
Online Best Practice: Interaction Matters

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This article addresses some of the issues that are critical to improving quality in the delivery of learning opportunities in higher education. The authors assert that interaction, in all its varied forms, is important to achieving that objective. Interaction may take different forms in the varied face-to-face or online delivery systems – yet each can be equally effective when properly understood and implemented. The authors identify changing roles that professors and students may need to recognize and adopt in order to achieve quality interaction processes for each delivery system. Appropriate interaction in online teaching and learning is the main focus of this article. Pragmatic suggestions are also offered that can be implemented to attain the objective of providing quality learning opportunities in a variety of learning environments.

Key Words: Computer-mediated communication, Asynchronous communication, Classroom interaction, Online best practice

Introduction

A growing literature examines quality in distance education teaching and learning. Typically, this literature attempts to compare the quality of online with the quality found in face-to-face classrooms, apparently assuming that generic online and face-to-face classrooms exist and that these can be fairly compared. The concern by educators and others about online quality may be partly personal and philosophical. Some traditional face-to-face classroom professors are skeptical about whether the ability of students to learn if they are not physically present with the professor. Some claim that professors need to sense the responsiveness of students in the classroom environment for effective teaching and learning to take place. Online professors may respond that although online classrooms are different from face-to-face classrooms that they are not necessarily better or worse, and that learning depends on the structure and system used in the classroom. This article identifies student participation as a classroom characteristic necessary for quality teaching and learning in the online classroom.

Contemporary online classrooms are capable of going far beyond putting the syllabus, reading list, and other content on an ftp site available to student access. Technology support for distance education is now both more stable and accessible than even five years ago. Computer systems are generally as reliable now as toasters or televisions and are ubiquitously available in most homes or business offices. The development of broadband Internet connections and wireless applications facilitates ability and convenience in accessing course content, professors, and peers in the interactive online classroom.

The skeptic traditionalist's attitude toward distance education is perhaps caused by misunderstanding, experience with earlier forms of online education, or even ignorance. Regardless of delivery system or model many factors need to converge when creating quality education, and understanding the different types of convergence in various delivery models should be the objective of educators concerned with quality. The important question is not "what is quality distance education", or even "what is quality lecture-based education?" Instead, we need to understand "what is a quality teaching and learning experience?" This article argues that a quality experience is as possible online as in face-to-face classrooms.

A major determinant of quality is the extent of interaction within the classroom. This interaction can be between professors and students, between members of the classroom student cohort, or students and professors with the course material. This paper explores interactivity in the online classroom. This paper also explores the differences between face-to-face synchronous communication and online asynchronous communication. The paper closes with some prescriptive suggestions for using asynchronous communication to strengthen online classroom interaction and improve outcomes.

The Interactive Classroom

Contemporary organizations must continually upgrade organizational skills if they wish to stay competitive in the dynamic and increasingly global business environment. A force for change in educational systems is the growing number of non-traditional students attending higher education classes. These students often have full-time work and family responsibilities along with their need for further education. This upsurge of non-traditional students needing post-secondary education, coupled with budget constraints in public funding, results in educational institutions searching for innovative ways to meet these challenges. Distance education, especially online classes, and other technologically or computer-mediated teaching models provides one approach in meeting this growing need.

Recent studies both justify and criticize distance education as contrasted with traditional delivery systems (Glenn, Jones, and Hoyt, 2003). A problem with many of these comparison studies is that they are idiosyncratic to specific courses, professors, or programs, or alternatively compare the straw man of generic online with generic traditional classrooms. What is often missed is that online quality varies from the truly pathetic to the truly remarkable – the same variance as in traditional face-to-face classrooms. The most common conclusion in these studies is that there is no significant difference in levels of student achievement online or face-to-face, but comparing a superior course to a poor course, regardless of delivery method, makes many comparisons suspect if not pointless. Having a variety of delivery systems that are beneficial to students in different ways is perhaps the answer.

On the one hand, there are advantages that distance education and/or computer-mediated learning creates because of the dependence of these learning models upon asynchronous written interaction compared to face-to-face synchronous learning models. However, many argue that fewer opportunities exist in the computer-mediated online classroom for interpersonal exchanges between instructors and students, and that this limits learning processes and outcomes. This argument claims that alternatives do not exist in asynchronous interaction to compensate for this missing interpersonal synchronous connection. These educators essentially argue that the virtual classroom cannot provide professor-student experiences that are as meaningful as those found face-to-face. However, an equally persuasive argument can be made that the personalized interaction in the traditional classroom is fleeting, whereas technology mediated interaction in the asynchronous discussion model is recorded and archived for on-going review and reflection. The archival ability compensates to some degree for the lack of personalized face-to-face contact. Interaction is different in the online classroom as compared to the face-to-face classroom.

Importance of Interaction

Regardless of delivery system, teaching presence has been consistently identified as critical to creating and sustaining a quality learning experience (Anderson, et al., 2001). Teaching presence does not necessarily mean physical presence. The 24/7-asynchronous interaction available in online courses lends itself to this challenge. Dramatic shifts and improvements in distance education have occurred over the last half decade, partly because of experience with computer-mediated asynchronous discussion and partly because of technology improvements. Online teaching is more effective and instant than the old-fashioned correspondence school process, which many early online classes tried to emulate. Today, many participants including students, professors, and program designers expect a constant and continuing interactive exchange between all in the learning cohort in the online classroom (Swan, 2004; Shea, Pickett, and Pelz, 2004). Ironically, being an effective face-to-face teacher does not automatically translate into teaching effectiveness in the online environment. Quality and success in the online

classroom requires a change of student and professor roles, and requires recognition of the need for developing new skills, abilities, methods, and philosophy for success (Picciano, 2001).

The Differences between Synchronous and Asynchronous Interaction

The differences between synchronous and asynchronous interaction (AI) need to be clearly understood before increased interaction can occur in the online computer-mediated classroom. Computer-mediated communication technologies increase the ability to collect or distribute information faster, but also allow the creation of larger or geographically dispersed student groups, thereby adding the opportunity for increased diversity in the classroom, at relatively low cost. Virtual student cohorts depend on each other in different ways, and so team norms, roles, and procedures are often also changed relative to face-to-face teams (Sproull and Kiesler 1991). Group interaction online, while different in context from a traditional classroom environment, offers the opportunity to experience these activities in ways that contribute to the real world challenges such as corporate virtual teams that students are likely to face in their professional careers.

Nonaka and Takeuchi (1995) suggest that AI offers learners advantages over face-to-face interactions including expected and active participation of all students, flexibility for both students and professors of when to interact or participate over time and distance, availability of time for students to reflect or collect additional data before response, more democratic or equal student participation, and instant and evolving archived record of the discussion and process. In addition, technology enhanced experiences can broaden student opportunities through simulations, more immediate access to massive amounts of information through the web, and other related factors. These benefits may be increasingly crucial as students demand increased flexibility and control over their learning experiences, and create both opportunities and constraints for changed professor and student roles in the online classroom.

AI is a specific type of computer-mediated communication that allows parallel and simultaneous response by many students. AI is interactive and

collaborative because it enables one-to-one, one-to-many, many-to-one, and many-to-many communication interactions (Berry 2004), whereas many-to-one or many-to-many communication is very difficult in face-to-face or traditional synchronous communication. Best practice in the AI classroom establishes a virtual site devoted to student tasks or problems where they can make their own contributions, and read and study contributions made by others 24/7. Students contribute where and when relevant without communication blocking as is common in face-to-face classrooms (McLeod 1996). Discussion evolves over hours, days, or even weeks, depending on class deadlines; instant responses in AI are rare although not impossible. Students have an opportunity to be more thoughtful than in face-to-face interaction because of the availability of a time-pause before response. Students can also dedicate sufficient time to the issue at hand when personally convenient instead of when scheduled by the professor.

Most of the literature examining interaction uses face-to-face communication as the norm or standard. Student communication through AI works in a different physical and social milieu than face-to-face communication. The challenge in using AI is to capture the content and process quality benefits of face-to-face interaction. The challenge is also to reduce or remove detrimental factors common to synchronous communication such as time pressures, group size, scheduling problems, and inaccurate group memory.

The Role of the Professor in Best-practice Online Classrooms

The professor is critical in creating quality in any classroom, online or face-to-face. The professor must be aware of teaching activities that most easily enable student understanding, and retains the role of academic expert regarding content concepts and principles (Biggs, 1999). The foundation of effective online classrooms is student centeredness. The online professor's contributions to the student-centered online classroom are both academic and non-academic, and so the professor is both content expert and classroom facilitator. Academic contributions might be corrective, informational, or Socratic, including the sharing of relevant course-related personal experience (Cronje, 2001). Non-

academic contributions might be administrative, purely social, or motivational.

The online professor's role is not necessarily different from the role assumed by the creative small-class-size face-to-face professor, but is significantly different from the role of the large-class-size lecture-based professor. The online professor's role has changed from being the font of all valid knowledge who is responsible in some manner for student learning, as in the lecture-based class. The new online role is that of facilitator and coach who provides resources, opportunities, and encouragement for students to be responsible for their own learning and knowledge. The best-practice online professor is no longer the sage-on-the-stage but has become the facilitator of learning, more like a guide-on-the-side (Collison, et al., 2000), as students work to understand the meaning of the course content in part through conversation and interaction with each other and the professor.

The professor's role needs to be re-conceptualized to allow maximum independence in the student cohort, although the professor is still responsible for grading and grade giving. Yet, expectations and experiences from the lecture-based classroom carry over into the online classroom for both student and professor, and so a stepping-back on the professor's part to allow student confusion and discovery can be initially difficult for both students and professor. Essentially, the professor moves away from the lecture and toward the use of interactive learning approaches such as the use of discussion threads to explore multiple topics simultaneously (Palloff and Pratt, 2001). The professor is not unilaterally in control of the discussion or the learning, but effectively shares control of the class with the student cohort by no longer being the sole voice of expertise or knowledge.

A challenge in online classrooms is in encouraging student discussion to progress beyond the sharing of basic information, experience, and opinion, to more analytical and critical thinking levels (Garrison, Anderson, and Archer, 2001). This challenge is partly met by the online professor actively participating in the discussion threads, referring students to information sources such as book or article references and relevant web-links, or otherwise critically commenting on student

contributions (Anderson, et al., 2001; Vrasidas and McIsaac, 2000). A fundamental task in the effective online classroom is for the professor to facilitate interaction to enable peer-to-peer learning

A core responsibility of online professors remains direct involvement in the presentation of subject matter (Anderson, et al., 2001; Garrison, Anderson, and Archer, 2000). Effective set-up of the initial discussion threads through the discussion questions is a key responsibility. The professor is responsible for keeping the multiple discussion threads on track, and weaving together the various discussion threads and course components to create a unified course (Parry and Dunn, 2000). Given the ability of students to establish their own subsidiary discussion threads, this usually requires much more synthesis than typically required in the professor-controlled classroom.

The best-practice online professor's role includes building a learning community among learners, consciously incorporating cohort collaboration into the learning process, and, critically, enabling and empowering students to be responsible and active learners. The major purpose of teaching in the online environment may be in assisting students to move from a position of dependency on the instructor to one of self-reliance in learning (Berge, 1999).

The Role of the Student in Best-practice Online Classrooms

Students in online classes have a role and responsibilities that are considerably different from their role and responsibilities in lecture-based classrooms. The online student is commonly expected to be in constant interaction and discussion with others in the cohort (Harasim, 1990; Brown, 1997), a dynamic rarely found in lecture-based classrooms. Online students move from being passive recipients of knowledge chosen by others to being active constructors of knowledge that is personally relevant and valid (Greeno, Collins, and Resnick, 1996). Course content is derived from the textbook and the professor (as in the lecture-based classroom), and from the ongoing discussion as everyone in the cohort contributes experience, examples, other resources from other (often) electronic sources, and perceived meaning.

Online students are challenged to justify what they think and believe, and this is different from many lecture-based classrooms where student perspectives are rarely heard, defended, or discussed (Hacker and Niederhauser, 2000; Simonson, et al., 2000; Richardson and Swan, 2003). This is a direct result of the computer-mediated asynchronous interaction as every student has unlimited opportunity to participate, and is not physically blocked from interacting as in synchronous discussion. In best-practice online classrooms every student contributes. Likewise, the experience of creating personal relevance and meaning is an expectation in the online class for every student.

The online student is expected to be more responsible for his or her own learning instead of being dependent on the professor as the expert and provider of instruction (Berge, 1997). The online classroom flattens the traditional top-down hierarchy, at least in part, and power and control is shifted in part to the student (Schrum and Benson, 2000; Schrum and Hong, 2002). This transfer of control is accomplished partly through the pedagogical design of the course, partly through the tools provided by computer-mediated communication technology, and partly through the professor's conscious choice in creating and enabling a student-centered classroom. The professor's initial posting of questions is only the starting point for cohort discussion, and not a constraint or limitation on student interest or choice for ongoing discussion.

The process of ongoing discussion and reflection through writing is fundamental to the online learning process. In best-practice online classes this cohort contribution often exceeds several hundred postings per discussion, per week, in a fifteen to twenty student class. This is possible only because students can all *talk* at once and do not have to wait their turn to talk as in a synchronous classroom. Many students perceive peer-to-peer explanation or shared experience as more valid or relevant than professor or textbook explanation (Knowlton, 2000; Schrum and Berge, 1998). This articulation of learning requires intentional effort to relate new learning to past learning and experience (Jonassen, et al., 1995), but also creates challenges for online faculty as they guide the student-centered discussion.

Online asynchronous discussion enables collaboration and interaction because students do not have to compete for voice time, and all students are encouraged and expected to contribute and share as much as they can in the 24/7 classroom (Thorpe, 1998; Berry, 2005). Students are able to reflect on their own experience and abilities relative to the perceived or stated abilities of their classmates, and thus gain a better awareness and understanding of their own strengths and weaknesses (Hacker and Niederhauser, 2000). The pedagogical objectives of articulating, analyzing and synthesizing are well served by the high amounts of interaction in the online classroom (Neal, 1998; Weiss, 2000), and not surprisingly, higher levels of student interaction are correlated with higher levels of student satisfaction and learning (Meyer, 2003). The change from synchronous to asynchronous communication, when combined with the subsequently changed roles for both students and professors, establishes the context for improving interaction in the online classroom.

Suggestions for Increasing Interaction in the Best-practice Online Classroom

To increase interaction online professors need to consciously create student-centered classrooms. Second, both professors and students need to understand their changed role in the online classroom, if a quality learning experience is going to take place. The expanding use of course management systems within higher education delivery of distance education supports the ability to expand varied interaction elements. When appropriately employed course management systems significantly contribute to the learning process.

Interaction between students in the peer cohort is the foundation of student-centered online classrooms. Interaction between professor and students, while still important, is less important online than in the lecture-based classroom. The use of the bulletin board or dedicated discussion groups available in online courses increases interaction both student to student and student to professor. Best practice in asynchronous learning models requires students to carefully consider and present their thoughts to the ongoing cohort interaction, necessitates responses from all students and allows time for reflection. These measurable interactive exchanges can be

evaluated in terms of quality by the professor and can assist in determining grades.

Postings are immediately available to all students and the professor, and are permanently archived. Everyone in the class is expected to contribute to each and every discussion, an expectation completely impossible in the traditional lecture-based class. Content questions are asked and answered within a peer and professor network of discussion and interaction. The public forum allows professors to answer questions only once instead of responding several times to similar questions from individual students. Professors encourage the evolving thread, offer ongoing examples of acceptable participation and etiquette, and can make appropriate changes if discussions go awry. Students need to understand that participation is a critical aspect of online courses, and that success requires active and almost daily contributions to all discussions.

The following suggestions may assist in increasing interaction:

Ice Breakers. Require students, early in the semester, to participate on the discussion board. Make it clear that they will be graded on the relevant contributions they make to the discussion. Begin with basic assignments that allow students to familiarize themselves in how to use the system effectively and then move to more sophisticated assignments. It is useful to set up individual forums for the variety of assignments that will be developed during the course of the semester. An early assignment might ask the student to create a biographical sketch or outline what they believe they will learn from the course. These introductory assignments can also be used to allow students to identify two or three people that they would be willing to work with in future group assignments.

Reflective Analysis. A more sophisticated assignment asks students to prepare a written *think piece* in response to an article from a professional journal as assigned by the professor. Students post responses on the discussion board and then critically analyze each other's views. The combination of having to do the original writing on the topic, reviewing peer ideas on that same issue, and then responding in the form of continuing discussion is the

type of learning that meets the highest objectives outlined in Bloom's Taxonomy.

Expect Students to Create Their Own Discussion Threads. Identify an expectation at the beginning of the semester that students discuss questions that arise in their learning on a specified area of the classroom discussion boards. These self-initiated postings can be evaluated to insure that they reinforce course related discussions as contrasted to socially focused postings.

Chat Rooms and White Boards. Chat rooms provide an opportunity for synchronous discussion of issues appropriate to the course. The further availability of white boards enables students to draw equations and graphs such as are necessary in some finance, economics, and statistics courses. These white boards are just as accessible as the white or chalk board in the face-to-face classroom.

Collaborative Presentations. Most existing course management systems have a tool that enables students to develop audio/visual presentations as a group. Groups can develop their work privately in computer-mediated areas only available to that specific group. Research, writing, and organization can be done within the group and then posted publicly for review by the rest of the student cohort. Peer review of group projects offers opportunities for further interaction and aids in learning complex materials.

Final Reflections on Interaction

The fluidity and constant dynamism of the learning process present a continuing challenge to those who teach as well as those who are trying to learn. Ongoing efforts to improve the quality of learning experiences are an important element in coping with this challenge. Answers to this challenge should provide quality in learning regardless of the delivery model chosen. Lessons can be learned in face-to-face classrooms that are useful in the online environment, but the reverse is also true.

The importance of interaction, in its myriad of processes, includes the professor with students, and students with each other. The key to achieving a quality learning experience is interaction which creates learning that is personal and relevant. This

interaction can be achieved online as well as in the traditional face-to-face classroom.

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