THE SEVEN PRINCIPLES OF GOOD PRACTICE: A PRACTICAL APPROACH TO EVALUATING ONLINE COURSES

ÇEVRİMİÇİ DERSLERİN DEĞERLENDİRİLMESİ İÇİN PRATİK BİR YAKLAŞIM: İYİ ÖĞRETİMİN YEDİ PRENSİBİ

Kürşat ÇAĞILTAY*, Charles R. GRAHAM**, Byung-Ro LIM***, Joni CRANER****, Thomas M. DUFFY*****

ABSTRACT: In the Fall of 1999 a team from the Center for Research on Learning and Technology (CRLT) at Indiana University evaluated four online courses for a large academic program at another institution. The evaluation provided feedback to individual course instructors as well as information to the program directors about strengths and weaknesses of the online courses in their program. The evaluators used Chickering's "Seven Principles for Good Practice in Undergraduate Education" [1] as a framework for their evaluations. In addition, they incorporated some basic guidelines for effective human-computer-interface design into the evaluation. This paper describes some important strategies, for each of the seven principles of good practice, that can be applied directly to evaluation of online courses. The evaluation strategies presented are not only of practical value in evaluating existing online courses but can also be used to inform the design and development of new online courses.

Key-Words: *on-line courses, distance course evaluation, human-computer-interaction.*

ÖZET: 1999 yılı güz döneminde Indiana Üniversitesi Öğrenme ve Teknoloji Araştırmaları Merkezinden bir ekip diğer bir üniversitenin dört adet çevrimiçi (online) dersini değerlendirdi. Bu değerlendirme çalışması sonucunda derslerin zayıf ve güçlü yönleri ile ilgili elde edilen bilgiler bir rapor halinde hem derslerin öğretim görevlilerine hem de program yöneticilerine sunuldu. Değerlendirme çalışma-sının temelinde Chickering'e ait "the Seven Principles for Good Practice in Undergraduate Education" makalesi kullanıldı [1]. Bu yedi prensipe ek olarak derslerin bilgisayar arayüzünün değerlendirmesi için bir dizi kriter de belirlendi. Bu makale çevrimiçi derslerin değerlendirilmesinde yedi prensibin nasıl kullanılacağına dair stratejileri açıklamaktadır. Burada sunulan değerlendirme stratejileri çevrimiçi derslerin değerlendirilmesi konusunda pratik değere sahip olmanın ötesinde çevrimiçi ders yaratmak ve geliştirmek konusunda bilgilenmek için de kullanılabilir.

Anahtar Sözcükler: *çevrimiçi dersler, uzaktan eğitim değerlendirmesi, insan-bilgisayar-etkileşimi hakkında inançları*

1. INTRODUCTION

Almost all students from elementary to higher education are educated in a lecture based educational system. The communication patterns and characteristics of face-to-face lecture based environments can be quite different from those found in a distance education environment. For example, in a Web-based distance education environment, all verbal and non-verbal communication cues, traditionally found in a face-to-face environment, disappear. In this new environment, supportive teacher-student interaction and student-student networking become very important. Although it seems that the Web can be a good environment for delivering sound educational experiences, currently there is very little solid research to identify key issues to making online distance education successful. [2]. We hope that the results of this research will contribute to efforts to close this gap.

*Center for Research on Learning and Technology, Indiana University, kursat@indiana.edu, Bloomington, USA
**Center for Research on Learning and Technology, Indiana University, crgraham@indiana.edu, Bloomington, USA
***Center for Research on Learning and Technology, Indiana University, byunlim@indiana.edu, Bloomington, USA
****Center for Research on Learning and Technology, Indiana University, jcraner@indiana.edu, Bloomington, USA
*****Professor, Chief Learning Officer, UNext.com, tduffy@unext.com & Instructional Systems Technology Department, Indiana University, duffy@indiana.edu, Bloomington, USA

2. LITERATURE REVIEW

The term "distance education" refers to the teaching-learning arrangement in which the learner and teacher are separated by location and/or time [3]. The World Wide Web (WWW) is a distributed, hypermedia based, platform independent architecture for sharing information. Web-based education is defined as education delivered in whole or in part using the Web and related technologies [4]. There are many other similar terms used to describe Web-based education, such as: online courseware, learnware, distance education online, etc.

Through the years, distance education has taken advantage of current technologies, incorporating into the teaching and learning environment telecommunication technologies such as radio and television broadcasting; audio and video recording; live, two-way interactive audio and video. More recently there has been a huge growth in the use of synchronous & asynchronous computer-based interaction tools on the Internet or the World Wide Web (WWW) [5]. Today, Internet-based distance learning is one of the most rapidly growing aspects of education and training in the world.

Even though there is a trend towards using technology in education, in a study that analyzed the use of technology in the classroom from 1920 to the present, Cuban [6] found that schools changed relatively little during this time frame. He actually reported that none of the previous technologies had a significant impact on educational system. History has shown us that more sophisticated equipment does not automatically lead to more effective learning environments [7]. The emphasis in education should not be on devices, as in the past, but rather on the process of how to use those technologies to teach effectively.

While many argue that there is a promising future in the use of personal computers and the Web in education, there is no satisfying answer for the question of how these technologies can best be used to promote learning or how to compare the differences between face-to-face learning and technology supported distance learning. As stated by Windschitl [8] and Moore [3], much of the published work about distance education has been anecdotal descriptions of activities such as setting up on-line mentoring programs or how to get students involved in collaborative Web activities with other schools. However there is not much solid research on many important aspects of Internet based distance education. There are more questions than answers and it seems that this situation will continue into the future.

There are several factors that affect the success of a distance education program. Some of those factors are interaction, motivation, technical & administrative issues, and learner characteristics. Chickering's Seven Principles for Good Practice in Undergraduate Education [1], [9] have become a popular set of guidelines for evaluating traditional campus-based courses. These seven principles are:

1. Good Practice Encourages Student Faculty Contact
2. Good Practice Encourages Cooperation Among Students
3. Good Practice Encourages Active Learning
4. Good Practice Gives Prompt Feedback
5. Good Practice Emphasizes Time on Task
6. Good Practice Communicates High Expectations
7. Good Practice Respects Diverse Talents and Ways of Learning

These principles can also be used to evaluate online courses as well as traditional face-to-face courses. A team of evaluators from the Center for Research on Learning and Technology (CRLT) at Indiana University learned that although the principles apply equally well to face-to-face and online courses, specific strategies for evaluating each principle differed between the two types of courses. In the

following section a summary of some of the findings from a more comprehensive CRLT technical report [10] will be presented. First, a definition of each principle will be given. Then specific findings from the evaluation relating each principle to an online learning environment will be presented.

3. METHODOLOGY

A team of five evaluators from Indiana University's Center for Research on Learning and Technology (CRLT), evaluated four online courses in a professional school at a large Midwestern university in the USA. The evaluations were conducted at the joint request of the faculty and program administration. The identity of the university and the content of the courses are kept confidential at the request of the institution. Four of the authors took charge of implementing the course evaluation under the direction of the Director of the CRLT.

The online courses were taught by faculty members who also taught face-to-face courses. Each course instructor developed the course independently, so each course has its own features. For example, some used the *WebCT* online learning environment and some did not; some used problem-based learning and some more structured methods; etc. But the courses had common features, too. For example, all of them used asynchronous communication, e-mail, combined public and private forum.

A qualitative approach to data collection and analysis was used in this evaluation [15]. In particular the evaluators used a multiple case study design. As stated by Sanders (cited in [16], p.33), "case studies help us to understand processes of events, projects and programs and to discover context characteristics that will shed light on an issue or object." The evaluators used Chickering's Seven Principles for Good Practice in Undergraduate Education [1] [9] as a framework for evaluating the four online courses and associated interactions.

Document analysis and interviews were used as main data collection methods for each of the four courses. Hundreds of pages of formal and informal course materials were reviewed in order to better understand the nature, requirements, and expectations of the courses. Thousands of student and instructor postings to course discussion forums were reviewed and analyzed. Discussion postings were analyzed looking at both student-instructor interactions as well as student-student interactions and collaboration. The evaluators also looked at how interactions were structured in the courses that included methods as diverse as email, newsgroups, discussion forums, phone contact, and in rare cases face-to-face meetings.

The evaluators met on a regular basis to debrief each other on the data collection and preliminary findings and in order to work collaboratively to analyze, interpret, and understand the data.

The instructors of the courses were also interviewed by the evaluators. During the interviews the evaluators were able to ask for clarification regarding any issues or questions that came up while reviewing the course documentation and online interactions. The instructors were also asked about communication patterns that they had with students outside of the Web-based discussion forum via technologies such as email and newsgroups. The evaluators also generally sought to understand the instructors' challenges and perspectives from teaching online.

Although the researchers were not permitted to conduct student interviews, the researchers believe that they gained an understanding of student experiences and perspectives by reading postings to the discussion forum.

This study should be taken as a stimulus for further thought and research related to teaching and learning in an online environment. It is up to the reader to determine if and how the findings from this study are relevant and generalizable to their own context.

4. EVALUATION

4.1. Good Practice Encourages Student Faculty Contact

"Frequent student-faculty contact in and out of classes is the most important factor in student motivation and involvement" [1].

Developing appropriate strategies for creating student-faculty interactions is especially important in an online environment because students do not have the guaranteed contact time that comes from regular class lectures. Conversely, the 24-hour availability of email to students provides a mechanism for interacting with faculty unparalleled in the past. To further complicate matters, we discovered from faculty interviews that instructors were often wary about fostering high levels of online interaction with the students for fear of becoming inundated with email messages or bulletin board postings.

We found that instructors can encourage interaction with students by clearly communicating an email response policy to the students. Students often assume that instructors have easy, constant access to their email. If they contact their instructor and don't hear back within an expected timeframe, they may feel that the instructor is ignoring their request. This type of misunderstanding can be reduced if the instructor communicates to the students a general policy or timeline for answering students' email questions. Examples of such policies are: (1) an instructor makes it clear to her students that she will make every effort to respond to email within two days of receiving it or (2) an instructor clearly designates three mornings a week that he will respond to email requests. In each case, the communication expectation is set, reducing the chance of students feeling ignored. This also helps the instructor to appropriately manage his/her time.

4.2. Good Practice Encourages Cooperation Among Students

"Sharing one's own ideas and responding to others' improves thinking and deepens understanding." [1]

Getting students to discuss issues related to a topic is a typical way for instructors to encourage student-student interaction in the traditional classroom. The use of asynchronous conferencing tools has made discussions an integral part of many online courses. Research exists which claims that asynchronous discussion, while not as good for spontaneous idea generation, is actually superior to face-to-face discussions for generating depth of thought [11]. In our interviews with faculty and through observation of the bulletin board discussions in the online classes, we learned that instructors often struggle knowing exactly how to facilitate successful asynchronous discussions.

Developing appropriate discussions that require meaningful peer interaction is one way to encourage cooperation among students. The following set of guidelines developed by the CRLT can be helpful in developing and/or evaluating asynchronous discussions [10],

- ❑ Require student participation (make grade dependent on it)
- ❑ Students need a task to focus their discussion
- ❑ The task should have a product or something that brings closure
- ❑ The task should engage the learner in the content
- ❑ The discussion structure should be carefully thought out
- ❑ Discussion groups should remain relatively small
- ❑ Students should get some kind of feedback on the discussion
- ❑ Discussions should be evaluated based on quality of content and not length of posting or number of postings
- ❑ Instructors should post examples of expectations for discussions

4.3. Good Practice Encourages Active Learning

"Students must talk about what they are learning, write reflectively about it, relate it to past experiences, and apply it to their daily lives." [1]

It is critical to manage active learning, especially in an online situation, because students can be easily distracted from their learning. Without a proper motivation strategy or meaningful tasks, it is hard to engage students in active learning. In the process of evaluating the online courses, we found that there were many opportunities for instructors to help students relate learning activities to real-world issues. For example, in some courses students were asked to do real-world projects that related the course to their full-time work. When the students were allowed some flexibility (e.g., to choose their own topic, project format, etc.) the learning was more meaningful to them and was often more authentic than if the instructor had mandated that everyone do the same project. It is also important for students to present their work to the rest of the class. We found that this is a step that is often skipped perhaps because instructors are not really sure the best way to do online presentations. While formal synchronous presentations may not be practical in an online environment, the project work can be made available for other students to review and specific questions can be formulated to help structure a productive asynchronous discussion about the project or assignment work. Students learn by seeing examples. As they see the exemplary work of their peers (in the current semester or previous semesters) they are motivated to perform at a higher level.

4.4. Good Practice Gives Prompt Feedback

"Knowing what you know and don't know focuses your learning . . . students need frequent opportunities to perform and receive feedback on their performance." [1]

Prompt feedback is a basic tenet of quality instruction. There are typically two main types of feedback used in online courses. "Acknowledgement feedback" confirms or assures the student that some event has taken place. In a face-to-face environment, this kind of feedback happens all the time and is often communicated through non-verbal cues. Acknowledgement feedback is often not readily available to students in an online learning environment. "Information feedback," on the other hand, is informational or evaluative in nature. It is often manifested as the answer to a student question or as an assignment grade and comments.

Most of the instructors, for the courses we evaluated, gave information feedback on assignments and projects in a fairly timely manner. It is recommended that the turnaround time for giving feedback on assignments should be one week or less. The longer it takes to get feedback the smaller the impact the feedback is likely to have on the student. It is important to monitor bulletin boards regularly and give specific information feedback to students. Instructors may also guide students by asking them questions and encouraging them to find their own solutions rather than just giving them answers to their questions.

Although instructors were fairly good at giving information feedback, there seemed to be a lot of room for improvement in providing more and better acknowledgement feedback. Instructors can alleviate many student concerns by sending them a brief note of acknowledgement when they receive an assignment via email. Also, if an instructor is too busy to give a detailed answer to a student question in a timely manner, the instructor should give the student an acknowledgement email stating that they have received the question and will address the question later when they have more time.

4.5. Good Practice Emphasizes Time on Task

"Allocating realistic amounts of time means effective learning for students and effective teaching for faculty." [1]

Learning results from time on task. Students need to know how to use their time well. Especially in online courses, it is hard to maintain students' attention and motivation throughout the semester. Students are easily distracted from their study, so they need to be given help with their time management skills. A student's time on task depends on how demanding the task is and the expectation the instructor sets for working. Most courses we evaluated had assignments with specific deadlines that required students to participate in the class on a regular basis. Having regular assignments due throughout the semester helped to encourage students to spend time on the course and not to procrastinate – which is easy for students to do when they are not meeting regularly with their class. This can be communicated explicitly through email as well as through the structuring and due dates of the assignments. It is important to require students to stay on task and work weekly throughout the semester. Having regular discussions using an asynchronous conferencing tool is a common way of requiring regular participation.

4.6. Good Practice Communicates High Expectations

"Expecting students to perform well becomes a self-fulfilling prophecy when teachers and institutions hold high expectations for themselves and make extra efforts." [1]

The more the instructor expects, the better students perform. Communicating high expectations is important, but is not always easy to implement in an online environment. Without face-to- face meetings, visual cues, or encouragement, online instructors have a greater need to make sure that their expectations are explicitly communicated. Most of the instructors interviewed listed their expectations on their course Web sites. In addition to listing the assignments and their due dates, instructors would often provide grading rubrics for the students. Instructors would also communicate their expectations by publicly calling attention to excellent performance by the students in bulletin board discussions or class listservs. Giving positive attention (when deserved) to the students provides motivation as well as feedback about the kind of performance that the instructors are looking for. Another strategy for communicating expectations that was used was to model different qualities of postings to the discussion forum. One instructor modeled three postings of different qualities for students to view. One was an exemplary posting while the other two were examples of what not to do and highlighted poor trends the instructor had seen in the past that wanted students to avoid.

4.7. Good Practice Respects Diverse Talents and Ways of Learning

"There are many roads to learning . . . Students need the opportunity to show their talents and learn in ways that work for them." [1]

Students bring different talents and learning styles to college. Because of such differences, students rich in hands-on experience may struggle with theory and vice versa. Students need the opportunity to show their talents and learn in ways that work for them.

The online course evaluations helped us to identify many different strategies that instructors used to respect diverse talents and ways of learning. Some of the strategies mentioned are:

- Include an online "ice-breaker" activity for online courses to allow students to share their own interests and learn about peers' backgrounds and interests.

- ❑ Encourage students to express diverse points of view in discussions.
- ❑ Allow students to shape their own coursework by choosing project topics.
- ❑ Create learning activities filled with real-life examples and diverse perspectives.

4.8. Human Computer Interface Principles

Good human computer interface (HCI) design is one of the core elements that contributes to a positive online learning experience for students. Because students access online course materials through the user interface, its role is very important for a successful course. A poorly designed user interface can get in the way of learning while a well designed interface can enhance the learning experience. For the purposes of our online course evaluations, we looked at four computer interface design principles which were selected from a large set of principles from the HCI literature [12], [13], [14]. The features we looked for in the online courses were:

- ❑ Consistency of web page layout and design.
- ❑ Clear organization and presentation of information.
- ❑ Consistent and easy-to-use web site navigation.
- ❑ Aesthetically pleasing design and graphics.

4.8.1. Consistency of web page layout and design

Consistency in the interface allows people to easily learn and recognize the graphic language of the interface. It also allows them to transfer their knowledge and skills from one application to another. This makes repeated visits and information retrieval from the same site easier.

4.8.2. Clear organization and presentation of information

A well-organized interface allows the user to work efficiently. Users benefit from functions that are easily accessible and usable. In such a site the relationships between elements on the page are easily understood. A poorly organized interface causes confusion regarding functionalities and distracts users from accomplishing their intended tasks. Effective categories should be used to describe the information available at the site and the interface should be designed to inform the users about available information.

4.8.3. Consistent and easy-to-use web site navigation

Users need to know where they are and how to get where they are going next. Navigating hypertext can place heavy mental loads on users. Also they can easily be disoriented with a poorly designed navigational system. In order to orient users and minimize the disruptive effects of jumping from one place to another, visual support and context should be supplied. Users should be shown where they are by clearly labeling the current location within the site.

4.8.4. Aesthetically pleasing design and graphics

Users will be more engaged by a task if the information presentation is well structured, consistent with principles of visual design and is also aesthetically pleasing. Since users spend a lot of their time working while looking at the computer screen, the visual interface should be designed to be pleasant to look at on the screen for a long time. In such an interface the graphics of the display should be kept simple and un-meaningful graphic images should not be used.

5. RECOMMENDATIONS FOR DISTANCE LEARNING INSTRUCTORS

After finishing the evaluation of the online courses, the researchers listed a set of recommendations for the distance learning instructors and school. The general recommendations are:

- Encourage Instructor Sharing And Collaboration
- Use Asynchronous Conferencing Effectively
- Implement Course Management Strategies That Do Not Compromise the Quality of the Instruction
- Give Access To Development Resources To All School Faculty Teaching Online

The details of the recommendations are presented in the following sections.

5.1 Encourage Instructor Sharing And Collaboration

Just as students learn from each other, instructors can learn from each other. The researchers recommend that the schools provide opportunities and incentives for instructors to share and discuss with each other what kinds of strategies they are using in their online courses. The following are few ways in which the schools might do this:

- Faculty Development Workshops which highlight the work of one or two different instructors and their online courses.
- Brown-bag Lunches in which a faculty member demonstrates his/her online course and faculty can discuss best practices.
- Awards for Innovations in Teaching might be awarded to faculty who are on the forefront in developing and delivering online courses.
- A School Newsletter which highlights a different online course each quarter or semester.
- Faculty Seminars which bring in guest presenters and/or discuss literature in the area of online learning.

5.2 Use Asynchronous Conferencing Effectively

One of the key components of an online course is its use of asynchronous conferencing tools. The way in which the asynchronous conferencing tool is used can have a dramatic effect on the student learning in the course. Instructors who will be teaching online courses should be given some guidelines for effectively using asynchronous conferencing in their courses. Below are some general principles that have been developed at the Indiana University, Center for Research on Learning and Technology for effectively using asynchronous conferencing tools:

5.2.1 Require student participation (make grade dependent on it)

If participation is not required, students will generally disregard using the tool for meaningful types of tasks. At least a portion of the final grade should be based on the student's participation in the asynchronous discussion.

5.2.2 Students need a task to focus their discussion

A common mistake that is made when using asynchronous conferencing tools is that students are just asked to use the tool to "discuss" a topic. This often results in shallow "talking around" the topic in question. The instructor should provide a specific task to the students to help focus their online discussion. One practice that has been used in the past to get students started into a discussion task is to assign specific roles

(e.g., pro vs. con position, etc.) to students in the discussion.

5.2.3 The task should have a product or something that brings closure

The focus task given to the students should result in a product that represents the core ideas from their discussion. This could be as simple as a document that synthesizes the main arguments from the discussion.

5.2.4 The task must engage the learner in the content

The task that is chosen must strive to engage the learner in critically thinking about the content material and issues.

5.2.5 The discussion structure should be carefully thought out

Instructors should appropriately structure the physical discussion space to facilitate the discussion and minimize potential confusion. In the courses that were evaluated there were some discussion structures that made it very difficult for the students to remember where they were supposed to be posting at which times during the semester. The discussion structure (including public, private, topical, team forums, etc.) should be simple and easy for the students to understand. Multiple postings from students in the wrong discussion space is a clear indication that the discussion structure is too complex.

5.2.6 Discussion must be evaluated based on quality of content and not length of posting or number of postings

Evaluation of postings based on number or length of postings encourages students to contribute trite and thoughtless information to the discussion just to be "counted." Discussion postings should be evaluated based on quality of content. This might be done by evaluating the synthesis or final product developed from the discussion.

5.2.7 Instructors should post examples of expectations for discussions

Instructors can improve the quality of student discussions by explicitly giving exemplars to the students. For example, in one course students were given example scenarios for three "types of postings". One good example, one from a student who thought she knew everything, and a third from a student who was just agreeing with other posts and not adding anything substantive.

5.2.8 Students must get some kind of feedback on the discussions

Receiving feedback on the discussions is crucial in helping the students learn. Feedback can come from various sources including instructors and other students.

5.2.9 Discussion groups should remain relatively small

Experience dictates that if the number of students in a discussion group gets too large, meaningful discussion is less likely to occur. If there is a large number of students in an online course it is more productive to divide them into several smaller discussion groups which work in parallel.

5.3 Implement Course Management Strategies That Do Not Compromise the Quality of the Instruction

One of the dilemmas that is faced in giving feedback in an online discussion environment is that instructors want to encourage and increase the quality of discussions because that increases *time on task*. At the same time the more discussion that is generated the more difficult it

is for the instructor to keep up with it in a timely fashion. This is especially the case if a class is broken up into several small discussion and project groups because the instructor then has to monitor the discussion threads for multiple groups while student group members only have to monitor one group's discussion. The following are a few suggestions of strategies to help in managing online courses:

5.3.1 Increase emphasis on peer evaluation and feedback.

Increasing the emphasis on peer evaluation does not absolve the instructor from the responsibility of providing feedback in the discussions. However, it can alleviate much of the stress. The more quality feedback students get the better off they are. Peers can provide much of the needed feedback with the instructor monitoring and providing guidance at critical times rather than all of the time. Students can be encouraged to give meaningful feedback by making it a requirement for the grade or by providing other incentives. Students also need to be taught how to give appropriate feedback in order for this strategy to work effectively.

5.3.2 Increase the emphasis on group work.

Another way to improve the manageability of a course without compromising its effectiveness is to place a greater emphasis on group work. Creating assignments that encourage student collaboration can improve the quality of the learning for the students as well as reduce the number of final products that must be graded.

5.3.3 Selectively evaluate discussions.

Another way to maintain a high level of expectation for student participation in discussions without overwhelming the instructor is to selectively evaluate the discussions. There are several possible methods for doing this. First, the students could be informed that they are required to participate actively in all the discussions but that the instructor will evaluate everyone's participation quality for a grade only at a certain number of (unspecified) times during the semester. A second possible method would be assigning a group discussion leader for each topic or assignment and making that person responsible for encouraging and stimulating quality group discussion. The discussion leader would then be the only one graded for each discussion. The discussion leader would then be rotated for each new topic until each student has had a turn.

5.3.4 Set clear feedback expectations.

It is important to set clear student expectations from the very beginning about how you plan to provide evaluation and feedback to them in their class discussions. Instructors who do not establish clear expectations often have to deal with a higher level of student stress due to unmet student expectations regarding evaluation and feedback.

5.4 Give Access to Development Resources to All Faculty Teaching Online

In the process of our evaluation, we found that not all faculty who are developing online courses have access to course development resources such as WebCT. We recommend that all faculty in the school who are teaching online courses be extended access to resources, which will increase the likelihood of creating successful online courses. There are three main reasons for this recommendation:

5.4.1 Need for asynchronous conferencing

While faculty may be able to develop Web pages on their own, it is beyond the capability of most faculties to develop and support their own system for asynchronous conferencing. This is such a key component in successful online courses that the school should do everything it can to facilitate its use.

5.4.2 Standard interface

Allowing all online courses to use the same general interface (e.g. WebCT) decreases the learning curve for students who are taking online courses. Instead of having to familiarize themselves with a new interface for each course, students will be able to jump right into learning and participating in the course after taking their first course.

5.4.3 Need for technical support

To overcome the technical problems of the course, strong technical support should be supplied by the school. Instead of dealing with technical problems, the instructors should be able to focus their energies entirely on teaching their courses.

References

[1] Chickering, A. W., & Gamson, Z. F. "Seven Principles of Good Practice in Undergraduate Education". **AAHE Bulletin**, 39: 3-7, (1987).

[2] Moore in Keast, D. "Toward an Effective Model for Implementing Distance Education Programs", **The American Journal of Distance Education**, 11 (2), (1997).

[3] Moore, M.G. **"Contemporary Issues in American Distance Education"**, Elmsford, NY: Pergamon. (1990).

[4] Khan, B.H. **"Web-Based Instruction"**, Englewood Cliffs, NJ: Educational Technology Publications (1997).

[5] Moore, M.G. & Kearsley, G. **"Distance Education: A systems View"**, Belmont: Wadsworth Pub. Co. (1996).

[6] Cuban, L. **"Teachers and machines: The classroom use of technology since 1920"**. New York: Teachers College Press. (1986).

[7] Saettler, P. **"The Evolution of American Educational Technology"** Englewood, CO: Libraries Unlimited, (1990).

[8] Windschitl, M. „The WWW and classroom research: What path should we take?", **Educational Researcher**, 27(1), 28-33, (1998).

[9] Chickering, A. W., & Ehrman, S.C. "Implementing the Seven Principles: Technology as a Lever. **AAHE**. WWW URL: http://www.aahe.org/technology/ehrmann.htm (1997)

[10] CRLT. "Teaching in a Web based distance learning environment". **CRLT Technical Report** No. 13-00. Indiana University Bloomington. WWW URL: http://crlt.indiana.edu/publications/crlt00-13.pdf (2000).

[11] Mikulecky, L. "Diversity, discussion, and participation.- Comparing Web-based and campus-based adolescent Literature Classes". **Journal of Adolescent & Adult Literacy**, 42(2), 84. (1998).

[12] IBM. "IBM HCI guidelines-principles". WWW URL: http://www.ibm.com/ibm/hci/guidelines/design/principles.html (1999)

[13] Nielsen, J. "Jakob Nielson's Web Site for Usable Information Technology". WWW URL: http://www.useit.com (1999)

[14] Shneiderman, B. Designing the user interface: Strategies for effective human-computer-interaction. Addison Wesley Longman. (1998)

[15] Lincoln, Y. S., & Guba, E. G. Naturalistic inquiry. Newbury Park, CA: Sage Publications. (1985).

[16] Merriam, S.B. Qualitative Research and Case Study Applications in Education . Jossey-Bass Inc.