learning environments in online education.

The literature review begins with the major components of online education highlighted by previous research that are perceived by students to be obstacles for their success. Obstacles identified include communication, computer literacy, and instructional delivery methods. The literature about online pedagogy is explored to better understand the most effective learning environments that motivate adult students to learn. Research on teacher-centered and student-oriented course design and content development and delivery is reviewed and analyzed for their impact on student creativity, motivation, and overall success.

Theoretical Framework

The literature reviewed and the associated problems and possible solutions that answer to student perceptions about online courses align with the Constructivist theory and its teaching models. Murphy (1997) summarized 16 characteristics of Constructivism, three of which are primarily represented in this review of the literature:

1. Teachers serve in the role of guides, monitors, coaches, tutors and facilitators;

2. Student problem-solving, higher-order thinking skills, and deep understanding are emphasized;

3. Learning takes place in individual contexts and through social negotiation, collaboration, and experience.

Koohang (2009) adapted Murphy's (1997) characteristics into an advanced model of Constructivism in e-learning environments. The three components determined are:

1. Design of Learning Activities, which includes collaboration, cooperation, multiple representations of ideas, and social negotiations;

2. Instructor's Roles, which are mentoring, acknowledging, providing feedback, and assessing student learning;

3. Learning Assessment, either conducted by the instructor, through collaboration, or by the student himself.

Educational technologies are used not just to control learning, but the main purpose is to make the learning process easier by creating an effective learning environment (Jackson, Jones, & Rodriguez, 2010; Januszewski & Molenda, 2007). Thus a Constructivist model applied to educational technology would encourage more creation within learning environments and avoid using technologies to control learning (e.g., presenting information and delivering drills and practice). Theoretically, technology is more useful when it is used by students to identify a problem with the appropriate tools for the purpose of supporting learning.

A Constructivist approach suggests that students bear the weight of making meaning from course content and their own learning. The literature suggests the role of the instructor as guide, mentor, facilitator, and coach needs to be reassessed and better

determined (Grundmann, Wielbo, & Tebbett, 2010; Januszewski & Molenda, 2007; Zen, 2008). Based on these components of the Constructivist theory and the specific nature of online courses and e-learning environments, three areas that deserve special attention and which are addressed in this literature review are; collaboration (i.e., between students and instructor and students to other students), methods of content delivery, and teaching approach models.

Research and Evaluation

Student Motivations

Several studies were done in order to understand the rationales behind students' success in online/hybrid learning. Duncan, Range, and Hvidston (2013) find that student perceptions of a rigorous curriculum provide the motivations for success. A rigorous curriculum is defined as having clear definitions of goals and learning outcomes. Literature also reveals that an instructor should consider different methods than those used in traditional settings in order to engage students in online learning (Brocato, Bonanno, & Ulbig, 2015). This research shows that a high level of frustration emerges when a course is organized poorly and students spend too much time searching for necessary information. Unclear expectations or changing learning goals frequently during the class demotivates students and causes confusion about course objectives (Duncan, Range, & Hvidston, 2013). This research identifies the prerequisites for successful online learning, which are course clarity and organization.

Students also indicated engagement as a rigorous component of a course. According to the research, students' motivation increases in a class when they have an opportunity to interact with peers, as well as the instructor, and gain exposure to other

perspectives (Duncan, Range, & Hvidston, 2013; Palmer, & Holt, 2010). Instructors must participate actively and engage with students, which means they must be available for learners and gain their trust and confidence (Brocato, Bonanno, & Ulbig, 2015). Student motivation increases when learners can construct relative knowledge and demonstrate learning. Thus, student motivations towards online learning are enhanced with clear organization, communication, interaction and presence of the instructor.

Communication

Communication is an important part of any educational endeavor. Students need to collaborate with their instructor and their peers in order to be successful in an academic course (Brindley, Walti, & Blaschke, 2009; Chen, Bennett, & Maton, 2008; Driscoll, Jicha, Hunt, Tichavsky, & Thompson, 2012). One of the primary and inherent features of an online course is the absence of a physical environment, which would more naturally encourage communication. An online course provides students with unique opportunities for building communities, in which students can ask questions, challenge each other and also construct new knowledge (Bryant & Bates, 2015), which is imperative for a constructivist approach to learning. Therefore, a course designer is responsible for determining the collaborative tools that can be used for communication in an online course. In this section of the literature review, distinct challenges to determining and arranging the collaborative component of an online course are discussed, and possible solutions are explored.

Communication can occur synchronously or asynchronously. Synchronous communication means the communication is taking place in real time, as would be found in a traditional, face-to-face classroom. Methods of accomplishing similar

communication in an online course would require videoconferencing or virtual sessions. Examples of programs that facilitate synchronous communication are Blackboard Collaborate, ooVoo, and Google Hangouts. Asynchronous communication happens when there is a time delay between initiated communication and subsequent responses between an instructor and students or between students. Examples of asynchronous communication methods are email and discussion boards. Both synchronous and asynchronous activities allow students to exchange ideas with other students and with the instructor, which is why better understanding of the barriers students face specifically related to communication and collaboration is important.

Communication and collaboration are considered the most important aspects of meaningful online learning and also the most problematic (Brindley, Walti, & Blaschke, 2009; Chen, Bennett, & Maton, 2008; Durrington, Berryhill, & Swafford, 2006; Martin, Parker, & Allred, 2013; Martin & Parker, 2014). Because of the complexities involved, some researchers look only at synchronous tools (Martin & Parker, 2014; Wang & Reeves, 2007), others at solely asynchronous (Gao, Zhang, & Franklin, 2013; Licona, 2011; Wang, 2010), and a lack of research in terms of the effects of combinations of tools exists.

Synchronous communication

Real time communication between students and an instructor is supported in an online environment by many features such as audio, video, text-chat, interactive whiteboards, application sharing, instant polling, emoticons, and breakout rooms (Martin & Parker, 2014). However, there are no suggestions for implementing the whole array of functions available in educational tools in order to make a virtual class engaging for

students. When given access to synchronous communication tools with a variety of functions, students have a tendency to exploit the array of features, and when technical problems occur, they can easily go beyond the limits of what an instructor can troubleshoot (Warden, 2013). In fact, utilizing too many technical features ultimately creates a work overload for an instructor (Warden, 2013). Instructors benefit from determining technical features that are most beneficial to students and their learning, and not providing too many options.

Videoconferencing can be successful because it provides a platform for students and instructors to communicate with body language and nonverbal communication cues in addition to words and other traditional teaching techniques such as demonstrations, screen sharing, and presentations online (Wang & Reeves, 2007). However, care must be employed because students can become distracted or confused in a virtual environment (Warden, 2013). Although students are well versed in watching video on demand and playing immersive video games, they lack experience in formal synchronous learning environments (Cole, 2009). Warden (2013) describes the various issues that arise from students who passively engage with technology from failing to download material to not learning to use software prior to class. Instructor intervention is needed to provide students with technical support or instructions on receiving support elsewhere. Instructors and students benefit from understanding what to do if audio or video are not working properly (Martin, Parker, & Allred, 2013).

While research for synchronous video communication is lacking in the literature, relying solely on a videoconferencing tool creates an environment for passive participation, and a lack of alternative options for communication means students'

technical problems can be difficult to solve or even explore (Warden, 2013). Wang and

Morgan (2008) found the strongest effect of instant messaging in videoconferencing tools

was that instant messaging promoted a higher degree of student cooperation. While

technical problems are associated to a greater extent with synchronous communication

tools because of bandwidth requirements and commonly poor audio quality (Warden,

2013), a few additional tools can be used, such as instant messaging and instructional

slide presenters, to maintain student focus, promote cooperation, and allow for alternative

means of communication.

Asynchronous communication

Participation in discussion boards, wikis, journals and blogs is associated with a

wide variety of cognitive and social activities (Gao, Zhang, & Franklin, 2013). Thus,

most online courses utilize asynchronous communication tools. Gao, Zhang, and Franklin

(2013, p. 472) explain that meaningful participation in a discussion board requires the

following four characteristics:

1) Discuss to comprehend;

2) Discuss to critique;

3) Discuss to construct knowledge;

4) Discuss to share.

Thus, students should be able to contribute various perspectives and thoughts in

an online setting, and in turn receive critique. Consequently, discussion should ensue to

build knowledge and understanding. When any of these components are missing students

are restricted in sharing their ideas, and this environment can quickly become superficial

or artificial. The purpose of asynchronous communication is to promote peer interaction

and facilitate the sharing and distribution of knowledge and expertise among a group of learners. Thus, creating online communities where students work together to achieve common academic goals and work towards objectives related to the coursework is a purpose of online teaching (Mackey, 2007).

Many studies offer insights into student perceptions regarding the use of discussion boards and wikis in online courses (Cole, 2009; Durrington, Berryhill, & Swafford, 2006; Gao, Zhang, & Franklin, 2013, Jun & Park, 2003). Students note an inability to start an initial topic in collaborative discussion boards as a restriction (Jun & Park, 2003). Self-confidence issues arise because of lack of preparation, which results in a failure to post informed responses. Although students are comfortable and familiar with interacting in an online environment, many studies suggest that they are specifically comfortable with passive social networking behaviors (Cole, 2009; Durrington, Berryhill, & Swafford, 2006; Wang, 2010).

Some students require additional support with postings, articulation of ideas, and overall communication in the class. A student in Chen, Bennett, and Maton's (2008, p. 315) study stated, "everyone talked about their own situations and their opinions, and without the teacher's comments, I didn't know whom to listen to." When class discussion is taking place, the instructor must participate; otherwise the forum can easily appear to be disorganized. For example, Licona (2011, p. 7) writes that, "pedagogical practice is informed by the immediacy of action and presence of instructor in the online learning space, thus fostering collaboration in numerous ways." In order to increase student participation, an instructor can ask questions and provide feedback directly related to a student's contribution (Durrington, Berryhill, & Swafford, 2006). Instructors should

participate in discussion boards in order to motivate and encourage students to continue to participate.

Several tools are needed to keep students engaged and motivated in collaboration with other students. When using collaborative tools as a form of measurement of participation, one tool can likely be too limiting (Gao, Zhang, & Franklin, 2013). Most students currently use social networking skills for fun or consumption purposes, not for engaging in communal learning behavior with other students (Cole, 2009, p. 145). As a response, instructors should create a space and exercises for students to practice editing, publishing, and posting content through any communication tool being utilized (Cole, 2009).

Asynchronous communication tools are much more prevalent in the literature compared to synchronous tools. This lack of research on synchronous tools may be the result of perceived technical challenges. Regardless of the communication structure, students' technical and personal constraints in addition to a general lack of interest, limit their participation and contributions to these virtual communication platforms (Cole, 2009).

Content delivery

"Not every situation benefits from becoming an open discussion or collaboration forum" (Cunningham & Leuf, 2001, p. 30 as cited in Cole, 2009). Virtual environments have a number of options available for instruction and other content and guidelines that need to be delivered. Content can be delivered through a variety of ways using digital technologies. The platform used, whether learning management system or website, may determine the extent to which each can be utilized.

Broadcasting technologies (Pod-, vod-, and screen- casts) seem to be appropriate for developing effective learning environments. There is no particular answer about what combination of methods of content delivery works best for students. Experts recommend using various content delivery methods to meet student expectations and make it possible to implement different learning strategies (Brown, Brown, Fine, Luterbach, Sugar, & Vinciguerra, 2009). Additionally, using a combination of technologies and pedagogies to motivate students to learn is recommended (Brocato, B. R., Bonanno, A., & Ulbig, S. 2015; Zen, 2008).

Role of the instructor

Warden (2013) concluded that learning takes place best when the environment is centrally controlled by the instructor. This control minimizes many of the technical problems associated with online courses by providing training and advice to students on using the equipment properly (i.e. checking audio and video). Warden also concluded that students still have significant opportunities in these controlled environments to construct their learning, and as their technical capabilities develop, they can explore situations of greater student-centered control. An instructor is ultimately the main component behind the success of an online course (Zen, 2008).

Instructors cannot assume that students (Prensky, 2001) know how or are comfortable using formal educational technologies even though they are growing up with internet-based technologies. Even students seeking degrees in information technology need guidance and instruction on how to use these learning technologies (Cole, 2009). According to Zen (2008), the instructor is responsible for ensuring that students understand how to use any tool selected for learning. However, an instructor should not

simply choose a tool without designing course content around the use of that tool (Cole, 2009). When developing the course, special attention should be given to deeper insight into the learning environment in terms of the needs of all learners, their access to resources and information, social and cultural involvement of the implementation of information technologies, alternative learning environments, and related policy development (Zhu, Valcke, & Schellens, 2009).

One way instructors can guide students through formal educational technologies is by creating a separate space and exercises for students to practice peer-editing, publishing, and posting content through any combination of tools being utilized (Cole, 2009). Another approach is to require training or a prerequisite module that teaches and assesses students' use of all available tools. Course designers (and instructors) cannot assume that every student will successfully grasp the ability to understand technical terminology and acquire all technical skills during the first few online lessons.

The instructor's role in an online course includes activities related to setting up the collaboration area, developing and disseminating clear instruction for task completion, and facilitating learning activities during the course (Cho & Rathbun, 2013). The initial role of the instructor is to provide students with clear instructions and articulation of the tasks in a manner such that students know their expectations and are prepared for the knowledge they are going to be expected to learn. In response, students are expected to take control of their own learning and use their previous experiences to complete course tasks (Stansfield, McLellan, & Connolly, 2004).

Creating guidelines and instructions do not hinder student creativity and learning because this information helps students navigate through the course and provides students

with needed explanations about course documents, assignments, and overall course expectations. Constructing a well-defined space for learning gives a strong foundation from which students can build their own learning and creativity. An instructor must first present the boundaries and guidelines to better enable student success.

Summary

Student success in an online course depends on the learning environment created by the instructor (Zen, 2008). The results of numerous studies reveal that communication in online courses is paramount to creating an effective learning environment and in motivating students to learn (Chen, Bennett, & Maton, 2008; Martin & Parker, 2014; Zhang & Kenney, 2012). Determining the combination of tools to help students collaborate effectively, discuss projects, and communicate with the instructor is important to a successful online learning experience. A combination of synchronous and asynchronous tools should be examined in order to create an effective learning environment. Multiple options exist for instructors to deliver course content; however, no single online option has been determined to be the most effective for any particular purpose (Andrusyszyn, Cragg, & Humbert, 2001; Brown, Brown, Fine, Luterbach, Sugar, & Vinciguerra, 2009). Instructors should create student-centered environments with clear instructions and guidance where students can be free to explore and gain familiarity. Based on their knowledge they can find answers and acquire new skills and theoretical backgrounds that correspond with the learning goals of the course.

Conclusion

The theory of Constructivism was chosen as a theoretical basis for examining student perceptions and barriers to online education. This theory suggests that students

can effectively build their knowledge based on prior experience and class activities (Januszewski & Molenda, 2007). In this study the theory is based on using technology in the creation of effective learning environments.

Building collaboration between the instructor and students is known to be a crucial component of an online class (Durrington, Berryhill, & Swafford, 2006; Gao, Zhang, & Franklin, 2013; Martin & Parker, 2014). An instructor can use many supporting materials to deliver content. These tools can be created and disseminated using various technologies. Questions remain about the combination of tools that can make the learning process motivational and effective for students. The instructor or course designer should understand supporting materials to help students learn information clearly while successfully meeting the learning goals. The tools that students are comfortable using in an online course must continue to be examined. With stronger data about student perceptions to the barriers of online education, instructors can gain knowledge about building more effective online courses and experiences that motivate students to learn and advances their knowledge and skills.

Chapter Three: Research Design

Introduction

The aim of this thesis is to analyze students' motivation and perceived barriers towards online learning. The number of online courses, as well as the number of students who take at least one online class, continues to grow (Allen & Seaman, 2013). Unfortunately, the retention rate of students who take at least one online class is decreasing. To better understand the reason for such a paradox of increasing enrollments of students in online classes along with decreasing retention rates, the following research questions are posed:

1. What barriers do students encounter when taking online courses?

2. Is there a significant difference between attitudes of students who have taken an online course and those who have not?

A survey was developed to collect information to help answer the research questions. The Office of Institutional Analysis granted permission to conduct the survey using GVSU email addresses (see Appendix A). This chapter describes the participant selection process, the rationale for utilizing survey instrumentation, and clarification of the data collection process. Finally, details about the treatment and analysis of the data collected in the study are provided.

Participants

The total number of students enrolled at the participating public university as of Fall 2014 is just over 25,000, which classifies the public university as a medium-sized US institution. The student population consists of 89% White, 6.7% Black or African American, 4.5 % Hispanic or Latino, 3.6% Asian or Pacific Islander, and 1.8% American

Indian or Alaska Native. The ratio between men and women is approximately 33% to 67%.

Participants for this study were randomly selected from among Winter 2015 enrollees. The Department of Institutional Research randomly selected the students who would participate in the survey. Three-fourths of the students who responded are between the ages of 18-23, and 32.45% of the respondents are male while 67.55 are female, which matches the overall student population very closely.

Instrumentation

An online survey, designed by the researcher, was deployed through an online survey tool (i.e., see surveymonkey.com). The research received HRRC approval (included in Appendix B). The Survey items were divided into two sections. Items from the first section were designed to collect demographic information including questions about age, gender, status (i.e., undergraduate or graduate students) and major. The purpose of collecting this demographic data was to increase external validity for generalizability applications.

The second section of the survey contained items aimed at collecting the information needed to answer the research questions. To gain a better understanding about online course retention rates, participants were asked to respond to an item about their experience with online education. Items were meant to distinguish groups of students by their experience with online learning.

The first group (Group 1) contains data from students who have never taken an online class in the past and do not want, or have no intention, to take one in the future. Group 1 was provided an opportunity to specify the top three reasons (i.e., motivations or

barriers) for not taking an online or hybrid/online course in the past, and then prompted to give their top three reasons for not preferring to take an online class in the future. The information collected from Group 1 gives the researcher an introductory understanding of barriers that exist and why students may have a negative attitude towards online education even if they have never taken an online class.

The second group (Group 2) of students is comprised of those who have never taken an online or hybrid online course in the past, but who would like to, or intend to, take one in the future. Group 2 was also asked to specify the top three reasons for not taking an online or hybrid/online course in the past, and then prompted to provide the top three reasons for intending to take an online or hybrid/online course in the future. Students from both groups were given an additional opportunity to make open-ended comments.

Participants in Group 3 have taken *at least one* online or hybrid/online class and have indicated that they do not want to take another. Students in this group were asked to explain why they do not intend to take any more online or hybrid online classes with an open-ended question. These responses provide the researcher with a better understanding of the barriers students have encountered that make them decide not to take future online or hybrid/online classes. Finally, Group 4 contains students who have taken *at least one* online or hybrid/online class and would like to take more in the future. This group was prompted to explain why they would like to take more online or hybrid online classes through an open-ended question.

By dividing research study participants into groups, the researcher was better able to grasp the difference(s) between perceived and actual barriers and motivations to online

education. In order to extract and define best practices for meeting the needs of students when designing and developing an online or hybrid/online course, survey participants were given a few scenarios to which they were asked to respond. For example, students were asked to specify their perceptions of the following items:

a.   The best tool or mode for collaborating online with classmates to discuss course material;

b.   The tool they would like to use if required to work in a small group to complete an assignment or project for an online class;

c.   The best tool or mode for communicating with an instructor of an online class.

Finally, students responded to items that help designers or instructors define the parameters that are important for creating an effective learning environment. Students were asked to rate various scenarios from strongly disagree to strongly agree on a 5-point Likert-type scale (Likert, 1932). A few examples include: whether students feel isolated in an online class, whether students get confused in an online class, and whether students enjoy participating in online discussions. Data collected from the Likert-type scale items help the researcher discover the student learner attitudes related to challenges, and therefore best or worst approaches, to delivering content and communicating in online classes.

Data Collection

The data for this thesis were obtained between the end of the Winter 2015 semester and the beginning of the Spring/Summer 2015 semester after the study was approved by the Institutional Review Board (IRB). The survey was deployed as a link

contained in an email approved and distributed by the Department of Institutional

Research to 1,000 randomly selected students (N=1000).

The email to the student recipients helped provide familiarization with the goal of

the study, which contained an informed consent statement. The consent statement also

informed the recipients about the researcher's name as well as the name of the

researcher's advisor and contact details. This information allowed students the

opportunity to contact either the researcher or the researcher's academic advisor if they

had any questions or concerns regarding the survey. The statement also makes clear that

participation in the study is optional. Recipients who began a survey were informed that

they could quit participating at any time with no consequences. The email message also

noted that the researcher would not be collecting or obtaining identifying data. This

information was made available to survey recipients before they could make the decision

to follow the survey link to participate in the study. Collected data were kept in the

Survey Monkey database. This account was administered by the Statistical Consulting

Center of the university.

Data Analysis

The first research question, which is aimed at determining student barriers to

online education, regardless of a desire or intention to take an online course in the future,

did not require a comparison between the four groups. The purpose of this question was

to explore any barriers all students can have, regardless of their desire to take an online

course or not. Research Question One must account for all of the respondents who may

not have had a choice of taking or not taking an online course. In order to increase the

validity of the data for the first research question, frequencies for answers were calculated and analyzed. Raw survey results are presented in Appendix C.

The second research question is aimed at answering whether a significant difference exists between students who want or intend to take an online course in the future and those who do not want or intend to do so. Multiple Mann-Whitney U Tests were used for making a statistical comparison. This method was selected because it allows one to compare groups of varying sizes. Using this method, differences between students who desire to take an online class and students who prefer traditional settings were explored. Raw survey results to open-ended questions are presented in Appendix D.

Summary

A survey has been developed as the instrument for data collection to answer the two research questions. This survey has items that segregate students into four groups: Group 1 - students with no online experience, who do not want or intend to take an online class in the future or prefer traditional settings; Group 2 - students with no online experience, who wish or intend to take an online or hybrid/online course in the future; Group 3 - students who have taken at least one online class and who do not want or intend to take an online class in the future or prefer traditional settings; and, Group 4 - students who have taken at least one online class and who wish or intend to take another online or hybrid/online course in the future.

Data corresponding to the first research question as it relates to barriers to online education were collected and frequencies were calculated. Based on this data, a conclusion has been drawn about student barriers to online education. Multiple Mann-

Whitney U Tests were implemented in order to analyze and determine the difference(s)

between groups of students in order to answer the second research question.

Chapter Four: Results

Context

Participants in the current study were randomly selected from among Winter 2015 enrollees at a public university in the Midwest. The Department of Institutional Research at the university selected the students who would participate in the survey. Out of 1,000 students selected, 159 responded to the survey, resulting in a response rate of 15.9%. Of the 159 students 32.45 % were male and 67.55% reported as female.

Findings

The results of the study are presented in two sections. The first section pertains to the first research question, which is, "What barriers do students encounter when taking online courses?" The second portion of the findings addresses the second research question, "Is there a significant difference between students who want to take online classes and those who do not want to take online classes?"

Barriers to online education (Research Question 1)

Answers to the first research question were obtained by gathering and analyzing the survey responses. Those questions are not compared and analyzed against different groups of students because the purpose is to understand the reasons that demotivate any students from pursuing online learning. Thus, students were instructed to respond to items by selecting the most appropriate option(s).

Following analysis of responses of students who took at least one online class, results show that 57.63% (n=34) indicated *managing time/procrastination* as a challenge. In response to the item, "What are the biggest challenges you have faced in online or hybrid/online classes?" *communicating with the instructor* and *collaborating with peers*

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(37.29%, n=22 and 38.98%, n=23 respectively) were selected as the biggest challenges to taking online or hybrid/online classes. *Confusing layout/organization* (30.51%, n=18) was mentioned as one of the biggest challenges as well. Students encounter less difficulties with *submitting assignments* (6.78%, n=4), and *feeling isolated* (8.47%, n=5).

Students were given the opportunity to leave any additional comments regarding their concerns. The summary of students' concerns indicates that the majority identify interaction and collaboration as areas that are most challenging in online and hybrid/online environments. The following comments are examples demonstrating the type of responses that targeted interaction and collaboration:

"Teaching and learning is meant to be this personal, interactive experience between a teacher and student, and you lose that when you put a computer between them."

"Group projects seem to be more difficult since you do not see each other in class."

"I do miss the interaction with classmates and the professors when taking an online or hybrid course. I have also run into problems with needing clarification on assignments or exam questions."

These findings are supported by literature that also indicates that most students express collaboration and interaction as a major barrier to taking an online class (Cole, 2009; Durrington, Berryhill, & Swafford, 2006; Gao, Zhang, & Franklin, 2013; Mackey, 2007). Therefore, students were provided situational items aimed at exploring preferred tools for collaboration with classmates when discussing course material. Most of the students selected *email* (73.21%, n=41), *discussion board/forum* (58,93%, n=33) and *text messaging* (55.36%, n=31) as preferred methods to interact with classmates in order to discuss course material.

Students are not comfortable using *phone calls* (28.57%, n=16), *social media space* (e.g., Facebook, G+) (25%, n=14), *videoconferencing* (e.g., Google Hangouts, Skype) (19.64%, n=11) or *instant messaging* (19.64%, n=11). Finally, students do not want to utilize *wikis* for this purpose. Only 3.57% (n=2) selected this tool for collaborating with classmates.

Students were presented with another scenario-based item, "Your instructor wants you to work in a small group to complete an assignment/project for an online class. You most prefer using…"

Email was selected by 80.36% (n=45) of the students as a collaborative tool to be used while working in small groups to complete an assignment/project for an online class. 57.14% (n=32) of the respondents prefer using *text messaging* for this purpose. *Discussion board/forum* (42.86%, n=24) was the third most popular option. *Phone calls* and *videoconferences* have almost the same preference (23.21%, n=13 and 25%, n=14 respectively). *Blogs* and *wikis* were the least popular options, as only 1.75% (n=1) selected *blog*, and nobody (0%, n=0) selected *wiki* for collaborating in a small group to complete a project. One student indicated, in an open-ended response option, that meeting in person and using Google Docs were good options for working in small groups to complete an assignment/project for an online class.

The final scenario-based item was aimed at determining the best tool to be used to collaborate with the instructor. Students could select up to 3 options that best described their experience. Nearly 100% of respondents, 98.25% (n=56), indicated *email* as the preferred tool to be utilized in order to interact with the instructor. *Phone calls* and *discussion forums* have an equal preference (17.54%, n=10). Students do not prefer

communicating with the instructor using a *wiki* (0%, n=0) or *videoconferencing* tools (3.51%, n=2).

Conclusion to Research Question 1

Collaboration and interaction in online class remains the major barrier to online learning. Students also indicate *confusing layout* of the course as a challenge when taking a hybrid/online course. If, given the opportunity, students prefer to communicate using asynchronous communication tools (i.e., email, text message, discussion board) for nearly all cases of communication when taking an online class (e.g., collaboration between peers in a small group to complete an assignment, to discuss course material or as collaboration between students and an instructor).

Differences between groups of students (Research Question 2)

Multiple Mann-Whitney U Tests were used to answer the second research question, which is, "What differences exist between students who want to take online classes and those who do not want to take online classes?" The first test was conducted between students without online class experience. This population was divided into two groups, those students who do not want to take an online course in the future (Group 1, n=46) and those students who indicated that they would like to take an online course (Group 2, n=40). The second test compares and contrasts students who have taken at least one online course. This population was also divided into two groups, one being students who do not want to take an online class again in the future (Group 3, n=31) and those who do want to take an online course again (Group 4, n=42).

The responses of students from the first test between Group 1 and Group 2 were compared using a Mann-Whitney U Test. Participants responded to survey items on a 5-

point Likert-type scale from strongly disagree to strongly agree. Table 1 shows this

analysis on items that are commonly considered most challenging in an online class (e.g.,

instructor feedback, time-management, communication, using technology, and

participation in social media).

Table 1

Group 1 and Group 2 Challenges in Online Learning

	Group 1		Group 2		
Dependent Variable	*M*	*SD*	*M*	*SD*	*P Value*
Instructor feedback is very important to me	4.65	0.53	4.48	0.63	.160
I tend to procrastinate with regard to school work	3.02	1.34	3.24	1.14	.460
I prefer to communicate with a professor via email rather than face-to-face	2.39	1.00	2.90	1.12	.026
I feel comfortable using new technologies	3.80	1.07	3.98	1.08	.400
I consider myself to be good with Internet related technologies	4.04	0.94	4.12	0.95	.670
I enjoy going online to participate in social media (e.g., Facebook, Twitter, Pinterest, Tumblr)	3.30	1.09	3.83	0.96	.025

M=mean, SD=standard deviation
Note: $p < .05$

Two items are significant at the $p < .05$ level including, "I prefer to communicate

with a professor via email rather than face-to-face," and "I enjoy going online to

participate in social media (e.g., Facebook, Twitter, Pinterest, Tumblr)."

Results, shown in Table 1, also provide evidence that students who want to take

an online class in the future (Group 2) are more positive about communicating with a

professor via email than face-to-face. The mean for Group 2 is 2.90; students from this

group are mostly neutral towards using email. Participants in Group 1 mostly disagree

with the statement and prefer communicating with professors face-to-face as opposed to

using email.

Participants from Group 2 are more comfortable with participating in social media (e.g., Facebook, Twitter, Pinterest, Tumblr). The mean for students in Group 2 on this item is 3.83, which indicates that overall, students agree with the statement about their comfort levels using social media. Moreover the standard deviation is less than 1, which indicates that students' responses are very close and do not disperse across categories from strongly disagree to strongly agree. The mean for students in Group 1 is close to 3.0. Students from this group are less enthusiastic about participating in social media.

Study results identified communication, specifically in the form of communicating with an instructor via email and a student's willingness to use social media (Facebook, Twitter, Google+ etc.), as the only potential barrier to online education among students who have never taken an online class.

The literature suggests that online courses are often associated with extensive use of technology. In fact, the format of a course challenges or influences student success (Dunbar, 2004; Jagger, et.al, 2013). This study helps provide evidence that working with computer and Internet technologies is not a challenge for students or a barrier to online education. Students from both groups show positive responses towards using new and Internet-based technologies.

A second Mann-Whitney U Test was conducted to further compare students who have already taken at least one online class and no longer want to take another (Group 3) and students who have experience in at least one online class and want to take another online or hybrid/online course (Group 4). Table 2 shows the analysis between Group 3 and Group 4 to statements about the online class environment (e.g., instructor feedback, time-management, communication, using technology, and participation in social media).

Table 2
Group 3 and Group 4 Online Environments

Dependent Variable	Group 3		Group 4		
	M	*SD*	*M*	*SD*	*P Value*
Instructor feedback is very important to me	4.30	0.98	4.45	0.74	.766
I tend to procrastinate with regard to school work	3.30	1.38	3.00	1.21	.336
I prefer to communicate with a professor via email rather than face-to-face	3.10	1.02	2.95	0.91	.655
I feel comfortable using new technologies	3.70	1.08	4.21	0.75	.069
I consider myself to be good with Internet related technologies	3.80	1.20	4.26	0.70	.238
I enjoy going online to participate in social media (e.g., Facebook, Twitter, Pinterest, Tumblr)	4.00	0.99	3.90	0.98	.760

M=mean, SD=standard deviation
Note: p < .05

No significant differences exist between Group 3 and Group 4 on any of the items, although results on the item, *I feel comfortable using new technologies*, approach significance. Students who have experienced online learning are fairly similar in how they perceive challenges to online learning whether they want to take another online class or not. Table 3 on the following page provides a comparison between results from Group 3 and Group 4 on items related to participating in an online class.

Table 3
Group 3 and Group 4 Participating in an Online Course

Dependent Variable	Group 3		Group 4		
	M	SD	M	SD	P Value
I would like to have a class portfolio to complete for other students to see	2.06	.802	2.74	0.98	.016
I want my online class to have a sense of community between the instructor and students	3.89	1.18	3.95	0.69	.546
I value participating in online class discussions	2.94	1.11	3.44	1.02	.117
I often feel isolated in online classes	3.17	1.25	2.38	1.07	.027
I can easily get confused during online class sessions	3.28	1.27	2.41	0.99	.016
I would like having video conferences with other students in my classes	2.61	1.38	2.59	1.04	.929

M=mean, SD=standard deviation
Note: p < .05

In response to the question about having a portfolio up for other classmates to view in an online course, students who are positive about taking an online course in the future show a significantly higher level of comfort with sharing a personal class portfolio. The mean for the students who do not want to take an online course again (Group 3) is 2.06 and the deviation is less than 1. This means that most students from this group are not comfortable sharing a class portfolio with other classmates. Whereas those students who want to take an online course in the future (Group 4) show significantly more positive attitudes towards having and sharing a class portfolio.

There is also a significant difference between the responses of students from each group regarding the statement about feeling isolated in an online class. The mean for the students from Group 4 is 2.38 (disagreeing with the statement), which means that students who would like to take online classes in the future do not feel isolated in the online environment.

Data continue to show that students who intend to take an online class in the future seem to be more comfortable with the nuances of online classes. Thus, responding to the question about getting confused in an online class, the mean for students from Group 4 is close to 2.0. This means students from this group disagree with the statement that students can get easily confused during online sessions. Still, the clarity of instructions and intuitive class layouts are important in terms of motivating students to take online classes.

Results depicted in Table 4 reveal further differences between these two groups regarding their preferences towards the pace of learning in an online environment, opportunities to demonstrate learning, and communication and interaction in terms of having questions answered.

Table 4
Group 3 and Group 4 Online Preferences

Dependent Variable	Group 3		Group 4		
	M	SD	M	SD	P Value
I like to see a complete online course in the first week so I can work at my own pace	3.71	1.263	4.10	0.85	.395
I prefer to get just one week of course material at a time	2.94	1.03	2.87	1.26	.755
I feel I have ample opportunity to demonstrate my learning in online sessions	2.47	1.01	3.69	0.83	.000
I work harder in online class environments than I do in traditional class environments	1.76	.75	3.08	1.06	.000
I feel like I can get my questions answered during online class sessions	2.35	1.22	3.62	0.78	.000
Online classes are more work than face to face classes	3.12	1.22	2.92	0.93	.454

M=mean, SD=standard deviation
Note: $p < .05$

Data show that students from Group 4 believe online classes offer many opportunities to display skills and demonstrate knowledge building. The mean for

students from Group 4 is 3.69 and the standard deviation is less than 1 (.832). Thus, most students from Group 4 agree with the statement, whereas the mean for students from Group 3 is 2.47 indicating that students from Group 3 mostly disagree with the statement.

Furthermore, a significant difference does exist between the two groups regarding the workload of online classes. Students from Group 4 agree an online class requires more work compared to the amount of work required in a face-to-face class. Students in Group 3 disagree that they work harder in online environments as opposed to the traditional face-to-face setting.

The data show that students who want to take an online class in the future believe that they can get their questions answered during the online session. Students who do not want to take future online classes are clear in noting they do not think they can receive an answer when they have a question. Again, communication and interaction in an online class are important factors in student motivation, and the differing viewpoints held by the two groups help explain the significant difference between students who want to take an online class in the future and those students who prefer taking traditional face-to-face classes.

Summary

The research provides varied significant differences between students who would like to take online classes and students who prefer traditional face-to-face classes.

Students without online experience:

1. Students who would like to take online classes hold more positive views towards communicating with an instructor online compared to students who prefer face-to-face classes;

2. Students who would like to have online classes in the future are more enthusiastic about using social media compared to students who want to take traditional classes.

These findings demonstrate that collaboration and interaction remain barriers to online education. Results of the current study reveal that both groups of students are comfortable using new technologies and Internet-based technology even though they have yet to have experienced online learning.

Students with previous online experience:

1. Students who prefer traditional classes do not like their work to be visible to other students, while students who prefer online classes are more open to discussion and being assessed by others while presenting work that is visible to other students. Students who prefer traditional classes are less likely to value peer assessment because they do not appreciate their work being shown to the class.

2. Students who would like to take online classes in the future rejected the statement about feeling isolated in an online class. Students who prefer traditional classes have a harder time communicating and interacting in online settings.

3. Students who want to take online classes indicated that they do not get easily confused during online sessions. This finding underscores how students who desire to take online classes feel more comfortable in online settings overall (e.g, following the schedule, communicating, and collaborating with peers and the instructor).

4. Students who want to take additional online classes believe there is ample opportunity to demonstrate learning and acquisition of skills while learning

online. These students recognize the format of online classes as an effective way to show learning results.

5. Students who want to take online classes recognize that they need to work harder. These students are motivated to work harder knowing they have an opportunity to demonstrate learning outcomes.

6. Students who want to take additional online classes positively responded to the statement about getting their questions answered. Students who do not desire to take future online classes doubt their ability to communicate and obtain constructive feedback during an online class.

Barriers to online education among the students who took at least one online class include feelings of isolation (communication), receiving feedback (answers to questions), and getting confused during an online session.

Students who do not want to take an online course

Comparing results between students who have never taken an online course and still do not want to take one, and between students who took at least one online class and do not want to have another one, reveals that experience in an online course elevates students' level of comfort using technology and communicating in online settings. Students who took at least one class feel more comfortable using email to communicate with an instructor and participating in social media than students who have never taken an online course. The final chapter includes a discussion of the overall conclusions of the study, implications for the field, and suggestions for future research.

Chapter Five: Conclusion

Summary of the Study

The problem addressed in this study stems from the paradox between the continuously growing number of online courses and the decreasing retention rate of students who have taken at least one online class (Allen, 2013). In order to understand the nature of this paradox, this study explores two research questions:

1. What barriers do students encounter when taking online courses?

2. What differences exist between students who want to take online classes and those who do not want to take online classes?

A survey was designed to answer the two research questions. The survey instrument was randomly distributed to 1,000 college students enrolled in Winter 2015 courses. Data gathered from the survey were analyzed to answer both research questions. Results reveal that students perceive collaboration and interaction as the major barriers to online learning. Additionally, confusing course layout was mentioned as a challenge to online education.

Differences between groups were noted on the second research question related to online education. Students who have never taken an online class but would like to take one in the future indicate greater comfort in communicating with an instructor via email compared to students who have never taken an online class and do not want to take one in the future. Students who have never taken an online class but would like to take one in the future also reported greater positive attitude towards going online to participate in social media (e.g., Facebook, Twitter, Pinterest, Tumblr).

Significant differences also exist between students who have taken at least one online class in the past. Students who have taken at least online class and do not want to take another are not comfortable having other students see their work. This group of students also agreed with the statements "I often feel isolated in online classes" and "I can easily get confused during online

class sessions." The students who have taken online classes and would like to take another view online class as a space with ample opportunity to demonstrate learning in online sessions, yet they recognize that working harder may be necessary in an online course compared to traditional face-to-face classes. Students who are positive about online learning also believe they can get questions answered during an online class session.

Conclusion

The purpose of this study is to examine the barriers that students have towards online learning. Regarding the first research question, "What barriers do students have towards online learning?" collaboration and interaction in online class remain the major barriers. Students indicated communicating with the instructor and collaborating with peers (37.29%, n=22 and 38.98%, n=23 respectively) as the biggest challenges to taking online class. Additionally, students mentioned confusing layout/organization (30.51%, n=18) as one of the biggest impediments to participating in an online or hybrid/online course. Summarizing students' concerns towards online education, interaction and collaboration were reported as areas that cause barriers in online and hybrid/online environments. This result was expected as the literature reviewed suggested that collaboration and interaction are major barriers to taking an online class (Cole, 2009; Durrington, Berryhill, & Swafford, 2006; Gao, Zhang, & Franklin, 2013; Mackey, 2007). Because of this concern noted in the literature, students were asked to indicate a preferred tool to be used to collaborate when discussing course related topics. If given the opportunity, students prefer to communicate using asynchronous communication tools (i.e., email, text messages, discussion board) for course topics related to collaboration between peers in a small group to complete an assignment, to discuss course material, and for communication purposes with an instructor.

Results from the second research question, "What differences exist between students who want to take online classes and those who do not want to take online classes?" were analyzed using Mann-Whitney U Tests to determine if any significant differences exist between students

who want to take online classes and those who do not want to take online classes. Several significant differences were found between students who have never taken an online class who want to take online classes versus similar students who do not want to take an online class. Students who would like to take online classes are more positive towards communicating with an instructor online compared to students who prefer face-to-face classes. Also students who would like to take an online class are more comfortable using social media. Future research might look at how social media experiences influence feelings towards online learning.

Students with previous online experience were also compared. A significant difference in attitude towards assessment and presenting work was determined. Students who would like to take online classes in the future are more comfortable presenting their academic work to be discussed and assessed by others. Students who would like to take online classes in the future are less likely to express feelings of isolation in online class experiences. Additionally, students who would like to take online classes in the future are less likely to feel confused during an online session. Also, students who would like to take future online classes had more positive experiences getting questions answered by an instructor in an online session. One conclusion from these differences is that barriers for students who do not want to take online classes in the future are based on a negative attitude toward peer review and presenting academic work.

Students who have had online experiences and do not want to take additional online classes more often feel confused in online settings, they do not believe that their questions can be answered during an online session, and they feel isolated in an online class. Future research is needed to better examine the kinds of online experiences that potentially lead certain students to want to avoid future online experiences.

Comparing the results between students who have never taken an online course and still do not want to take one and students who took at least one online class and do not want to have another one reveals that experience in an online course elevates students' level of comfort using technology and communicating in online settings. Thus, students who took at least one class feel

more comfortable using email to communicate with an instructor and participating in social media than students who have never taken an online course.

Discussion

The results of the study are aligned with the basic concept of the Constructivist theory that is the theoretical framework of this research. The study reveals that the main barriers for online education are collaboration and interaction in online class and students' willingness to learn and present their academic work for other students to see and assess. These concepts are complementary to the components of Murphy's (1997) and Koohang's (2009) Constructivism theory and teaching models:

1. Design of Learning Activities, which includes collaboration, cooperation, multiple representations of ideas, and social negotiations;

2. Learning Assessment, either conducted by the instructor, through collaboration, or by the student himself.

Research shows that interaction and collaboration still remain the major impediment to online learning. These findings are themes that emerged in the literature review (Brindley, Walti, & Blaschke, 2009; Chen, Bennett, & Maton, 2008; Durrington, Berryhill, & Swafford, 2006; Martin, Parker, & Allred, 2013; Martin & Parker, 2014). The current study reveals that if given the opportunity, students prefer to use asynchronous tools for communication and collaboration. Findings of the current research are aligned with the statement of Gao, Zhang, & Franklin (2013, p. 472) explaining that most online courses deploy asynchronous communication tools. Future research can explore whether students prefer asynchronous tools for online classes because that is what students experience or whether students experience this because they prefer it. The research shows positive attitudes among students towards discussion boards, which were selected as one of the most preferred tools for interacting online. This finding shows that students are becoming more comfortable with discussion board posts and contradicts the literature review that stated that

students need extra care in order to post on a discussion board (Chen, Bennett, & Maton, 2008, p.315; Jun & Park, 2003).

Cho and Rathbun (2013) found that the instructor's role in an online course pertains to activities related to setting up the collaboration area, developing and disseminating clear instruction for task completion, and facilitating learning activities during the course. The current study demonstrates that all but one student indicated email as the preferred tool to be utilized when interacting with the instructor. Phone calls and discussion forums were equally preferred by a smaller portion of students. Students do not prefer communicating with the instructor using a Wiki or videoconferencing tool. Future research could explore whether students have experience using these tools in educational settings and whether that experience contributes to negative or positive attitudes.

A difference exists between students without online experience in regards to taking online classes in the future. Students who do not want to take online class prefer to interact with the instructor face-to-face rather than via email. If students do not have experience using technologies to interact with other people, then that might impact how students feel about trying to do this task in an online learning environment. A general ignorance might also explain why this group of students is not comfortable uploading academic work to be seen and assessed by others. However, this finding does confirm previous findings about the importance of collaboration and interaction in an online environment (Brindley, Walti, & Blaschke, 2009; Chen, Bennett, & Maton, 2008; Durrington, Berryhill, & Swafford, 2006; Martin, Parker, & Allred, 2013; Martin & Parker, 2014).

There are also differences in attitudes towards online learning between students who have taken at least one online class with respect to taking an online class in the future. Students who want to take online classes are more motivated and self-organized as they admit that online learning gives them more opportunity to showcase their learning, and they recognize that working harder may be necessary in an online environment. Additionally, students who want to take an

online course in the future believe that an online course can be very interactive and their questions will be answered if asked. Finally, students who are positive towards taking an online course in the future are not getting confused in online settings, and they do not feel isolated during online experiences.

Recommendations for Practice

The findings of the research are unfortunately limited by the small sample size. However, conclusions can still provide preliminary recommendations for online teaching and learning. First, students prefer using asynchronous collaborative tools for online communication. Most students indicated email as the preferred method to communicate between other students and the instructor. The current research did not explore the types of conversations that are better for email versus another tool. Students are also becoming more comfortable with using discussion boards, so this tool can be used to complete assignments. Students are not in need of additional help in regards to participating in discussion board as was previously suggested (Chen, Bennett, & Maton, 2008; Jun & Park, 2003).

Second, the study reveals significant differences between students who would like to take an online class in the future and those who do not want to take one. Thus, a short survey before teaching an online class to determine the students' backgrounds and motivations for taking the course may help instructors provide a better online experience. For students who do not want to take an online class in the future but must enroll in a mandatory online course, the instructor should keep course organization very simple. Email or text messaging are preferred by students for collaboration (e.g., between peers, instructor, working in groups on a project, etc.). In addition, the instructor should consider a useful course layout and maintain a good response time to student questions. Results of this study suggest that a quick or timely response to this group of students will increase their motivation in regards to learning online. This recommendation also aligns with the literature reviewed suggesting that the instructor's role in an online course includes activities related to setting up the collaboration area, developing and disseminating clear

instruction for task completion, and facilitating learning activities during the course (Cho &

Rathbun, 2013; Cole, 2009; Gao, Zhang, & Franklin, 2013).

Recommendations for Future Research

Findings from this study indicate that students prefer asynchronous collaboration tools.

The literature review suggests that videoconferencing can be successfully implemented in online

learning settings (Wang & Morgan, 2008; Wang & Reeves, 2007; and Warden, 2013), but nearly

all of the participants in the current study did not select videoconferencing as a viable option for

online learning. Future research can explore whether students had opportunities to try

videoconferencing and also the kinds of videoconferencing that students have experience with.

The current research shows a significant difference between students who would like to

take an online course and students who do not want to take one. Knowing the difference between

groups of students allows more effective learning environments to be created. The instructor can

cater tools that would work best for a particular group of students. This approach is also aligned

with the role of the instructor in an online course environment, which is to create an effective

collaborative and interactive learning environment (Zen, 2008). Future research can look into

tools that specifically help first time students in an online learning environment.

Another recommendation from the current study is to conduct future research with larger

samples of graduate and undergraduate students as the current study contained mostly

undergraduate student responses. Additionally, conducting a focus group with select students

might provide a richer set of data. A focus group can allow the researcher to explore more

nuanced questions about various tools and online class experiences.

Online courses are rapidly growing and research geared towards collaborative tools, as

well as course layout, should be conducted on a regular basis in order to ensure a course is

aligned with evidence-based approaches and thus more likely in increase student success.

Appendix A – Institutional Analysis Permission

March 11, 2015

Vladimir Abramenka
Educational Technology Program
Grand Valley State University

Mr. Abramenka,

I will provide means for email communication for the following research project:
  Experience with online courses
  Principal investigator(s) – Vladimir Abramenka
  Invitee population – 1,000 students, randomly selected from among Winter 2015
    enrollees
  Nature and timing of contact – No more than two email messages per invitee, to be
    sent during the winter 2015 academic term.
The e-mail addresses will not be released directly to you, but will be used to distribute
your messages from a GVSU mail server.
This use of the data is in compliance with both FERPA and GVSU policies.

Philip Batty
Director, Office of Institutional Analysis

Appendix B – HRRC Approved Protocol Letter

DATE: April 8, 2015

TO: Vladimir Abramenka
FROM: Grand Valley State University Human Research Review
Committee
STUDY TITLE: [733812-1] Examining motivations and barriers to online
                         education
REFERENCE #:   15-132-H
SUBMISSION TYPE: New Project

ACTION: EXEMPT
EFFECTIVE DATE: April 8, 2015
REVIEW TYPE: Exempt Review

Thank you for your submission of materials for your planned research study. It has been
determined that this project:

IS COVERED human subjects research* according to current federal regulations and
MEETS eligibility for exempt determination under 45 CFR 46.101 (b) category *1, normal
educational practice*. No research involving prisoners may be exempt.

Please note:

- **the HRRC website provides guidance when recruiting participants for online
  surveys; you are encouraged to reference: *http://gvsu.edu/hrrc/email-surveys-
  72.htm***

- **the analytical technique specified, the t-test, is neither appropriate nor valid
  for the data to be collected. You should discuss data analysis methodology
  with your advisor and/or other knowledgeable resources before starting data
  collection. Failure to use appropriate analytical techniques will result in
  invalid results.**

Exempt protocols do not require formal approval, renewal or closure by the HRRC. Any
revision to exempt research that alters the risk/benefit ratio or affects eligibility for
exempt review must be submitted to the HRRC using *the Change in Approved Protocol
form* before changes are implemented.

Any research-related problem or event resulting in a fatality or hospitalization requires
immediate notification to the Human Research Review Committee Chair, Dr. Paul J.

Reitemeier, 616-331-3417 AND Human Research Protections Administrator, Mr. Jon Jellema, in the Office of the Provost, 616-331-2400. See *HRRC policy 1020, Unanticipated problems and adverse events*.

Exempt research studies are eligible for audits.

If you have any questions, please contact the Research Protections Program, Monday through Thursday, at (616) 331-3197 or rpp@gvsu.edu. The office observes all university holidays, and does not process applications during exam week or between academic terms. Please include your study title and reference number in all correspondence with our office.

*Research is a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge (45 CFR 46.102 (d)).

Appendix C – Raw Survey Results

Q16:
Select the biggest benefits you've found to taking online or hybrid online classes (Select up to 3)
Answered: 60 | Skipped: 99

Answer Choices	Responses	
Online classes fit my schedule better	78.33%	47
No commute to class	71.67%	43
Convenience	66.67%	40
I enjoy learning how to use new technologies	8.33%	5
Professional networking opportunities	1.67%	1
I work better at my own pace	41.67%	25
Easier to concentrate	18.33%	11
Prepares me better for the future	3.33%	2
None of the above	1.67%	1
Total Respondents: 60		

Q17:
What are the biggest challenges you've faced in online or hybrid online classes? (Select up to 3)
Answered: 59 | Skipped: 100

Answer Choices	Responses	
Managing time/procrastination	**57.63%**	34
Feeling isolated	**8.47%**	5
Lack of social interaction	**25.42%**	15
Using new technology	**11.86%**	7
Lack of timely feedback	**28.81%**	17
Confusing layout/organization	**30.51%**	18
Lack of directions	**27.12%**	16
Difficulty submitting assignments	**6.78%**	4
Communicating with instructor	**37.29%**	22
Collaborating with peers	**38.98%**	23
None of the above	**3.39%**	2
Total Respondents: 59		

Appendix D – Raw Survey Results to Open-Ended Questions

Q8: Group 1 was asked, "Provide any additional comments describing why you do not want to take online or hybrid online classes."

Answered: 10 Skipped: 149

#	Responses
1	All of the experiences I have had with online homework have been horrible. Therefore, I feel like it would be even worse if the whole class was online
2	All of the experiences I have had with online homework have been horrible. Therefore, I feel like an online course would be very frustrating and a hassle. I also feel like you wouldn't learn as much through an online course as you would in a traditional face to face class because it would be much easier to get distracted in an online course than a face to face class with the professor right there.
3	School work on the computer has never been an enjoyable experience, and I have no interest in ever trying it out again. Technology has issues and only in face to face classes can these issues be avoided.
4	Fear of technical issues. If something were to go wrong with my internet, I would not want it to have an affect on my grade. Also, it would require printing off a lot of instructional papers, or at least for me because I prefer physical copies.
5	I would prefer to take face to face classes because I am paying a lot of money to go here, and i feel like having online classes ruins your education and you lose all of the interaction between classmates and the professor. I would only take an online class if i have to retake the class or if I am going to community college.
6	I am an auditory learner, so face-to-face learning is crucial for me.
7	I am an auditory learner, so face-to-face instruction is crucial
8	I prefer having classroom experiences and feel the social aspect of college is one of, if not the most, important part of going to college.
9	I had one experience in high school and I didn't feel like I learned much.
10	I do not think I would learn as well without hearing someone explain a concept to me. I like hearing a professor, interacting with them, and even meeting with them in their office hours.

Q11: Group 2 was asked, "Please provide any additional comments describing why you want to take an online class or hybrid online class in the future."

Answered: 7 Skipped: 152

#	Responses
1	I think that taking an online class would be an interesting experience.
2	You can pause and replay potions of the lesson that you did not quite get the first time. Also, being able to go back and listen to lectures while studying helps a lot.
3	Because it's easier to fit in my schedule with nursing classes.
4	I would be open to trying an online or hybrid class, but there is definitely a component that I think would be lost in a completely online class.
5	Good opportunity to try the new online and hybrid classes out to experience it, and see if i would like it.
6	More flexibility in time managment between school and work
7	Certain material can be taught online very well and being able to do the work at on your own time would make a class significantly less stressful as well as more enjoyable

Q13: Group 3 was asked, "Explain why you do not want to take any more online classes or hybrid online classes."

Answered: 17 Skipped: 142

#	Responses
1	I did not like the lack of interaction that comes with online classes.
2	It seems more beneficial to me to interact and get face to face feedback from an instructor.
3	it was a hybrid class. i was less encouraged to do homework since that part was online. it seemed like a bad approach to teaching math. another subject would've been fine.
4	Motivation was low and instructor feedback was little to none. The disconnect between professor and student was not cohesive with a learning environment.
5	Prefer face to face class
6	Harder to block out time to focus on class with hybrid format due to family commitments
7	I took medical terminology (AHS 100) as a hybrid class. I didn't like not being able to see my professor on a regular basis. Not because it was a difficult class, but because she would have been a great resource for me to use. She was a practicing PA and I'm pre-PA. But since the class was hybrid I never got to see her and get to know her.
8	I found the online classes consisted of more busy work than my regular classes
9	The professor expected us to be online everyday. I found this frustrating as I work full time and go to school in the evening. Some days I was not able to interact online because of conflicts with my schedule. It made learning very inflexible and I had a lack of ability to organize my studies based around my schedule.
10	I feel that with my major, it is crutial to 1: have a direct learning experience with other students and a teacher, and 2: have lab experience, which wouldn't work in a full online course. I received neither of those in the two online courses I have taken.
11	Self-motivation is hard.
12	I rather gain the classroom experience
13	I have procrastinated work for the online class much more than for other classes. I also feel that i would have learn the subject significantly better in a classroom with the professor.
14	I felt that I did not learn much even in the hybrid classes where I had some face time with the professor. I felt that I was more focused on just finishing the assignments given to me online then actually learning
15	I have taken many and have completed my master's degree
16	Hybrid would be good - but with online I missed the interaction with the professor and other students
17	They didn't work well. They were structured poorly and it was hard to keep track of assignments when half of them were online and half were on paper.

Q15: Group 4 was asked, "Explain why you would like to take more online or hybrid online courses."
Answered: 38 Skipped: 121

#	Responses
1	It is more convenient for me than commuting for every class
2	I found that taking one intro level course online last semester gave me the opportunity to work during times I would have otherwise been in class, and do school work in the evening. I live in Grand Rapids and I will seek opportunities to avoid driving to allendale.
3	It was easier
4	It is easy and convenient while also providing many back up information about the subject at hand.
5	Gives me more flexibility to complete the assignments on my time rather than the professors time.
6	Easier to work into my schedule.
7	So I can choose when to do my work. So I do not have to work around my school schedule. So I can have school work around the rest of my life, like work.
8	Some of them were at my community college. I love the idea that I can learn at my own pace. If I get done with the work for the week then I am done with it.
9	its a lot more on your time
10	It is easy to work and go to school at the same time
11	Works with my schedule and distance from campus.
12	Online courses have always been a favorite of mine because it allowed me to learn when I had time. I have often had issues finding a course meeting time that worked with my job schedule, so online courses are a great alternative.
13	I live too far away from campus.
14	I am a very independent person and do not need to sit in a classroom to grasp most of the material. Online classes allow me to learn the course material on my own time and likely at an accelerated pace compared to that of a traditional classroom setting
15	Easier to get work done when it's convenient and can work around other classes.
16	I usually work best during the night or early in the morning when courses are not offered so having my own freedom to decide when in the day I complete things is very beneficial to me.
17	It is nice to meet occasionally but the online aspect of the hybrid classes allows me to move at my own pace
18	The instruction is easier to rewind and re-watch material you do not understand. Also, you can choose the time that works in your daily life for learning.
19	I can complete homework and other assignments on my own time and wherever I please.
20	Flexible hours- I can do work/lessons when I have time.

21	Allows me to continue practicing as an RN, allows me to schedule my studying/homework with my busy schedule
22	I like having more time during my day to work, rather than being in class. I like that I can work at my own pace and complete my assignments on my own time on a schedule that works for me.
23	I like face to face classes better, but being a full time student, working full time, and having a family hybrid courses are more conducive.
24	Taking classes online allows me to do the work when it best fits my schedule instead of taking the time out of my day to attend class as well as the time it takes to get there. I also feel like while in class instruction is helpful, I ultimately end up teaching myself the bulk of the material anyways via textbooks and the provided powerpoints as well as my own notes. So attending class isn't a huge contributor to my success as a student.
25	It was nice to meet in person only occasionally. Also, as long as Blackboard is well structured it is effective in promoting communication with the instructor and fellow students.
26	They provide a way to do schooling and get credits without having to take the time to go onto campus. I can study and do coursework on my own time.
27	they are convienent
28	Flexibility with schedule. Family illness and travel time make campus courses extremely difficult. Online/hybrid courses have increased my learning experience by decreasing travel time, and time away from family members in need of care. This style of course has made it possible to continue my education. I wholeheartedly recommend GVSU's implementation of more online courses/programs.
29	I work 30-40 hrs per week so online classes help me fulfill my credit goals per semester without cutting into my work schedule. I also feel more productive in online classes because there is usually more reading and writing required.
30	Convienent
31	I can work while I am visiting home or while I am living on campus. However, I can see why it would be difficult to have social work classes online because they tend to be experience heavy
32	I currently live in Cadillac and transportation is an issue in the winter time to the Traverse City campus
33	I enjoy the freedom that comes with online courses. I also am an individual who teaches the majority of class material to my self at home anyway, so an online course is much more conducive to this type of learning. I've never enjoyed attending class regularly, because I always feel like I'm teaching myself the material regardless, so online courses allow for students not to need to attend classes with regularity, and allows them to work on material on their team each week, as opposed to the necessity of attending class. I am a little older than the average college student, so I work as much as possible during the school year, and having to take a minimum of two days of each work, sometimes more for classes, is never something I enjoy.
34	the only option for some classes

35	More independent studying
36	I just think they are great opportunities for students who work and have busy lives to have a chance at gaining knowledge in addition to their other responsibilities
37	Depends on the course and structure-- generally I find discussion via message boards easier because I am better a communicating via writing than verbally
38	I like online courses for classes that are general education requirements or classes that are content memorization based rather than application. (ART 101, History courses, etc.)

Q18: Groups 3 and 4 were asked, "Please provide any comments you would like to share about barriers you have encountered when taking online or hybrid online classes."
Answered: 12 Skipped: 147

#	Responses
1	teaching and learning is meant to be this personal, interactive experience between teacher and student and you loose that when you put a computer between them. its a great idea for someone who is going back to school part time or for colleges that are all online classes but i'm paying to go to classes and really learn from teachers. if i wanted online classes, id go to an online college.
2	Not in a face-to-face to understand assignments
3	One barrier is not knowing what kind of professor you have. Not everything can be learned about them just through emails.
4	Only real barrier is when the website is down for maintenance or experiencing difficulties.
5	Group project seem to be more difficult since you do not see each other in class
6	It would be easier to take an online course if my Professor had an amount of time or interaction required online, rather than everyday. This way it would actually be flexible around a busy schedule.
7	I do miss the interaction with classmates and the professors when taking an online or hybrid course. I have also run into problems with needing clarification on assignment or exam questions.
8	With a normal class, it is easy to email your teacher with questions or concerns, but if it's urgent, I would see them after class or go to their office hours. It if more reassuring to know that they hear me directly.
9	It takes a lot of motivation to work on the assignments and it is easy to forget to turn in assignments on time.
10	Social work is work that is social and experience heavy.
11	no barriers. I have had excellent experiences in my hybrid classes so far and I actually prefer them.
12	dropboxes and materials don't always open on time which can be very frustrating, so rather than just bringing it up at the next class meeting you have to wait until email responses which sometimes can be a couple days

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