

Distance Education Design

The Importance of Designing Interaction and Activity Into the Course

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INTRODUCTION

Distance education often is considered to be a new style or new way of learning and with that new style the thought is that there should be a new method to teach. In fact, distance education should only be considered a new vehicle for the learner to receive the content. Clark states it well, "The best current evidence is that media are mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries causes changes in our nutrition" (Clark, 2001). The

way the learner processes the content is no different than when they are engaged in a regular face-to-face course.

With this new "vehicle" the design of the distance education course has to take into consideration the fact that the course will not have the same methods to engage the learner as does a face-to-face course. Several ideas will be discussed, why interaction should be incorporated into distance learning, detailing the learning styles that need interaction, as well as various types of interaction that could be incorporated throughout distance education courses.



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WHY INCORPORATE INTERACTION?

A common misconception is that since a computer is used in distance learning the interaction is already incorporated. This is far from the truth; with the lack of face-to-face interaction due to learning from a distance, the interaction needs to be more purposeful and designed. It has been demonstrated that a highly interactive course leads to a more successful outcome. Consider this: "Researchers have determined that highly effective virtual teaching requires a highly interactive classroom (Cavanaugh et al., 2005; Friend & Johnson, 2005; Zucker & Kozma, 2003). Distance-learning research indicates that this instructor-learner interaction is the most important ingredient in student success" (Cavanaugh et al., 2009). It is important to also take into consideration all aspects of the learning

process as well as the way various learners' process and analyze information.

Simpson and Du also found that learning style was a significant predictor of course enjoyment. "Assimilators," who preferred abstract conceptualization and reflective observation, got the greatest satisfaction from their online courses. "Convergers," who preferred abstract conceptualization and active experimentation, got the least enjoyment from their online courses. Simpson and Du also noted that Assimilators made the fewest posts to online forums, while Convergers made the most. (Brown-Syed, Adkins, & Tsai, 2005)

Research has shown that student interaction is a key factor in the overall satisfaction of an online course. This interaction is supported in many facets including student-teacher interaction and student-peer interaction. Chang and Smith (2008) note that "According to Perez's (2001) research, many students reported that the main disadvantage of distance education was a lack of personal interaction between the instructor and the students" (p. 407). If a learner feels they have a disadvantage due to lack of interaction the end result will be a decreased perception of quality of their educational opportunity. This perception could lead to a decrease in the quality of education for the learner. For example, "In Rost's (2000) research regarding distance education, online instructors utilized forms of technology that lacked personal interaction, decreasing the quality of education" (Chang & Smith, 2009, p. 407). Involvement on the part of the instructor goes a long way toward the satisfaction of the course as well as the overall success of a course. The interaction can be carried out in many forms, but maintaining a real presence with the learner is crucial for that learner to feel engaged and part of a group.

Chang and Smith (2008) state that new techniques must be constructed that make time for students to interact,

because personal interaction between teachers and students, students and students, and students and course content directly relates to student course satisfaction. Stravredes (2002) emphasized the importance of interaction by affirming that student achievement and positive attitudes increased as the level of interaction increased. (Chang & Smith, 2008, p. 411)

Chang and Smith are emphasizing that interaction is crucial to the feeling of course satisfaction. The interaction does not necessarily need to be between just the student and the teacher; student-to-student interaction and student-to-course content interaction is desirable as well. However, it must be incorporated with all forms of personal interaction. If it were left to strictly student-course content interaction the success factor would not be as high, because student-course content interaction is merely a one-way interaction with the student. Students need the opportunity to talk through and discuss ideas and concepts with other students as well as gathering feedback and motivation from their instructor. Chang and Smith (2008) substantiate this by saying:

Gao (2001) investigated the effects of different levels of interaction on achievement and attitudes of college students in a Web-based learning environment. The results of the study showed that active learning on the part of students directly contributes to their learning outcomes. Gao declared that providing feedback from instructors helps reinforce the learning material and provides further motivation for students to become even more active in the learning process. (p. 411)

Chang and Smith (2008) also noted that "LaPointe and Gunawardena (2004) conducted research to understand the relationship between peer interaction and learning outcomes in computer-mediated conferencing.... The final research results indicated peer interaction had a strong

direct effect on learning outcomes" (p. 411).

Chang and Smith (2008) go on to note that a significant contributor to perceived learning is an increase in student satisfaction, which is created by increased interaction between the instructor and the learner. With the advancement of the Internet there are many more opportunities available for the instructor to design and implement interaction with the student.

Student satisfaction is an indicator of the success of a course. However, it is not the only measure of why interaction is important in distance education. Interaction also works to keep the learner engaged and on task throughout the course. In a face-to-face course, common practice is to attend class and work toward certain deadlines and check points for assignments that may be due. With distance education the learner does not have the face-to-face opportunity to be reminded of coursework. One key attribute necessary for success in distance learning is the ability of the learner to keep on task and not procrastinate. The learner is tasked with their syllabus and deliverables at the beginning of the course and it is their responsibility to work to ensure those tasks are accomplished and done so on time. Interaction with the instructor and other students as well helps to keep the learner on target to completion with these requirements.

Another key reason to incorporate interaction is purely for social interaction. The process for thorough learning is often through social interaction. This is substantiated by Kreijns, Kirschner, and Jochems (2003):

There is ample empirical evidence that cognitive processes necessary for deep learning and information retention occur in dialogues (Van der Linden & Renshaw, 2001). However, research on group learning shows that asynchronous distributed learning groups (DLSs) utilizing com-

puter supported collaborative learning (CSCL) environments often lack the social interaction needed for these dialogues. (p. 335-336).

INTERACTION AND LEARNING STYLES

Just as in face-to-face facilitation, learning style should be taken into consideration in distance education. One common indicator of personality types is the Myers Briggs Type Indicator (MBTI). This indicator determines an individual's personality type by asking a series of questions. These questions help to determine certain characteristics in a person's personality that are then placed into categories within the Myers Briggs Type Indicator. "[Myers Briggs Type Indicator] indicates ways that an individual prefers to interact with the environment, by measuring that individual on four scales. The first scale, Extroversion-Introversion, indicates whether the person gets energy from interaction in the outer world or reflection in an inner world" (Brown-Syed, Adkins, & Tsai, 2005, p. 8). This indicator could show that an individual with a propensity toward the Extroversion indicator would be more satisfied with a high degree of social interaction built into the course.

Teaching online courses in order to effectively match learners' cognitive styles has been the focus of recent scholarship. In a 2001 issue of *College Teaching*, Dustin Howell recommended three specific course-design principles to minimize student dissatisfaction with online learning: using problem-based learning in lieu of lectures, creating connections between students, and individualizing the course. She recommended the addition of "multiple sensory options" such as video clips and diagrams for visual learners, audio files for auditory learners, or creating online "manipulative" teaching aids for haptic learners. Katherine Holmes also supported this, advocating the incorporation of a variety of information types, including

text, graphics, audio, video, and simulation, to ensure that library tutorials maximize learning opportunities for all types of students. (Brown-Syed et al., 2005)

Many studies have shown that interaction is a key component to learning, as indicated by Brown-Syed et al. (2005):

According to Khaled and Baldwin, interaction helps to personalize the learning experience and helps learners process information. They found that global learners practiced each type of interaction (information, other students, and instructor) more than sequential learners. Over ninety percent of both sequential and global learners felt interaction with information was important to their learning. (Brown-Syed, Adkins, & Tsai, 2005)

Brown-Syed et al. discuss the types of learners: sensory, visual, active, and sequential. They offer alternatives for each in the distance education field. Sensory learners work best through their senses—touch, smell, taste, hearing, etc. They go on to say how an asynchronous Web-based learning structure may restrict the learning opportunities by relying too heavily on a decontextualized and text-based medium. (Brown-Syed et al., 2005) Alternatives for the sensory learner should be taken into consideration when developing the course. “However, Web-based instruction can be supplemented with out-of-class experiences, such as site observations’ (Brown-Syed et al., 2005, p. 21).

The visual learner likes to see the information they receive; graphical representation is the best medium for this learner. Distance education has an advantage for visual learners, as most of the content they receive can be transferred by some form of graphical representation. Ideas such as videos, pictures, and diagrams are just a few of the options available to the visual learner in distance education.

The active learner likes to be busy doing things, whether through experimentation, simulation, discussion, or any other type of

direct application of learning (Brown-Syed et al., 2005).

Online discussion boards can be used to simulate classroom discussion about students’ work activities. Additionally, case studies can be used with small discussion groups, to help students apply their classroom learning to “real life” situations. Short quizzes embedded into Web lectures may help active learners monitor their learning. (Brown-Syed et al., 2005, p. 21)

Initial class setup and design of a syllabus is crucial to the sequential learner. This learning style works well with step-by-step instruction connecting the steps to the larger whole (Brown-Syed et al., 2005). Brown-Syed et al. note that the global learner is different in that they like to understand the whole before they dissect it into smaller pieces. They further note that since these two learning styles are relatively balanced in numbers these different learning types can present a challenge in Web-based courses.

Classes might begin with an overall introduction of the relevance of the topic for example, discussing organization of information as a method of facilitating information access, before taking on the intricacies of cataloging rules. Web-based instruction also encourages the creation of highly structured course materials. (Brown-Syed et al., 2005, p. 22)

FREQUENCY AND TYPES OF INTERACTION

Social integration should be one of the main aspects of interaction with distance education, largely due to its impact on learning through the cognitive process as well as the overall course satisfaction. Kreijns et al. talk about some pitfalls when it comes to social interaction that can be used to ensure a disciplined process is incorporated into the design of a course.

If it is so evident that social interaction is a prerequisite for collaboration and collaborative learning, why then do educators, instructors, and designers often appear not to pay the needed attention to it when using or designing CSCL environments? There appear to be at least two factors identifiable which can be seen as pitfalls to social interaction. Pitfall 1: Taking social interaction for granted; Pitfall 2: Restricting social interaction to cognitive processes. (Kreijns et al., 2003, pp. 340-342)

Let us look at these pitfalls. Often social interaction is taken for granted. Since social interaction does not need to be designed into a face-to-face course the thought is generally the same for distance learning. The thought is that it will happen naturally just as it does with face-to-face learning. "If we discount the problem that most educators do not know what they have to do in order to encourage social interaction (Kearsley, 1995; Rourke, 2000a), what remains is the observation that a majority of educators—consciously or unconsciously—takes social interaction for granted" (Kreijns et al., 2003, p. 340). Kreijns et al. go on to say that inclusion of technological media with the means of communication as well can lead to taking for granted that the social interaction will happen. Just because the media are available does not necessarily mean the interaction will take place appropriately; some structure should be built in to ensure the interaction is useful and productive.

The second pitfall listed by Kreijns et al. is restricting social interaction to cognitive process. They explain that there needs to be a sense of community built among the learners. The learners need to feel comfortable with each other. In order to allow the opportunity to be vulnerable and share openly the learner needs to have built a comfort level among other learners. Activities that help to foster this level of comfort should be built into the course as well. Some ideas would be to encourage the

learners to share their biography to introduce themselves, as well as establish some chat sessions to ask questions about their personal or work lives.

"An interaction is commonly understood to describe actions among individuals" (Bernard et al., 2009, p. 1247). Bernard et al. goes on to say that there are basically three types of interaction: student-student, student-teacher and student-content interaction. Student-to-student interaction is just that, interaction that happens among students. This interaction can be synchronous such as videoconferencing and chatting or asynchronous through discussion boards or e-mail messages. This interaction could happen face-to-face with distance education becoming popular among on-campus students (Bernard et al., 2009).

Student-teacher interaction is crucial at the beginning of the course in order to establish/encourage open dialogue relationships with the instructor from the beginning of the course. The instructor seeks "to stimulate or at least maintain the student's interest in what is to be taught, to motivate the student to learn, to enhance and maintain the learner's interest, including self-direction and self-motivation" (Bernard et al., 2009, p. 1248). This interaction may also come in the form of synchronous through telephone calls, videoconferencing, and chats as well as asynchronous through mail, e-mail, and discussion boards. Bernard et al. also stated that, as with student-student interaction, this can be face-to-face as well with a blended classroom environment (Bernard et al., 2009)

Student-course interaction refers to students interacting with the subject matter under study to construct meaning, relate it to personal knowledge and apply it to problem solving. Moore (1989) described SC interaction as "the process of intellectually interacting with the content that results in changes in learner's understanding, the learner's perspective, or the cognitive structures of the learner's

mind... SC interaction may include reading informational texts, using study guides, watching videos, interacting with computer-based multimedia, using simulations, etc. (Bernard et al., 2009, p. 1248)

Another cutting-edge interaction tool is mobile technology. This new technology can have advantages as well as some disadvantages, consider this: "While mobile technology enables such flexibility, it is not without its drawbacks. Learners may find it difficult to adjust to study while in transit or in nontraditional environments" (Koole, McQuilkin, & Ally, 2010, p. 61).

CONCLUSION

Distance education can be seen as an easy format to facilitate, taking less time than a typical instructor led face-to-face course. However, excellent distance education courses can often take as much if not more time than a typical classroom setting. This can cause facilitators to slight certain areas of the instruction if they are taxed for time. As Orellana (2006) noted, often facilitators will take the easy way out for facilitation:

Respondents to the CSIQ commented the following: "If I'm teaching a class (as an adjunct) in addition to my "regular" full-time job, I may not incorporate as many interactive activities, regardless of class size" (Respondent 32); and "most adjunct professors have other jobs and tend to do feedback two or three times a week ... not daily" (Respondent 7). (p. 149)

Facilitators and designers of distance education must maintain the high standards that are expected with all forms of face-to-face education. "Highly facilitated interaction implies the use of emails, frequent phone conversations, the use of collaborative tools such as threaded discussions and synchronous chats" (Cavanaugh et al. 2009). In order for distance education to maintain a highly effective

presence those involved need to maintain high standards. As Chang and Smith (2008) noted, "The most significant contributor to perceived learning in these online courses was the interaction between the instructor and the students" (p. 412). Learner satisfaction in the course often has an impact on the learning received.

REFERENCES

- Bernard, R. M., Abrami, P. C., Borokhovski, E., Wade, C. A., Tamim, R. M., Surkes, M. A., & Bethel, E. C. (2009). A meta-analysis of three types of interaction treatments in distance education. *Review of Educational Research*, 79(3), 1243-1289.
- Brown-Syed, C., Adkins, D., & Tsai, H. -H. (2005). LIS student learning styles and Web-based instruction methods. *Journal of Library & Information Services In Distance Learning*, 2(1), 5-26.
- Cavanaugh, C., Barbour, M., Brown, R., Diamond, D., Lowes, S., Powell, A., ... Van der Molen, J. (2009). *Research committee issues brief: Examining communication and interaction in online teaching* (Report No. ED24) Retrieved from International Association for K-12 Online Learning website: <http://www.inacol.org>
- Chang, S. -H. H., & Smith, R. A. (2008). Effectiveness of personal interaction in a learner-centered paradigm distance education class based on student satisfaction. *Journal of Research on Technology in Education*, 40(4), 407-426.
- Clark, R. E. (2001). *Learning from media: Arguments, analysis and evidence*. Greenwich, CT: Information Age.
- Koole, M., McQuilkin, J. L., & Ally, M. (2010). Mobile learning in distance education: Utility or futility? *Journal of Distance Education*, 24(2), 59-82.
- Kreijns, K., Kirschner, P., & Jochems, W. (2003). Identifying the pitfalls for social interaction in computer-supported collaborative learning environments: A review of the research. *Computers in Human Behavior*, 19, 335-353.
- Orellana, A. (2006). Class size and interaction in online courses. *Quarterly Review of Distance Education*, 7(3), 229-248.