An Empirical Analysis Of Student Satisfaction Influential Factors In Online Learning

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ABSTRACT

There exists the need to better understand the effectiveness of online education. In recent years, academic institutions (of higher education) have increased the number of online courses offered to students. The purpose of this study is to identify the factors that are most influential in determining student satisfaction of overall course effectiveness and overall instructor effectiveness in online higher education. The main research question is: What factors influence student satisfaction of overall course effectiveness and instructional effectiveness? Through an application of step-wise regression procedure, hypotheses will be tested to determine any influential factors for students' satisfaction with course and instructional effectiveness. The data source will be online course evaluation results at colleges in the state of Connecticut. The results of the study will allow higher education administrators and instructors to make more effective decisions regarding online students, online course offerings, the distribution of funds within online education. Furthermore, the results will allow instructors to more effectively manage online courses, and allow students to increase personal effectiveness with respect to the online learning process.

Keywords: Distance education, student satisfaction, instruction effectiveness, institutional effectiveness, distance education challenges and advantages, nontraditional instruction, and nontraditional learning, teaching quality.

I. INTRODUCTION

Distance education has been a part of the educational system in the United States for centuries, and can be traced back to the 18th century. Early changes in curricula involved Benjamin Franklin and his efforts to expand the curriculum of a Latin grammar school to include history, science, and modern languages (Verduin, 1967). Franklin began to think creatively regarding ways to incorporate such subjects into the curriculum and, since then, a great variety of distance education methods have been utilized.

The research problem here is the growing concerns about learning, quality of learning, and efficacy of the distance education. In recent years, higher education academic institutions have increased the number of online courses offered to students. There exists, therefore, the need to better understand the effectiveness of online education.

The efficacy of distance education programs can be studied in various ways. The purpose of this quantitative study is to identify the factors that are influential in determining student satisfaction of overall course effectiveness and student satisfaction of overall instructor effectiveness in Connecticut online higher education.

As to the research questions, this study attempts to respond to two central concerns with respect to the online classroom:

1. What factors can determine student satisfaction of overall course effectiveness in Connecticut online higher education?
2. What factors can determine student satisfaction of overall instructor effectiveness in Connecticut online higher education?

Definitions

The following terms are defined in accordance with their use in the study.

- The Connecticut Distance Learning Consortium (CTDLC) - an organization that supports distance learning efforts of member academic institutions in the state of Connecticut
- RGB Colleges – Red Community College, Green Community College, and Brown Community College; Three medium-sized, centrally-located community colleges in the state of Connecticut that offer both online and face-to-face courses; colors are used as aliases to protect the identities of the colleges as data sources
- RGB study – The study presented throughout the paper; also referred to as the "present study" or "current study"

Assumptions

The following assumptions were made in the study:

1. Students responded truthfully to the survey.
2. The responses of surveys returned by students of a college are representative of responses from all students at the college.

Scope

The scope of the study involves students who voluntarily responded to online course evaluation surveys near the conclusion of an online course at one of the RGB Colleges. The findings may be generalizable to academic institutions in Connecticut, community colleges in general, community colleges in the state of Connecticut, or only to the RGB Colleges. The study does not analyze responses to open-ended questions and, therefore, does not explain any identified relationships between dependent and independent variables.

II. LITERATURE REVIEW

Status Of Online Education

The number of online course offerings has increased in recent years, and nearly two thirds of academic institutions that offer face-to-face courses also offer online courses (Online Education Here to Stay, 2006). The number of online courses offered will likely continue to increase in the foreseeable future. In fact, online education is a long-term strategy for most educational institutions (Brown & Corkill, 2007). Online learning, therefore, is not a short-term implementation of a temporary educational approach. The United States spends more than 500 billion dollars on k-12 education alone (EER Pulse, 2005), and some of these funds are being redirected to support online educational efforts.

Distance education is any formal learning that occurs when the instructor and student are geographically separated (Verduin & Clark, 1991). Distance education, therefore, is a broad term that encompasses all formal learning that occurs by way of a variety of media. These media may include radio, television, telephone, recorded audio, postal mail, and computer networks.

The majority of distance education no longer occurs via postal mail, radio, or broadcast television. Instead, a large portion of distance learning is communicated via the Internet or video (Palloff & Pratt, 2001). It is important to note that not all distance learning occurs by way of the Internet. Online education, which involves the use of the Internet as a medium of communication, is a subcategory of distance education. Distance education is a term that is

more encompassing; and while online education represents a majority of current distance education efforts, it is not the only form of this type of educational delivery.

Online education, however, has increased in popularity in recent years. In fact, online education is expected to continue to grow based on projected figures related to the use of the Internet and advancements in technology (Lee & Nguyen, 2007). Resulting change within the field of education has necessitated a deeper understanding of challenges facing university administrators.

In response to the aforementioned need for the deeper understanding of online education, researchers have begun to analyze its effectiveness. Online learning is effective if it meets the needs of those it serves. Because students experience the need to learn, it is beneficial to better understand students' perceptions of effectiveness within online education.

Studies continue to debate the effectiveness of online learning (Jiang, Parent, and Easmond, 2006; The truth about online education, 2007; Wang, 2006), and similar studies will be presented in detail in Section 2. While several studies have analyzed online learning effectiveness, student satisfaction has not been extensively studied (The truth about online education, 2007). Any relationship between students' satisfaction of course effectiveness and determining factors as well as any relationship between students' satisfaction of instructor effectiveness and determining factors is unclear with respect to Connecticut online higher education. Hamzaee (2005), focusing on one institution of doctoral studies, has offered some clarification in modeling and a survey of students' satisfaction, which has led this study to be more effective in its objective achievement.

This study seeks to address this better and knowledge base by identifying the factors, if any, that determine student satisfaction in these two areas. Because the sample of online students is within the state of Connecticut, the findings will assist Connecticut state legislators and university administrators in making more effective decisions regarding online education and the retention of online students. Related decisions may involve modifying the number of online course offerings, the number of faculty dedicated to teaching online courses, or the amount of funding allocated to the support of online education. In addition, students will be able to make more effective decisions regarding the appropriateness of enrollment in online learning courses, thereby increasing the likelihood that learning will occur.

Despite the decrease in the U.S. educational technology budget by more than half from 2004 to 2006, the number of online courses and the use of the Internet in education will continue to rise (L.B., 2006). Schools elect to face this challenge in anticipation of reaping the benefits of online learning programs, and both policymakers and teachers acknowledge these benefits (Serim, 2007).

Students also recognize the benefits of online education. In particular, this type of education eliminates many of the time-related and location-related barriers that exist in the face-to-face classroom (Serim, 2007).

Contemporary Technology

The increase in the number of online course offerings continues to inspire change in online learning. Specifically, there are several technological advancements. Technological media are available for educational use, and they provide an effective method of communication between students and instructors (Tu, 2005). In order to increase the effectiveness of online learning, it is important to understand the diverse types of technology available for use in the online classroom. Recent technological advancements that can be used in online education include RSS, podcasts, blogs, and wikis. Their potential use within education is described in more detail in the below analysis, and provides a foundation for the comprehensive understanding of the current study.

One of the recent technological advances is referred to as "RSS", which has been known to be an abbreviation for one of three terms: Rich Site Summary, RDF Site Summary, or Really Simple Syndication (Zhu, 2006). While writers do not agree as to the precise terminology, the function is the same. Moreover, the abbreviation is the same. The majority of recent literature, however, refers to RSS as an abbreviation for "Real Simple Syndication".

RSS is a technology that allows users to constantly receive updated information. In the past, Internet users would need to first search for information, perhaps using a search engine such as those provided by Google or Yahoo. Using RSS, however, users no longer need to constantly search for updated information. Instead, users select topics about which they would like to receive updates. They then add the topics to a list in a program that is designed to collect such topics. The program is called an "aggregator" and the topics of information are called "feeds" (Richardson, 2006). RSS, therefore, allows users to select feeds, add them to an aggregator, and wait to receive nearly instantaneous updates.

RSS uses XML format (Zhu, 2006), so the format itself is not new. However, the manner in which the format is used is creative and innovative. RSS has the ability to access several news web sites, for example, and notify a user when information regarding world and local events is updated. It is no longer necessary for the user to search for updated information, nor is it necessary for him or her to access the original news web site. Instead, the information comes to the user, which saves both effort and valuable time.

While there are several advantages to the use of RSS feeds, it is also important to understand related drawbacks. One of the drawbacks involves the overwhelming amount of information sent to the user. At first, it may seem as though receiving constant updates is a welcome change. However, it is possible to receive more information than one could expect to review in a single day. To avoid this negative affect, users may slowly add RSS feeds to determine the most appropriate number of feeds. For most beginners, the number of feeds should be restricted to 20 (Richardson, 2006). This restriction is likely to decrease stress associated with too much information.

Decreasing stress is important to both students and instructors, who are increasingly using RSS feeds. This technology allows instructors to have more control over information that students receive (Richardson, 2006). For example, students in an online business law course may be studying accounting practices at Enron. Rather than to constantly check news sites for updated information, the instructor may choose to download an aggregator, search for "Enron" once, and add the feed to the aggregator. At that point, it is no longer necessary for the instructor to check for updated information. Instead, he or she can dedicate the additional time to students.

The initial setup of the RSS feed could be accomplished in a variety of ways. A person could choose to use a computer programming language, an RSS editor, or pure HTML code. An additional option allows a user to forgo any of these options and add the feed manually. The most appropriate choice is dependent upon the manner in which information is stored on web sites (Zhu, 2006). To maximize benefits, and minimize time and effort involved, one should verify the way that information is stored on a site prior to initializing a feed.

Contemporary Concerns

Technology is a powerful tool that can connect instructors and students who are not in the same place at the same time (Tu, 2005). While technological concerns are noteworthy, they do not represent the only concerns in online higher education. Other issues include those related to faculty, instructional design, evaluation methods, and student satisfaction. An analysis of each of these adds to the understanding of the research variables of the current study.

Faculty

Some of the concerns in online higher education relate to faculty members. Instructors have personal opinions about technology in the classroom, and their opinions may affect teaching and learning in the online environment (Ferguson, 2004). Therefore, it is important to understand the concerns that instructors have regarding online teaching. A better understanding of these concerns is more likely to lead to a solution that is beneficial to online faculty, staff, and students.

Instructors may resist online learning because they believe that online instruction is very different from face-to-face instruction, requires more time and effort, and does not permit feedback through students' body language (Lee & Busch, 2005). Some of these concerns many not be resolved until instructors experience online

teaching. Teaching an online course would allow faculty members the opportunity to note some of the similarities between the two methods of teaching, estimate the amount of time and effort necessary to teach an online course, and begin to interpret instructional feedback from students in written form.

The goals of faculty in online learning are the same as those in the face-to-face classroom. The primary goal is for students to learn, which involves changing the behavior of students (Ferguson, 2004). Only the medium has changed. In order to teach effectively, instructors must be knowledgeable in the use of the medium. In other words, they must be both subject-matter and technology experts (Lee & Busch, 2005). When online teachers are more effective in both of these areas, students are more likely to benefit from the learning experience.

College and university administrators can take steps to increase the instructional effectiveness of online faculty. Administrators should ensure that faculty are provided with technological training opportunities, rewards and promotions encourage faculty involvement in online education, and faculty are involved in the process of making decisions regarding online learning (Lee & Busch, 2005). These steps may be executed in a variety of ways within educational institutions.

First, training opportunities can include instruction that is online or on-site, synchronous or asynchronous, and emphasize course design or instruction. Providing many different types of training sessions allows for convenience, and may increase the likelihood that faculty members elect to begin the training process. Second, instructors' involvement in online learning initiatives can be rewarded by increasing the likelihood of career advancement. Such promotional opportunities can be communicated to faculty using several methods of communication, including email messages, bulletin board posts, and word-of-mouth.

Third, and perhaps most notably, there are a number of ways to involve faculty in the online learning decision-making process. They may be invited to participate in related board meetings, offered an opportunity to vote on related matters, and kept informed of changes within online education. Such measures demonstrate that the educational institution values the input of its faculty. Valued, motivated, and involved instructors are likely to support online learning initiatives.

Instructional Design

A number of recent issues in online learning relate to instructional design. Online courses can be designed in a variety of ways using one of many course management systems developed by private companies. On the other hand, an educational institution may choose to develop its own method of managing online courses. Colleges and universities face many decisions related to instructional design, and the design of online courses is one of the most vital aspects of online education (Wang & Yang, 2005). It is important to make such decisions effectively, as they will likely affect teaching and learning in the online environment.

One of the ways to make effective decisions is to hire experts with knowledge of instructional design. Based on previous experience, these designers can make recommendations to increase the likelihood of developing a successful online learning program. In addition, they must work jointly with instructors to meet impending deadlines (Li & Shearer, 2004). Though administrators are likely to set deadlines, designers and faculty can work together and accomplish institutional goals within the predetermined timeframe.

Meeting deadlines is not the only purpose of collaboration between designers and instructional faculty. These two groups of individuals should also work jointly to determine specific project goals (Wang & Yang, 2005). Designers can make recommendations upon considering the instructional design of a course, and teachers can make recommendations after considering the impact of decisions on teaching and learning. Both parties can then make informed decisions that are more likely to meet the needs of students.

Effective instruction also depends upon communication between teaching faculty and designers. Schools should develop and implement plans that provide for regular communication between the two groups (Li & Shearer, 2004). In order to jointly determine goals, designers and instructors can convey desires and concerns using several communication channels, including the telephone, email, and regularly-scheduled face-to-face meetings.

Another method of improving the instructional design of online courses is comprised of training for faculty and students. A conventional training method involves the use of samples and templates (Li & Shearer, 2004). For example, a sample syllabus can be made available to new online instructors as a model for producing their individual syllabi. This effort can save designers the time and energy necessary to reply to several general questions. Instead, designers can focus on responding to more specific concerns.

Additional measures can be taken to improve the instructional design of online courses. Courses can be designed to allow students to verify their progress, thereby relieving instructors of responding to related student questions. They may also be designed with highlighted important information, visual aids such as graphics and movies, and embedded evaluation processes (Wang & Yang, 2005). An embedded evaluation process is particularly valuable because it allows instructors and designers to receive constant feedback, thereby providing several opportunities to advance the goals of online course design.

Student Satisfaction

One of the issues of concern in online higher education is student satisfaction. The demands of students parallel the demands of society. Similar to the general population, students expect more flexible and accommodating services due to technological progress. Therefore, educational personnel have identified the need to provide instruction in creative ways (Drennan, Kennedy, & Pisarki, 2005). Online education allows for such creative methods of instruction, and has been developed in response to the changing needs of students.

Though solutions have been implemented to address students' need for flexibility, additional needs have become apparent. School administrators are concerned with the retention of online students (Dupin-Bryant, 2004). A number of students enrolled in online courses may not have otherwise taken a course due to time and travel constraints. It is likely that students do not remain enrolled in courses because they have not gained a sense of community which results from increased interaction with other students. An increase in student satisfaction may increase learning by improving retention rates. It is therefore important to better understand some of the determinants of student satisfaction by way of the current study.

Student satisfaction is affected by students' willingness to be accountable for learning the required technology, perceptions of the effort required to use computer and Internet technology, and ability to quickly recover from technological errors (Drennan et al, 2005). Another way to determine the level of student satisfaction in online learning is through determinants of completion and non-completion. The majority of students who do not complete courses are first-year and second-year undergraduates with lower grade point averages and little to no computer training, and these determinants allow instructors and administrators to identify students who are at risk (Dupin-Bryant, 2004).

III. METHODOLOGICAL FRAMEWORK

While an understanding of recent changes in Connecticut education is foundational to the current study, a review of literature related to the research method also adds value to the study. A variety of methods can be used to study opinions, attitudes, and perceptions — including the satisfaction of students. However, surveys are commonly-used in such studies (Bailey-Chen, 2007; Vieira, 2006; Brown, 2007). Pre-existing surveys as well as surveys developed by the researcher may be used to collect these data.

Surveys have also been used as an instrument for gathering data related to student satisfaction of distance education courses and programs (Abdel-Maksoud, 2007; Snoddy, 2007; Gallogly, 2005). More specifically, student satisfaction of distance learning effectiveness may be studied. For example, in an Iowa State University study, researcher Chang (2006) developed the Students' Perceived Interaction Survey to gather data for the study. The researcher then analyzed the data to understand if there were determinants of student satisfaction of course effectiveness. The findings supported various interactions and perceptions of the course management system as determinants of satisfaction.

Distance education, however, is a broad term, and is defined as any formal learning that occurs when the instructor and student are geographically separated (Verduin & Clark, 1991). Notably, the majority of distance education no longer occurs via postal mail, radio, or broadcast television. Instead, a large portion of distance learning is communicated via the Internet — also referred to as online learning — or video (Palloff & Pratt, 2001).

Within the more narrowly-defined field of online learning, surveys are commonly as a tool for gathering student satisfaction data. In a Texas Women's University study, Gallien (2005) collected data using an online survey. The researcher evaluated the effects of instructor feedback on student satisfaction in four online health courses. On the other hand, surveys may be used to analyze student satisfaction of a single course. In a Fielding Graduate University study, Bowen (2006) used nearly 2,000 faculty assessment surveys to analyze student perceptions of one online mathematics course.

Not all surveys are the same, however. In the present study, a specific type of survey – the Likert scale survey - is utilized. This type of instrument was selected because it is likely to be effective in revealing a person's feelings (Waddington, 2000). Therefore, data gathered through a Likert-type survey is likely to effectively respond to the research question of the current study, which involves the feelings of students regarding satisfaction with online course and instructor effectiveness.

Likert surveys generally ask respondents to rate their feelings on a scale from "strongly agree" to "strongly disagree". The scale commonly provides five options. However, more options will likely lead to greater reliability (Simon & Francis, 2001). Because a number can be associated with each of the options on the scale, the survey allows feelings to be quantified. For example, on a scale of one to five, the number one can be assigned to "strongly disagree" and the number five can be assigned to "strongly agree". Similarly, the numbers two, three, and four can correspond to varying degrees of agreement or disagreement. The number associated with the feelings of respondents can then be quantitatively analyzed.

Likert scale surveys can be used be used to quantitatively measure attitudes and perceptions, both within and outside of education. Ko (2007), Walker (2007), and Hicks (2007) used surveys with Likert scales to measure the perceptions of respondents within the subject areas of medicine, education, and national defense, respectively. Greene (2007) and Taylor (2007) also used Likert surveys to research perceptions within the field of education. Conversely, Al-Kamali (2007), Hofmeister (2007), and Veneri (2007) used Likert-type surveys to measure attitudes. Al-Kamali utilized the instrument within education, while Hofmeister and Veneri used to tool to measure attitudes within health and medicine.

The manner in which the Likert survey has been utilized in prior studies resembles the manner in which it is used in the current study. There exist a diverse set of data collection instruments, including the survey. Similarly, there exist a diverse set of survey types. The Likert scale survey has been used within education and, more specifically, within online education. This type of survey has been commonly used to measure attitudes and perceptions, including student satisfaction.

Definition Of Variables

In the present study, there are two dependent variables: student satisfaction of overall course effectiveness and student satisfaction of overall instructor effectiveness. The independent variables of the study may include students' perceptions of whether assignments contributed to learning or the instructor treated students with respect. The specific independent variables used in the study are presented in section IV. Responses to survey questions that define both dependent and independent variables are provided in the form of a five-point Likert scale. The effects of changes in independent variables on dependent variables are also presented in section IV.

The Theoretical Framework

The adopted isolated use of quantitative method provides focus and definition to the study, and allows responses to be categorized based on student-selected numerical classifications rather than researcher-identified groups. Survey respondents have self-selected the most appropriate classifications using previously-defined

categories. The use of qualitative methods to address the research question may be appropriate in a subsequent study.

The sampling frame of the present study is composed of the list of students enrolled in online courses at an RGB College during the Fall 2007 academic term. In this instance, the sampling frame defines the accessible population as well as the sample.

The sample group is not necessarily equivalent to the group of individuals who participate in the study. Some of the individuals who have been selected as members of the sample group may opt not to participate, or the researcher may be unable to contact all of the members of the sample group (Trochim, 2001). In the present study, all members of the sample group are contacted, which means that all individuals in the sample have the opportunity to participate in the study. However, not all RGB College students who receive the opportunity to evaluate courses and instructors elect to do so. The return rate for the online course and instructor evaluation surveys at RGB Colleges is not always equal to the number of surveys distributed to students.

In addition to sample size, student demographics represent a characteristic of the sample of the current study. In the interest of confidentiality, the name and precise location of the RGB Colleges cannot be disclosed. However, the colleges are centrally located in the state of Connecticut, and student bodies are diverse with respect to age, gender, ethnic background, ability, and socioeconomic status. In addition, the colleges offer a number of face-to-face and online courses, typically offering online courses that are diverse in academic subject area. Respondents of the end-of-semester online course evaluation survey are students whose demographic composition reflects the diverse student bodies.

Treatment Of Data And Variables

In certain instances, independent variables of a research study may be modified in order to compare results to the results of a group with unmodified independent variables. The modification, or treatment, can aid in determining the effects of the modification on individuals or situations (Singleton & Straits, 2005). The results of both groups can be compared, and if there are significant differences, the results may be attributed to the treatment.

The independent variables of the present study, which are obtained from RGB online course evaluation surveys, are not treated. However, it is important to note the manner in which the surveys were modified by the college to protect the identity of the college, faculty members, and students. Prior to releasing the data, each college removed the name of the institution, the names of the academic departments within the college, and the names of faculty members. In addition, all comments written by students were removed, as they may have contained confidential information.

The name of each college department was replaced with a unique and generic identifier such as Department 1, Department 2, or Department 3. Similarly, the name of each faculty member was replaced with an identifier such as Instructor 1, Instructor 2, or Instructor 3. These identifiers allow for confidentiality of data without eliminating the ability of the researcher to categorize results according to department or faculty member name for analysis purposes.

Data Collection

The online course evaluation form is distributed to RGB students by each college at the end of the academic term. The evaluation form appears as an icon on the home page of each online course approximately five weeks prior to the conclusion of the term. During the final five weeks of the semester, between one and three reminders are sent to students in the form of an automatic popup that appears on a student's screen when he or she accesses the course web site. These reminders also contain a direct link to the Web page containing the evaluation form.

Students who access the form are provided with the opportunity to respond to survey questions related to the effectiveness of the course and instructor. For each Likert-scale question, a corresponding drop-down menu is

provided. Each drop down menu contains five options, generally ranging from "strongly agree" to "strongly disagree". The options corresponding to questions regarding overall course and instructor effectiveness range from "very high" to "extremely low". The questionnaire contains 26 questions, three of which are open-ended. The online course evaluation form is the standard form that is available for use in nearly all online higher education courses offered in the state of Connecticut (see Appendix A).

Upon completing the survey, the student clicks the link to submit the form. The form is submitted confidentially and securely, and may only be submitted once. A student enrolled in more than one online course receives one opportunity to complete the survey for each course in which he or she is enrolled.

The data are then sent to the Office of the Academic Dean of each college and, after filing the responses, the Office sends the aggregate and individual student results to the appropriate instructor. The original electronic survey responses are stored in the Office of the Academic Dean at each of the RGB Colleges. The questionnaires that have been modified to ensure confidentiality during the research process are available upon request from the researchers.

IV. EMPIRICAL ANALYSIS

In the RGB study, a regression analysis is appropriate, as the relationships between dependent and independent variables can assist in determining a model for forecasting student satisfaction of overall course and instructor effectiveness. Forecasting student satisfaction can, in turn, allow college administrators to proactively address student needs.

Multiple (step-wise) regression analysis is appropriate for the current study. In the RGB study, student satisfaction of overall course effectiveness is determined by multiple independent variables. Similarly, student satisfaction of overall instructor effectiveness is determined by more than one independent variable.

The current study seeks to identify an equation that predicts student satisfaction of course and instructor effectiveness without attempting to determine the underlying cause for such relationships.

The analysis software that has been selected to conduct the stepwise analysis for the current study is SPSS version 14.0.

The RGB study benefits from an explanation of the theoretical framework and its relationship to the hypotheses, as each of the six hypotheses are grounded in the literature. Three hypotheses involve the relationship between student satisfaction of overall course effectiveness as the dependent variable and assignments (H1), threaded discussion (H2), and overall instructor effectiveness (H3).

Assignments are one of the three most important areas to consider within a course (Lester, 2007). Therefore, the ability of reading and assignments to contribute to student learning is tested as hypothesis H1.

The second of the set of three independent variables to be tested for the first dependent variable is tested as Hypothesis H2, and is the ability of threaded discussion to contribute to student learning. Groth (2008) advocates the use of discussion boards in the online classroom, and students continue to support the use of threaded discussion (El Mansour & Mupinga, 2007). However, the relationship between the use discussion boards and student perception of overall course effectiveness in Connecticut higher education has been uncertain.

Overall instructor effectiveness is tested as Hypothesis H3, and is the third and final independent variable to be tested with respect to the first dependent variable of student satisfaction of overall course effectiveness. The instructional design of an online course may affect student learning (Brinkerhoff & Koroghlanian, 2007). Because instructors are generally responsible for a portion of the instructional design, it is beneficial to understand whether a student's perception of the instructor affects his or her perception of the course. A better understanding of this relationship may improve student learning.

The three remaining hypotheses are related to the dependent variable of student satisfaction of overall instructor effectiveness. Hypothesis H4, involves the relationship between the ability of the instructor to inspire student interest and the student satisfaction of overall instructor effectiveness.. Creative teaching techniques, including the use of gaming simulations in the classroom, can be used to motivate students to learn (Ask Naj, 2005). In addition, to ensure the quality of online instruction, teachers should vary teaching methods (Gaytan & McEwen, 2007). These teaching techniques may inspire students to learn.

Hypothesis H5 also involves the dependent variable of student satisfaction of overall instructor effectiveness, as relates to instructor's availability and helpfulness. However, the affect of the availability of the instructor on students' overall perceptions of the instructor in the state of Connecticut has been unclear.

Finally, hypothesis H6 tests the relationship between student satisfaction of overall instructor effectiveness and course effectiveness.

1. Analysis of Online Instructor's Effectiveness

The "Brown" Community College estimation results for analysis of instructor effectiveness are summarized in Table 1. The variables are:

Dependent variable = Y_2 (Overall effectiveness of instructor (1=very high; 3=average; 5=very low), and the independent variables, as selected through the step-wise regression procedure, are:

- X_6 (Instructor inspired interest in course material)
- X_{11} (Instructor was available and helpful)
- Y_1 Overall effectiveness of course (1 = very high; 3 = average; 5 = very low)

Table 1: Estimated Coefficients for Regression equations with Y_2 Dependent Variable (Fall 2007)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	.319	.089		3.596	.000	.144	.495					
X11	.905	.041	.862	22.096	.000	.825	.986	.862	.862	.862	1.000	1.000
2 (Constant)	-.089	.075		-1.180	.240	-.237	.060					
X11	.585	.041	.557	14.180	.000	.503	.666	.862	.738	.413	.551	1.814
Y1	.505	.043	.456	11.606	.000	.419	.591	.829	.667	.338	.551	1.814
3 (Constant)	-.152	.072		-2.118	.036	-.295	-.010					
X11	.440	.049	.419	8.894	.000	.342	.537	.862	.567	.244	.340	2.941
Y1	.425	.044	.384	9.612	.000	.338	.513	.829	.597	.264	.472	2.118
X6	.239	.051	.233	4.740	.000	.140	.339	.838	.344	.130	.311	3.214

In the previous model (TABLE 1), summarized as: $Y_2 = a_0 + a_6 X_6 + a_{11} X_{11} + a_1 Y_1$, all independent variables are statistically significant at all levels, so all three hypothesized relationships are confirmed. VIF values (testing for multicollinearity) are sufficiently small to have reliable results. This conclusion is true for the Fall 2007 semester at "Brown" Community College.

2. Analysis of Online Course Effectiveness

The "Brown" Community College estimation results for analysis of course effectiveness are summarized in Table 2. The variables are:

Dependent variable = Y_1 (Overall effectiveness of the course (1=very high; 3=average; 5=very low), and the independent variables, as selected through the step-wise regression procedure, are:

- X_4 (Reading and assignments contributed to learning)
- X_{11} (Threaded discussion contributed to learning)
- Y_2 Overall effectiveness of instructor (1 = very high; 3 = average; 5 = very low)

Table 2: Estimated Coefficients for Regression equations with Y_1 Dependent Variable (Fall 2007)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
		B	Std. Error	Beta			VIF
1	(Constant)	.493	.090		5.457	.000	
	Y2	.748	.039	.829	19.237	.000	1.000
2	(Constant)	.287	.088		3.257	.001	
	Y2	.549	.048	.608	11.556	.000	1.826
	X5	.295	.047	.328	6.224	.000	1.826
3	(Constant)	.114	.091		1.249	.213	
	Y2	.451	.050	.500	9.084	.000	2.236
	X5	.248	.046	.275	5.397	.000	1.922
	X4	.296	.064	.225	4.602	.000	1.771

In the previous model (TABLE 2), summarized as: $Y_1 = b_0 + b_2 Y_2 + b_4 X_4 + b_5 X_5$, all independent variables are statistically significant at all levels, so the three hypothesized relationships are confirmed here as well. VIF values (testing for multicollinearity) are also sufficiently small to have reliable results. This conclusion is true for the Fall 2007 semester at "Brown" Community College.

V. CONCLUSION

This study has provided strong evidence on the significant influences of the quality of reading & assignments, threaded discussions, and overall effectiveness of instructors on student satisfaction of course effectiveness. With respect to explaining student satisfaction of overall instructor effectiveness, this study has equally provided credibility to the significant influences of three major variables, summarized as: i) instructor's level of inspiration in creating interest in the course material, ii) instructor's availability & helpfulness, and iii) the overall effectiveness of the corresponding course.

AUTHOR INFORMATION

Alina Payne is a native of San Diego, California who now resides in Manchester, Connecticut. Her career experiences are varied and complementary. She began a career as a software design engineer, eventually moving into product management. She earned a bachelor of arts degree in Economics from the University of California San Diego, and a master of arts degree in Management from Webster University. After working in non-profit management, she began a career in higher education instruction. She is currently a faculty member at Quinnipiac University and Middlesex Community College, both in Connecticut. She is also a doctoral candidate in Applied Management and Decision Sciences at Walden University, and has unified her diverse career experiences by way of her research of online higher education.

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APPENDIX

Online Course Evaluation Instrument

We are dedicated to creating excellent distance learning courses. Your responses to the following questions will help us improve our course design, our instruction, and the type of services we are able to offer our online students.

We appreciate your filling out this short survey (26 questions) and sending it by clicking on the Submit button at the end of the form. Most of the questions only require you to click on an answer, but there is room for your comments at the end.

Your survey is anonymous and confidential. We do not use any technical or non-technical means of tracking who responds to this survey.

TO START: *Please select the current semester. Then select the institution where you took the course. Use the drop down menu to select the name of the course (only courses taught during the semester at the institution you indicated will show up). Your instructor should fill in automatically. If it does not do so, please add the correct name. Please make sure the course and instructor are the correct ones.* ***If you do not complete this section, when you click on "submit," you will get a message that the information is incomplete and you will need to re-enter all the data on the form.***

Semester:	-First Select The Semester-
Institution:	-Next Select Your Institution-
Name of Course	-Then Select Your Course-
Name of Instructor	

Please use the Tab key or your mouse to move from question to question. Do NOT use the Enter key.
Please respond to the following statements by selecting the choice that corresponds to your experience in the online course. *Please indicate your level of agreement with each of these statements:*

1. The objectives/learning outcomes for each part of the course were clear.	-Please Select-
2. The required tests, quizzes, projects, papers, and reports accurately measured my attainment of these learning outcomes.	-Please Select-
3. The course was well organized.	-Please Select-
4. The required reading and assignments contributed to my learning.	-Please Select-
5. The threaded discussion/course conference contributed to my learning.	-Please Select-
6. The instructor inspired interest in the course material.	-Please Select-
7. The instructor provided timely feedback.	-Please Select-
8. The instructor's feedback was clear and useful.	-Please Select-
9. The instructor treated students with respect.	-Please Select-

10. The instructor provided opportunities for students to learn from each other. -Please Select-

11. The instructor was available and helpful. -Please Select-

12. Overall I would rate the effectiveness of the instructor as? -Please Select-

13. Overall I would rate the effectiveness of the course as? -Please Select-

Please think about your participation in the class and your online experience:

14. I invested enough time and energy in the course to meet/exceed course requirements -Please Select-

15. I participated actively and contributed thoughtfully to the class conference/threaded discussion -Please Select-

16. On average how many hours a week did you spend on the course? 0

17. On average how many times a week did you log onto your course? 0

18. How many total courses (online and in a classroom) did you take this semester? 0

19. How many total online courses have you taken including this semester (term)? 0

20. Are you taking this course at the same institution where you are enrolled in a degree program? -Please Select-

21. Are you enrolled in a degree program offered totally online? -Please Select-

22. How did you learn about this course? -Please Select-

23. Were you satisfied with

a) availability of technical assistance? -Please Select-

b) quality of academic advising? -Please Select-

c) availability of the library and other course material? -Please Select-

d) ease of registration? -Please Select-

e) availability of tutoring? -Please Select-

f) quality of tutoring? -Please Select-

g) availability of information about the course (requirements, pre-requisites, technical skills, etc)? -Please Select-

h) financial aid services? -Please Select-

i) bookstore services? -Please Select-

24. What could be done to improve this course?

Please put your comments here

25. What could be done to improve online services?

26. Comments

Thank you for your help in completing this survey.