Student Satisfaction in the Virtual Classroom

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ABSTRACT
This article is a literature review that identifies contributors to student satisfaction with online instruction. Key among these contributors is flexibility within the course and contact with the instructor. Suggestions and steps are offered for the design and implementation of online courses.

INTRODUCTION
According to the National Center for Education Statistics (NCES), 56% of all postsecondary institutions offered distance education courses in 2000-01.[1] This is up 34% from 3 years prior. Course enrollment in distance education courses also increased from 1.7 million in 1997-98 to 3.1 million in 2000-01.[1] Of those who participated in distance education 60% used the internet.[2] It is hard to conceive of a college or university remaining competitive in today's marketplace without reaching beyond its physical boundaries.

Online instruction may be the answer for many but as with any instruction it should be well planned. Long contends that higher education is increasingly recognizing itself as a service industry and as such is paying more attention to the quality of the services it provides as seen by the students.[3] Tandon counters this view with the idea that universities are offering internet courses "blindly" without conducting needs assessments in order to keep up, potentially at the cost of their image.[4] Somewhere between these two contrasting views lies the current state of affairs. The degree of student satisfaction and likelihood of subsequent enrollment in online courses depends, in part, on how well the courses are planned and taught. "When teachers use effective pedagogy, technology can facilitate interactive instruction and communication without compromising satisfaction with the instructor, instruction, or with the course."[5] The quality of the course and course instruction are more important than computer technical skills (although also important). Among students who participated in distance education in 1999-2000, 29.6% of undergraduate and 27% of graduate students were less satisfied with the quality of the instruction received in distance education classes than with their regular classes.[2]

This article is a review of literature focused on students' satisfaction with online instruction. We identify those things that contribute most to student satisfaction and discuss elements of an online course to target these factors. The internet is changing the face of distance education. It is rapidly evolving to the point of changing the concept of "university" and higher education altogether. Online instruction has some unique features. The format puts students and teachers on "equal footing" and many of the barriers found in the traditional classroom, such as shyness, gender, ethnicity, and age, are greatly reduced.[6] It also continues to carry misconceptions by students as being easier than traditional classes and that one has to be good with computers.[6]

Much has been written and published comparing rigor and outcomes of face-to-face versus online course. Some of this information is discussed in this article. These things are important to the development and improvement of online instruction. Student satisfaction was chosen as the underlying focus here because it is the authors' opinion that this is what will bring students back. The low level of satisfaction reported by the NCES was not broken out by first time versus repeat distance education students. What has been published on student satisfaction has been consolidated here in an effort to provide guidance and suggestions. After all, if the educational goal is accomplished and the student is satisfied with the experience, the institution and the student benefit.

Methods
An electronic database search was conducted through Midwestern State University's Moffett Library. EBSCOHOST was utilized providing access to the following databases: Academic Search Premier, Business Source Premier, Pre-CINAHL, CINAHL, MEDLINE, Computer Source, ERIC, Health Source: Nursing/Academic Edition, Health Source – Consumer Edition, Military & Government Collection, Sociological Collection, Professional Development Collection and Communication & Mass Media Complete. The inclusion criteria were articles focused strictly on online instruction and published within the last five years. The exclusion of other forms of distance education allowed a focus on the unique problems and challenges most often associated with online instruction. One or more of these challenges may exist with other forms of distance education but the intent here is to pull together what has been recently published regarding online delivery. The search was limited to the last five years because online delivery is changing so rapidly that the articles from 1999 to 2004 would provide the most current information. The search was not intended to provide a complete history and evolution of online instruction, just current practices. All of the above databases were searched with a variety of search terms and numerous articles were identified.

However, most dealt with other types of distance education or hybrid formats that were not the focus of this review. The more productive search strings used are as follows: "Online Instruction" AND "Student Satisfaction" with the following limiters: 1999 to 2004, scholarly or peer reviewed, and English. This generated 5 unduplicated articles that were selected as relevant for this writing. Another search was then conducted using the same databases with the search string "Distance Education" AND "Student Satisfaction" with the same limiters. This generated 90 unduplicated articles of which 54 were selected as relevant for this writing based on the abstracts. In total 59 articles were selected for this review. Upon careful reading of each article, 25 were rejected based on the inclusion criteria as previously mentioned, leaving 34 for the literature review. Additionally, two survey reports from the National Center for Education Statistics were used: Student Participation in Distance Education and Distance Education at Postsecondary Institutions.

From the literature reviewed six subtopics were identified. A comparison of online instruction to face-to-face instruction, evaluation of online courses, reasons students choose online courses, contributors to student satisfaction, predictors of student satisfaction, and course design and implementation considerations. The articles on each are synthesized to provide a current picture of online instruction with a focus on student satisfaction. While some studies included in this review had small sample sizes, because they corroborate each other it was felt that collectively they had merit. In the conclusion section, a course model is offered in an effort to take advantage of those factors demonstrated to increase student satisfaction.

Comparison of online with traditional face to face classes
A review of the literature did not find a standard for comparison of online with traditional face-to-face instruction. Bowmen states that comparing distance learning with traditional classes for student satisfaction is like comparing apples to oranges; they are fundamentally different.[7] However, while no standard was found, many comparisons were made based on the particular interest of the institution or researcher. The results are summarized here.

Literature researched did not find traditional face-to-face instruction to be superior in areas of student performance, work quality, or satisfaction over online delivery.[8-10] Methods found to compare traditional instruction to online included evaluation surveys and comparison of student test scores.

Several studies noted that online learning was a valuable learning experience.[11-13] Wright et. al note that this may be due to the novelty effects of the online course.[13] That is, because it is a new or different way to learn, its "novelty" creates a perception of increased value. Recent research found online delivery to be just as effective as traditional face to face courses. [14-16] Online courses supported critical thinking skills, leadership, communication, problem solving, and ethics equal to or higher than traditional face to face courses.[10,15]

Studies conducted comparing student grades between online and traditional face-to-face courses found no statistically significant difference between each.[12,13] However, there was a negative statistical correlation found between online student grades and technical problems suggesting that the technical problems impacted the grades or that these were the students who were ill equipped to learn in an online format.[8,12]

Evaluation of Online Instruction

Much of the evaluation of online instruction focused on drawing a comparison to face-to-face instruction. While this has some value and conceptual interest, it fails to truly evaluate online instruction. Rovai points out that the focus of evaluation of online courses needs to be on the course itself and not a comparison to face-to-face.[17] Taking this idea further, online instruction is practiced in higher education long enough that each online course should be evaluated based on its objectives just as any other. Rovai recommended the traditional steps of evaluation: determining the purpose of evaluation, type of evaluation (formative or summative), decide on evaluation strategies to be used, and then conduct the evaluation.[17]

Three articles reviewed reported on evaluation of some aspect of online courses. Thurmond et al., conducted a study controlling for student characteristics to determine the influence of the virtual environment on student outcomes.[18] They used Astin's Input-Environment-Outcome (IEO) model. This model is based on the premise that educational assessment is not complete unless it includes information regarding student input, educational environment, and outcomes. This study used a 12-item questionnaire (n =120). Among the findings were: a) student characteristics did not influence the web-based environment and therefore did not influence outcome (student satisfaction) and b) the study provides a causal influence of web-based environment on student satisfaction.

McGorry first conducted a literature review to identify constructs for evaluating quality of online instruction.[19] Seven constructs were discovered: flexibility, responsiveness and student support, student learning, interaction, technology, technical support, and student satisfaction. The first six of these we identified through literature as contributors to student satisfaction as previously discussed. McGorry then created a 60-item questionnaire and pilot test it (n = 83, alpha = .96) with 9 factors accounting for 85% of the variance.[19] The above constructs were then offered as a foundation for evaluating online courses.

Monaghan evaluated course design and student satisfaction using an internally created survey "Student Evaluation of Learning Effectiveness" which evaluates the following areas: "online components of course fostered interaction and teamwork," "satisfaction with course items controlled by the instructor," "did online components foster discussion on multicultural and diversity issues?", "how well instructor, student and other students contributed to the learning experience," "online materials, time spent/saved using online components".[20] This evaluation rendered useful information on the performance and design of the courses evaluated by Monaghan and was used to refine and improve the courses.

While these 3 studies take rather different approaches to evaluating online instruction they offer two useful pieces of information. One, they provide ideas for areas or elements of the course to evaluate. Two, they provide general background information for the planning phase of evaluation.

Reasons students choose online courses

As previously stated online education is a growing trend throughout higher education. Nearly every community college or university is offering some type of distance education. There are a multitude of reasons this is taking place. They range from dwindling state funding to attracting new students. This is a paradigm shift for institutions. The heart of the matter is that if a school does not offer online learning to students another institution will. There are no boundaries anymore. Students can take online course from anywhere in the world.

Online courses offer many advantages for students. The principal benefit offered is flexibility.[4,6,10,16,21] No longer are students tied to a specific place and time. Many students want to advance careers and are working when traditional classes are being offered. Other students cannot afford to attend school full-time and need to work to pay both living and education expenses. Another advantage is convenience and access to a course.[9,10,16] A student can access an online course anywhere internet is available: work, home, library, hotel room, etc. This is a great benefit for people who travel. Recent research has demonstrated that students take online classes because they are able to get the course schedule they want, and/or to fulfill degree requirements.[10,16]

One aspect that is sometimes over looked regarding online education is learning style preference. For some students, online learning gives them an advantage. A shy student may not take part with in-class discussions or ask questions. This same student is more apt to ask questions and become involved with an online course.[6,16,22,23] Online learning offers the shy student a safe place to add their input; the risk is much lower than in a classroom filled with peers. Other students prefer the delivery mode that online education offers.[24] Students are able to work at their own pace and take time to understand and appreciate the material.[23,24]

Even though there are many advantages with online learning there are also disadvantages. No longer does a student have face-to-face contact with classmates or the instructor. This can lead to feelings of isolation or lack of connectiveness.[9,23] Students need to be self motivated to keep on track. Wright, Marsh, & Miller, and Bowmen, opined that non-traditional

students may be more successful with online course than beginning traditional college students because of differences in maturity and motivation.[7,13]

Another disadvantage for online courses is technical problems.[16] Students may encounter problems with software compatibility, connection, connection speed, server unreliability, computer problems, etc. If a student encounters problems, they may become easily discouraged and dissatisfied with online education.

Also, it is important to note that students signed up for online courses because the misconception persists that online courses are easier.[6,7,10] In actuality, online courses are equal or more challenging than traditional face to face courses because the primary responsibility for facilitating learning shifts to the student.

Contributors to Student Satisfaction

In online instruction one might assume that the instructor takes a minor role in the course and the technology comes to the forefront. However, this is far from reality. Contact and interaction with the instructor was found to be a primary contributor to student satisfaction.[5,6,8,10,14,15,22,25-27] Arbough suggests that the skills that make an instructor successful in the classroom may not transfer directly to online.[22] The instructor must be able to translate the instruction to adapt it to the delivery method. It is the instructor, not the vehicle that is important. Student satisfaction is related more to the instructor and the instruction than the technology.[5,6]

Several other instructor- related factors were also found to be important contributors to student satisfaction. Timely feedback from the instructor and interaction with the instructor were reported as statistically significant in several studies.[5,16,18,26-28] Many course management issues were found to be major contributors to student satisfaction as well. Among these were clarity and relevance of assignments and communication,[5,28] access to campus-based resources,[5] availability of technical support,[5,28] orientation to the course, technology and equipment.[5] The quality of the course content and feedback are also important.[8,15,16,21,28]

Other contributors to student satisfaction deal more with the nature of online delivery. Ranking highest among these factors in the literature are the convenience and flexibility of online instruction as discussed previously.[6,9,10,14,16,21,22,24,26,28] A minimum of technical problems with the delivery also ranked high.[5,8,14,16,22] This is logical since it would reduce the anxiety and frustration with the course which is one source of dissatisfaction. The ability of students to interact with each other reduces the feelings of isolation and improves satisfaction.[6,15,22,27,28] There were other interesting contributors to student satisfaction. One was the level of involvement of students with course material.[25,26] The more involved the student was required to be, the greater the satisfaction. The other was the student's ability to print. Kaminski found that 85.37% (n = 205) of respondents to a survey printed material from online so that it was transportable and also in a familiar form.[29] This ability was positively related to student satisfaction.

Predictors of Student Satisfaction

Some of the factors identified as contributors to student satisfaction have been subjected to statistical testing to determine their predictive value for student satisfaction with online instruction. DeBourgh tested contact and interaction with the instructor (n = 43) and found it to be a strong predictor of student satisfaction.[5] This finding is supported by Roblyer, Kelly (n = 28), and Thurmond et.al (n = 53, p< .05).[18, 27, 30] Roblyer went on to classify interaction as learner-learner, learner-instructor, and learner-content to clarify the types.[27] Thurmond further found timely comments, variety of assessment, and students knowing how they will work with groups and teams to be statistically significant predictors (n = 53, p < .05).[18]

Flexibility, a primary contributor to student satisfaction was also tested as a predictor of satisfaction by Arbough and found to be significant (n = 14, p <. 001).[22] Lee & Witta conducted a pilot student (n = 16, cronbach alpha .93) and Lim conducted a larger study (n = 235, r = .238, p<001) to examine self-efficacy for technology and both found this variable to be statistically significant.[31,32] Daughenbaugh et.al., using the Kersey Temperament Sorter and Kelly & Schorger using the Myers-Briggs identified the trait of Extrovert (one category common to both instruments) as preferring online courses. [30, 33] An interesting finding is that the more online classes taken, the greater the satisfaction with this delivery method (n = 1802).[34]

To summarize, contact and interaction with the instructor, flexibility, self-efficacy for technology, and the extroverted personality type seem to be valid predictors of student satisfaction. Assessing the student for self-efficacy and personality may help match the student to the course format. Miller & Rector discusses the use of a self assessment quiz offered online to help the student determine their suitability for online courses.[35] Assessing the course for its level of flexibility and involvement of the instructor may also help predict student satisfaction with the course.

Course Design and Implementation Considerations

Of the various segments of online learning, course design is the most important. Frequently, administrators and instructors have miscalculated the effort needed for offering and designing online courses. Some have a misconception that online

courses are just like traditional courses. There are many issues that have to be dealt with: technical infrastructure, work load, registration, technical support, course design, etc.

Monaghan & Santiago offer a seven step model to implement online learning.[20] The first step is planning and preparation. An instructor needs to understand the amount of time and effort that will be required. Once this is understood they can evaluate whether or not they are ready to teach online. The second step is funding. Money is needed for course resources and design. One aspect that cannot be over looked is the availability of technical support.[5,24,35] Students and instructors need to have experts available to answer questions and solve problems. Grants might be available to help fund online implementation. Third, is instructional design and training. Instructors need to be educated on course design and use of technology.[10,20] Schools may want to implement a mentoring program for new online instructors.[10]

Designing an online course is not simply converting traditional course material to a digital format. Usefulness of course software is also important to the success of the course.[36] The fourth step is instructional materials development and testing. After a course is developed it needs to be tested to assure it works properly. Next, implementation takes place. The course goes live and is offered online to students for the first time. The sixth step is evaluation. This step identifies the strengths and weaknesses of the course and if the learning objectives were achieved. Finally, the last step is dissemination. Sharing information and knowledge learned helps improve and strengthen the education profession. Table 1 provides a summary of these steps with suggestions/comments.

Table 1: Steps in Implementing Online Courses	
Step	**Suggestion/Comments**
Plan and prepare	Don't underestimate the time needed for this.
Funding	Money will be needed to develop an online course even if it already exists in a face-to-face version
Design and training	Lay out course and train instructors on the delivery platform
Develop and test	Piloting a new online course is ideal if possible.
Implementation	One should consider limiting offerings and enrollment for first round to reduce negative experiences.
Evaluation	Just as with any new process, evaluating for the purpose of improvement is needed.
Dissemination	Share experiences both good and bad to improve online instruction and education in general.
We suggest at least one semester lead-in for preparing and offering an online course provided that the technical support and delivery platform are already in place.	

Conclusion

The following are offered as considerations when designing a course for online delivery. First, design the course with the understanding that the students will assume primary responsibility for facilitating their own learning. Simply putting one's lecture notes on a web page is not enough. Design learning modules that will aid the student in navigating the course material. Online courses are fundamentally different and require a different approach.[7] Flexibility is number one. This is not to say their can be no deadlines, but remember that flexibility is a primary reason students sign up for these courses.[4,6,10,16,21] Use overlapping availability and expiration dates for quizzes (e.g. quiz one available from week one to week three, quiz two available from week two to week four). Consider time zones and time of day when setting due dates (not all students will be in your time zone and may not even be in your country). Another key element that should be included in the design of an online course is contact and interaction between the student and course instructor.[5,6,10,15,27]

Instructors need to give prompt feedback to student assignments and questions.[10,16,24] It is recommended that a response be within 24 hours. Set office hours of availability (this may require evening hours) to be able to respond more immediately to student inquiries. Delivery platforms (software) have built-in question and answer boards, use them to avoid answering the same question over and over. The instructor should set aside ample time to give meaningful and extensive feedback on assignments. Online instruction can become much like one-on-one instruction in this regard. Make all emails and comments personal (start by addressing the student by name) and avoid email and instant message slang. Keep the writing semi-formal. Another important element is student-to-student communication. This can be accomplished by the use of discussion boards, live chats and group projects.[6,10,15,21,24] Use discussion boards with organized discussion question postings to keep students engaged and active in the course. Provide a student forum board for the students to interact with each other to address the student-student contact and reduce feelings of isolation. Because the instructor is not physically "there," instructions must be well phrased and explicit. Another must is that all online instruction must have a well funded and equipped technology department to support the courses and address technical problems. Finally, set up a user friendly and

basic orientation for the course platform and individual course requirements. Table 2 summarizes these design considerations with definitions of each consideration.

The "take home" information for anyone venturing into online instruction, is as follows. One must plan thoroughly for online offerings. Make sure the financial and technical support is there. Use the identified predictors of student satisfaction to evaluate the new online course. Understand that the student will take a larger role in their learning and the online course must provide the tools to help the student navigate the process. Finally, flexibility and contact with you the instructor are the most important elements. If the student experiences "happy clicking" they will return for more.

Table 2: Suggestions for Designing an Online Course

Consideration	Definition
Design	Design the course with the student as the primary facilitator of their learning.
Flexibility	Make the course flexible. Use deadlines but use overlapping availability and expiration dates. Keep time zones in mind.
Contact	Build in regular contact between the student and the instructor. Be prompt with email responses and feedback. Set online office hours and use question and answer boards.
Student-student interaction	Create opportunities for student-student interaction. Use discussion boards, live chats, and group work to promote this.
Monetary Support	Proper funding of needed technology and technical support for online instruction is essential.
Orientation	Provide a basic online orientation for the online delivery platform.

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