

# The Importance of Interaction in Online Courses

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## Abstract

Distance education is not a new phenomenon; however with the recent advances in technology more institutions are beginning to offer Web Based Instruction via the internet. Current research continues to question the quality of learning occurring in the distance learning environment. Our intuitive sense is that the more interactivity in a web based course the greater the learning on the part of the student. This paper will discuss some of the history of distance educations and explore the research regarding the relationship between the amount of student/faculty interaction in the web based course and the learning outcomes of students. A discussion of several methods of increasing interaction, including creating a virtual student, role playing and online debates, will be presented.

## The History of Distance Education

Distance Education is not a new phenomenon. Promises of a high quality education that could be taken anywhere and at any time were made early in the 20<sup>th</sup> century by correspondence study programs [1]. “The development of an extensive, relatively inexpensive postal service in the late nineteenth century led to the creation of print-based correspondence courses” [2]. “These programs failed to realize their promises because they were confronted by a fundamental trade-off between quality—personalized education—and quantity—the widespread communication of the message to large numbers of students” [1]. When faced with the choice of quality versus quantity, Higher Education opted for quantity. “That choice eventually led to a widespread dissatisfaction with the quality of correspondence education” [1].

According to *Heerema and Rogers*, high-quality instruction is best achieved when students received “an educational experience customized to their individual learning abilities.” In England this was achieved by using the Oxbridge style of education. Through this tutorial system, students received individual instruction from a subject matter expert who was able to ascertain the student’s individual comprehension of the material presented. However, this highly labor-intensive system drastically limited the number of students who could be reached.

The United States took a much more egalitarian and multicultural view and was unwilling to institute an elitist type of higher educations system [1]. “Thus, an educational system wherein the subject-matter expert communicated information in a class setting evolved.” This system reduced the labor intensiveness of the information delivery but still allowed instructors to monitor individual student’s level of understanding.

After World War II and the introduction of the GI Bill, an increasing emphasis upon the value of a college degree in the marketplace increased student enrollment in universities forcing mass lecture courses to become commonplace [1]. “This development sacrificed quality for the sake of quantity in higher education” [1].

One method used to address this load on the system was correspondence education.

As originally planned, this educational process would achieve both quantity and quality. Students who found it difficult to travel to specific sites for their education or were

required to undertake their education asynchronously, would be reached by correspondence education. Quality would be maintained because the mediation process would be achieved through frequent written submission that the subject-matter expert would rigorously critique. Thus the mediation process, vital to a quality education, would be maintained [1].

Unfortunately, this model did not prove as cost effective as originally hoped. It was labor intensive on the part of the subject-matter experts, an investment that proved too costly for institutions to realize the desired net profits. In order to reduce costs institutions had subject-matter experts design the courses and teaching assistants and adjuncts critique the written submissions. “But even this model was too labor intensive to generate the desired net revenues. As a result, the mediation process was abandoned and the educational quality of correspondence educations deteriorated significantly” [1].

Today as the cost of higher education increases and the funding sources for higher education (i.e. state budgets) face budget constraints, colleges and universities are faced with the necessity to both increase revenues and become more cost-efficient [1]. As the materialistic concerns of higher educations become more pronounced, distance education is viewed as an efficient use of technology to generate additional revenues for institutions.

It is believed that by having subject-matter experts deliver programs utilizing the latest in information technology, quality education programs could be launched that would generate significant financial revenues. Such financial revenues could be utilized to enable traditional university education to move back toward the quality option. This development will not be realized if the underlying purpose of distance education courses is to generate revenues [1].

To avoid the possibility of on-line education facing the same dilemma as correspondence education, the higher education community must “understand the medium and the application of sound pedagogical principles that can lead to deep learning in the online environment” [2].

### **Quality vs. Quantity**

It has been estimated that ninety percent of colleges and universities may have online courses [3]. Due to the increase in popularity of online courses, the higher education community must address the question of the balance between the quality and quantity of online courses. “The issue of quality appears throughout the distance learning literature. Concerns have been expressed by both proponents and opponents of distance learning. Instructional innovations always face the challenge of demonstrating they do not negatively impact the quality of instruction” [4].

There have been several studies regarding the quality of Web Based Instruction (WBI) [5,6,7,8]. The overall consensus is that WBI is a valid medium to deliver quality education; however, the caveat is that pedagogically there is a difference in the delivery of classroom instruction and WBI [2]. In an online learning environment “to allow learning to occur attention must be paid to the specific nature of the medium. Indeed, with sound pedagogical principles, there need be no significant difference in learning no matter what kind of media or methods were used” [2].

An important factor in ensuring the quality of WBI is the changing role of the faculty [9]. The faculty member must move from ‘sage on the stage’ to ‘guide on the side’ or ‘mentor in the center’ [10]. This change requires the faculty to facilitate interaction with the students and between the students. A brief summary of the literature regarding interactivity in WBI is presented in the next section.

### **Research Regarding Importance of Interactivity**

It is not the location of education that determines the effectiveness, but the amount of transaction between the learner and the instructor [11]. This section will cover four areas of research in addressing the question of the need for interactivity in WBI. The five areas are (a) Adult Education Models, (b) Transactional Distance, (c) Student Expectations, (d) Interactive Tools, and (e) Ways to Encourage Interaction.

#### ***Adult Education Model***

According to Graham Spanier, president of Penn State University, most WBI are working professionals that cannot afford to take a hiatus or commute to a campus to be involved in traditional education [12]. Research conducted by Holmberg [13] indicates that adult students often prefer distance education over campus-based approaches largely because of the “convenience, flexibility and adaptability of this mode of education to individual students’ needs.”

Since such a large percentage of WBI students are adult learners, it is important that adult education concepts are incorporated into online courses. Collis’ model of adult education includes the following six principles:

1. Both learner and educator play an active and unique role in the educational process.
2. The process of creatively acquiring knowledge involves human interaction and learner competence that are developed and evaluated within a communication oriented education model.
3. Contemporary models of learning support learner centered instruction that encourages self-assessment, personal reflection, and elicits learner articulation of their own ideas.
4. The learning environment should maximize meaningful and reflective interaction while providing a variety of opportunities for feedback.
5. Creating instruction that promotes learner self-regulation and individual responsibility is the product of educators who are academically well prepared and monitor the students’ work
6. Adult educators recognize that students want to move efficiently through their studies, in both time and energy; students do not automatically have good study skills, discipline, or motivation [14]

Based on the above noted principles it is easy to see why educators stress the importance of interactivity in WBI. “Interactivity is an issue that concerns learners, teachers, administrators, and instructional designers who want to promote independent learning without losing social interaction” [7].

### *Transactional Distance*

Transactional distance theory describes the pedagogical relationships that exist in a distance education environment where the teaching behaviors are executed apart from the learning behaviors [15]. “According to the theory, there are three key constituent elements that define every distance education program: dialogue, structure, and learner autonomy”[6]. Dialogue refers to the interaction between teachers and learners. Structure refers to the flexibility and responsiveness of an educational program. “Learner autonomy is the extent to which learners make decisions regarding their own learning and construct their own knowledge based on their own experience” [16].

### *Dialogue*

According to Moller, there are three types of virtual communities in WBI: academic community provided between learners and instructors or content experts; intellection community provided through peer interaction; and interpersonal community developed through interpersonal encouragement and assistance [17].

Moore discusses three types of interaction essential in distance education:

- Learner-instructor interaction: interaction that provides motivation, feedback, and dialog between the teacher and student.
- Learner-content interaction: method by which students obtain intellectual information from the material.
- Learner-learner interaction: exchange of information, ideas and dialog that occurs between students about the course [18].

“Distance learning instructors need to ensure that all three forms of interaction are maximized in their course structure” [19].

### *Structure*

The structure of a distance learning course refers to the amount of flexibility and responsiveness to an individual learner’s needs. The key elements of this structure found in the studies are (1) content expandability, (2) content adaptability, and visual layout [6]. “There is a high level of agreement across the various studies that WEI can provide a flexible teaching and learning environment because of some of the technical features of the Web. The structural flexibility of WBI seems to be directly linked to the expandable feature of its contents” [6]. With the hyperlink features of WBI, course content can be more easily expanded to the outside world and shared by instructors and students [6].

Another benefit of the structural flexibility of WBI is the ability to generate and adapt contents to match each individual student according to his or her goals, previous knowledge or other characteristics [20].

“Visual interface, or screen design is considered to be an important aspect of structuring WBI” [6]. Boshier, et al. found three criteria, from factor analysis, to use in evaluation of WBI: accessibility, interactivity and attractiveness [21].

### *Learner Autonomy*

WBI provides individualized learning environments that allow students to exercise autonomy in their learning (Jung, 2001). Hill and Hannafin found that adult learners in WBI used

metacognitive strategies extensively in their learning [22], and Hill found that learners in WBI employed interactive, embedded, and instantaneous information-seeking strategies [23].

### ***Student Expectations***

Langan, a graduate student in an on-line Master's of Education program, identifies several expectations for WBI from a student's perspective. The expectations identified include:

1. Professional or Career Enhancement—students are not willing to settle for a degree or education that just 'gets them by'.
2. Flexibility—the course or courses must fit within the already full life of the students.
3. Technological Innovation—a virtual program must be innovative in incorporating various types of appropriate technology.
4. Applicable Content—courses should be packed with information and available resources [24].

Hillesheim agrees with the expectations identified by Langan; Hillesheim lists career expectation and flexibility as two of the most important factors in online education [25].

Burge investigated two online courses using in-depth interviews with 21 students and two instructors. The interview results indicated that learners had specific expectations including:

1. Participation—share different perspectives, demonstrate application of knowledge, risk sharing tentative ideas, and show interest in the educational experiences of learners.
2. Response—provide constructive feedback, respond to questions without being repetitive, be a dependable small group member, share positive remarks with others and actively participate in relevant dialog.
3. Affective Feedback—use learners' names during the course work, provide a sense of community or belonging to others, show patience, offer compliments, and encourage a learning atmosphere that is affirming and supporting.
4. Focused Messaging—use concise online statements and avoid excessive message that do not contribute to learning within the group [26].

Students involved in WBI have different expectations regarding their educational experience than traditional on-campus students. It is important for faculty and institutions to understand the expectations of today's online student in order to facilitate success on the part of students and faculty.

### **Personal Experience**

The author of this paper has personal experience as an administrator of a college that offers WBI, as a faculty member teaching courses via the web, and as a student in a Ph.D. program offered primarily via that web. Based on my personal experience and research I will discuss the tools available for WBI and ways to incorporate interaction in an online course.

### ***Interactive Tools***

There are several types of tools available to an instructor providing distance education. Even though a course is web based, other non-web based tools can be incorporated to address different student or instructional needs. These tools include but are not limited to:

1. E-mail
2. Instant Messaging
3. Voice conferencing
4. Posting Dialogue-Threaded dialogue
5. Telephone-Individual or conferencing
6. Fax
7. Video-including video streaming

Using a variety of tools can address certain technological problems as well as differing student needs. Different learning exercises may be enhanced by using an assortment of delivery methods. Additionally, if students understand there are multiple means of contacting and interacting with the instructor they will experience reduced anxiety which can enhance learning.

### ***Ways to Encourage Interaction***

The research presented above clearly identifies interaction and an important factor in the success of online students. This section will identify and discuss various methods of incorporating and encouraging interactivity in WBI.

#### *Virtual Student*

One method of encouraging student interaction is to create a virtual student that interacts with other students in the course. King has found the creation of a virtual student named ‘Joe Bag O’ Donuts’ to be a useful tool in facilitating online courses [10]. “Joe is my right-hand person when it comes to my courses, both online courses and web-enhanced courses. Joe, as all my students are informed, will join in all discussions and participate with all project teams. He will enter into all dialogues, but I warn them not to take everything Joe says as the truth, for like everyone, he makes misstates”. King uses Joe in several ways 1) to start discussion and collaboration in teams, 2) as a second facilitator, 3) to challenge the instructor, and 4) as a model and a subject. According to King, students find it less threatening to interact with Joe then with the professor.

#### *Role playing*

“Role playing is one way in which students can enter into dialogue with the material” [2]. During his course on Luke-Acts, theology professor Ascough included the following role playing exercise:

Put yourself in Theophilus’s shoes. You have gone to great expense to feed and clothe “Luke” while he has brought together a number of sources to create an “orderly account” of the story of Jesus and the growth of the Jesus-movement. Luke has now submitted to you the finished manuscript and asked for your response. In a letter to Luke of no more than 400 words give him your reaction to your reading of Luke-Acts. What did you like about the story? What did you dislike? What questions or issues were raised for you? What passages in particular did you find intriguing?

According to Acough, by asking students to take on the persona of Theophilus they interact with the material at a deeper level and he is able to learn more about the student and their understanding of the material.

#### *Students building content*

“Constructivism, one of the transformative pedagogies, defines learning as a ‘process whereby new meanings are created by the learner within the context of her or his current knowledge...and is to some degree both personally and culturally relative’” [8]. The WBI environment seems particularly well suited to the constructivist approach. Several articles reviewed suggested that learning occurred at a higher level when students were made responsible for part of the content. Acsough suggests that faculty should build a loose framework for the course and require students to research and provided the reading materials and suggest exercises to meet the learning objectives [2].

#### *Online Office hours*

King suggests the use of online office hours for distance courses. These can be in the form of scheduled chat sessions which are not required for, but available to all students. They can also take the form of a specific e-mail reading time [10]. For example, a professor might tell students ‘I will answer my e-mail between 6:00 a.m. and 9:00 a.m. daily’. Students when then know when they could expect a response to a question.

#### *Online Field trips*

Acsough suggests the use of online field trips for certain types of courses [2]. This could be very appropriate for courses dealing with historical places, art, or architecture to name a few. There are a number of site on the web that offer virtual tours that could be incorporated in a course.

#### *Debates*

Another teaching tool identified in the literature is an online debate. Just like a live debate, the class is divided into teams and assigned a position on an issue. The teams would then research the issue, post the defense of their position and respond to the opposing position through a rebuttal. After the formal portion of the debate is complete, the instructor can declare the winner and continue to guide the discussion regarding the issue.

This list of various means of encouraging interaction in an online course is by no means exhaustive. It is a sample of the many ideas found in the literature and through personal experience that can increase the effectiveness of online courses through increasing the interactivity.

#### **Conclusion**

For decades, educators have been trying to find ways to provide quality instruction to student geographically separated from campus. Correspondence courses delivered by the postal service have now morphed into computer mediated courses delivered via the Web. The same concerns regarding the quality of education that surrounded correspondence courses are now shadowing WBI courses.

One of the most important ways to address the concerns about the quality of instruction is by increasing the interaction in WBI. There are several ways to accomplish this goal by including and requiring interactive exercises in the instructional design of the course.

## Referneces

1. Heerema, D. and Rogers, L. (2001). Avoiding the Quality/Quantity Trade-Off in DISTANCE EDUCATION. *T H E Journal*, 29:14-29.
2. Ascough, R. (2002). Designing for Online Distance Education: Putting Pedagogy before Technology. *Teaching Theology and Religion*, 5:17-29.
3. Schwartzman, R. and Tuttle (2002). What Can Online Course Components Teach About Improving Instruction and Learning? *Journal of Instructional Psychology*, 29:179-188.
4. Bower, B. (2001). Distance Education: Facing the Faculty Challenge. *Journal of Distance Learning Administration*, IV.
5. Besser, H. and Bonn, M. (1996). Impact of Distance Independent Education. *Journal of the American Society for Information Science*, 47:880-883.
6. Jung, I. (2001). Building a theoretical framework of web-based instruction in the context of distance education. *British Journal of Educational Technology*, 32:523-534.
7. Muirhead, B. (2001). Interactivity Research Studies. *Educational Technology & Society*, 4:108-112.
8. Yakimovicz, A. and Murphy, K. (1995). Constructivism and Collaboration on the Internet: Case Study of a Graduate Class Experience. *Computer Education*, 24:203-209
9. Perreault, H., Waldman, L. and Alexander, M. (2002). Overcoming Barriers to Successful Deliver of Distance-Learning Courses. *Journal of Education for Business*, July/August 2002:313-318.
10. King, F. (2002). A Virtual Student: not and Ordinary Joe. *The Internet and Higher Education*, 5:157-166.
11. Saba, F. and Shearer, R. (1994). Verifying the key theoretical concepts in a dynamic model of distance education. *The American Journal of Distance Education*, 8:36-59.
12. Hons, C. (2002). Big Ten School in Cyberspace. *T H E Journal*, 29:27-32.
13. Holmberg, B. (1995). *Theory and Practice of Distance Education* (2<sup>nd</sup> ed.), Routledge, London
14. Collis, B. (1998). New Didactics for University Instruction: Why and how? *Computers & Education*, 31:373-393.
15. Moore, M. G. (1972). Learner Autonomy: the second dimension of independent learning. *Convergence*, 5:76-88.
16. Moore M. G. and Kearsley, G. (1996). *Distance education: A system view*, Wadsworth, NY.
17. Moller, L. (1998). Designing communities of learners for asynchronous distance education. *Educational Technology Research and Development*, 46:115-122.
18. Moore, M. G. (1989). Three types of interaction. *The American Journal of Distance Education*, 3:1-6.
19. Smith, G., Ferguson, D. and Caris, M. (2001). Online vs. Face-to-Face. *T H E Journal*, 28:18-24.
20. Valcke, M. M. A. and Martens, R. G. (1997). An interactive learning and course development environment: context, theoretical and empirical considerations. *Distance Education*, 18:7-23.
21. Boshier, R. et al. (1997). Best and worst dressed web courses: strutting into the 21<sup>st</sup> century in comfort and style. *Distance Education*, 18:327-348.
22. Hill J. R. and Hannafin, M. (1997). Cognitive strategies and learning from the World Wide Web. *Educational Technology Research and Development*, 45:37-64.

23. Hill, J. R. (1999). A conceptual framework for understanding information seeking in open-ended information systems. *Educational Technology Research and Development*, 47:5-28.
24. Langan, T. (1997). Online education: a student's perspective. *Campus-Wide Information Systems*, 14:128-132.
25. Hillesheim, G. 1998). Distance Learning: Barriers and Strategies for Students and Faculty. *The Internet and Higher Education*, 1:31-44.
26. Burge, E. J. (1994). Learning in a computer conferenced contexts: The learner's perspective. *Journal of Distance Education*, 9:19-43.