Interaction: The Vital Conversation in Online Instruction

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Abstract

History has shown the importance of interaction in the online teaching/learning environment. The World Wide Web has allowed interaction to expand the cognitive process by facilitating the construction of personal knowledge. The web, however, has been both a challenge and an opportunity to interaction. This paper draws on the literature to illustrate how interaction enhances learning and how that interaction can be expanded through new techniques and tools.

Keywords: distance education, interaction, constructivism, online learning

Introduction

In 1896, Anna Ticknor established the Society to Encourage Studies at Home. The correspondence schools offered interaction through comments on student papers which were exchanged by U.S. Postal Service. This slow exchange necessitated weeks of wait time between exchanges. With the advent of the World Wide Web in the mid-1970's, the lag time or exchanges between the instructor and the student were greatly reduced. By 1990, college and universities were implementing online education programs and students could potentially receive instructor feedback instantaneously. In the preliminary days of online education, instructors had few skills for interacting with virtual students and the necessity for interaction had not yet been established in the research (Anderson & Elloumi ,2004).

As the opportunities for interaction increased, so did research to support interaction as a prerequisite to the learning process. Numerous studies illustrated high levels of interaction as having positive influence on the learning experience (Gunawardena 1995; Belen, 1999; Bearly, 2009). Lee, Driscoll & Nelson (2004) agreed with these findings and said that student to student and student to faculty collaboration was a strong factor not only in retaining students in an online environment but also in motivating the students to a higher level of cognitive achievement. McElrath & McDowell (2004) concurred by saying that failure to provide a highly

interactive online environment for distance education students can lead to feeling of isolation, reduced levels of student satisfaction and increased attrition.

The purpose of this paper is two-fold. First a review of the literature will establish interaction as a critical component in quality online instruction. Second, techniques gleaned from the literature will illustrate how high levels of interaction can be initiated and maintained in the online environment.

Defining Interaction

Interaction has progressed through a series of definitions as it relates to today's electronically-mediated communication between instructors and students. Thurmond (2010) defined interaction as:

> …the learners' engagement with the course content, other learners, the instructor, and the technological medium used in the course. True interactions with other learners, the instructor and the technology result in a reciprocal exchange of information. The exchange is intended to enhance knowledge development in the learning environment (p.4).

To fully understand interaction, each of the components of Thurmond's definition requires further explanation.

Learner to content

Learner to content interaction occurs when the online student examines the course content and begins to develop their individualized learning path. This learning path can be accentuated, says Picciano & Seaman (2009) if the design of the course content encourages students to expand their thinking and to approach the topic in a variety of ways. When a multiplicity of interaction with the content is available, students report an immediate sense of confidence in the online environment (Ritter, Polnick, Fink & Oesher (2010).

Learner to instructor

Learner-instructor interaction is technology-mediated communication between faculty and student which is focused on reinforcement of student understanding of the course content. Students use this mode of communication to clarify nebulous points and establish correct interpretations of course information. In the traditional classroom, few students are willing to ask for clarification due to fear of failure ((Fung, 2004). The electronic classroom, on the other hand, allows for anonymity and eliminates fear of the "stupid question" (Beard, 2007).

Interaction between instructor and students changes the role of the instructor from lecturer to facilitator. This role change, says (Berger, Jackson & Willis, 2009), results in instruction that is often richer and more poignant than that in a traditional setting. This is because the instructor can guide the student to construct their own new knowledge and can

help to individualize the learning process. Thurmond (2010) found students who reported experiencing a sound academic relationship with their instructors also experienced a fulfilling learning experience in which new knowledge was constructed and evaluated for accuracy.

Other important aspects of *Learner-to-Instructor* interaction are timeliness and personalization of the interaction. Beard (2007) reported that feedback must be given within 24 hours and must be directed personally to the individual student. Both of these components in the *Learner-to-Instructor* interaction allows for the enhancement of the original topic. Beyth-Maron, Saporta & Casspi (2005) suggested that instructors answer each question and then pose a related question to increase critical thinking. In this way, cognitive appreciation for the topic can be spiraled to new levels.

Learner to learner

Learner-Learner interaction is communication between two or more students in the class. This type of interaction has two purposes. First it provides an avenue for students to validate their understanding of the topic and to share their perceptions with others in the class (Hackman & Walker, 1990). Second *Learner-Learner* interaction builds social networks and social bonds among the members of the class.

The *Learner-to-Learner* interaction in a traditional classroom includes a degree of body language and also eye contact. Both are excluded in the electronic setting, but communication

can be enhanced through the use of type styles, tones of voice, and even color in the written words (Bandura, 2008). Humor can also add to the understanding. All of these techniques potentially expand understanding and help to convey meaning related to the interaction.

Moore & Kearsley (2005) expanded the view of *Learner-to-Learner* interaction by saying collaboration among students has shown to lesson feelings of isolation and promote a sense of community within the electronic classroom. Additionally, Jaffee (2007) found students who were reluctant to speak out in a traditional setting, were more willing to be involved in online discussions due to the anonymity of the virtual classroom. These same students reported enjoying the interaction and potential to share new ideas in this seemingly safe environment.

Learner to interface

Finally, *Learner to Interface* interaction provides the foundation by which the course content is delivered. The learner must interact with the computer, the webpage, or the platform being used to deliver the content. The outcome of the *Learner to Interface* interaction has been studied by many researchers (Liu, Bonk & Lee 2007; Lou, Bernard & Abrami 2006; Hutchins 2009). The overall finding in these studies has shown that technology needs to be seamless and allow the content to be the main focus of the learning. The manner and frequency with which the student interacts with the technology is positively correlated with the level of achievement in the learning. The more frequent the communication, the higher the

potential achievement levels reported Honoky (2011). The desired outcome of *Learner to Interface* instruction is that students learn the content and that the technology fosters a willingness to continue learning in a technology – mediated environment. McInnerney & Roberts, (2004) recounted two variables linked to *Learner to Interface* interactions; (a) computer experience and (b) access to technology. Each necessitates further explanation.

Computer Experience

Online education requires students enter the electronic classroom with computer literacy skills developed to such a level that navigation of the interface is effortless (Waiger, 2007). These skills also involve the ability to navigate the Internet and conduct elementary searches. Students lacking these basic computer skills often reported a feeling of frustration and stress with *Learner to Interface* interaction (Anderson, 2004). While the majority of students in Anderson's study reported dissatisfaction due to limited computer skills, another cadre of learners provided an opposite view (Arbaugh, 2000). This second group reportedly dreaded the time needed to learn the basic operations of the computer and the online interface. Once the learner developed confidence with the technology, the dissatisfaction changed to a receptive position (Anderson, 2004). This was partially due to the student's ability to now access their course content 24/7. Interaction with the interface increased student independence and fostered a sense of self-responsibility (Biggs, 2010). The students overcame

the frustration associated with their previous lack of computer skills and reportedly found the interactive nature of online learning as pleasantly addictive (Borokhovski, Wade, Tamin & Surkes, 2008) .

Access to Technology

Although entrance to an online class requires access to technology, many students have reported having inadequate or only intermittent access (Gallagher-Lepak, Reilly & Killion, 2009). Despite students having been informed about the hardware and Internet requirements, some registered believing a solution would be identified prior to the completion of the class. Lack of access can lead to even more stress and frustration as assignments begin mounting up and the hardware is not readily available to complete the work (Drouin, 2008).

Access also involves incompatibility between the personal computer system and the Learning Management System (LMS) used to deliver the course content. Providing technology specifications can help alleviate this issue but only if the student understands how to check for the compatibility on their personal system (Robinson & Hullinger, 2008).

Defining interaction encompasses more than designing frequent communication activities for the course constituents. As the review of the literature has indicated, the definition of interaction involves more than the students, the instructors, and the technology. It

also necessitates timely feedback, as well as the ability to interact effectively with the content and the learning management system.

Why is Interaction Crucial to the Success of Online Education?

Distance Education is growing at an exponential pace in the United States and globally. The Sloan Consortium (2012) reports the number of students taking online classes will exceed 6.1 million in 2012. This is a ten percent growth over 2011. The ten percent growth rate far exceeds the one percent growth rate of the overall higher education traditional student population.

While the growth rate is impressive, it is important to assure that the students receive the same or better education than that offered through a traditional setting (Simpson, 2002). Due to the very interactive nature of the Internet and the platforms used to deliver instruction, today the opportunities for this crucial element of learning have been enhanced. Interaction, if utilized correctly in the electronic classroom, has the potential to focus and expand the learning experience (Ullah & Wilson, 2007).

A study by Vgotsky (1978), which is over 30 years old, still provides a framework illustrating the need for interactivity in the learning process. Vygotsky stated that collaborative learning is necessary to build cognitive processes for each individual student. Without interactions among students and between students and instructors, the process of online

learning is severely limited. More current research by Moore & Kearsley (2005) showed that online instruction can exceed that of the traditional classroom if the interaction is timely and focused on expanding the cognitive process.

While the significance of interaction is not in question, distance education has brought new challenges to the learning and teaching process. Waiger (2007) points out three of the challenges related to creating this very critical communication. The first challenge in online interaction is that the curriculum design remains focused on the course content rather than on providing provocative activities that encourage interaction. The content is the meat of any instruction but if the understanding of the content is not expanded through conversation and questions, then the learning remains elementary (Swan, 2010). Interaction takes the rudimentary learning experience and challenges the students in such a way as to encourage in-depth understanding and critical thinking about the topic (Thorpe & Godwin, 2006).

The second challenge lies with the faculty's lack of appropriate training to facilitate online communication among students and between students and instructors (Swan, 2010). Quality interaction is a science as the questions need to be formulated in such a manner as to expand the thinking. Knowing how to challenge students to reflect at a higher level takes training and experience (Thorpe & Goodwin, 2006). Discussions which augment the content, reports Volery, (2001), lead to a deeper understanding of the material.

The final challenge is, faculty and students are often unaware of the communication tools provided by their Learning management System, i.e. Blackboard. Each year, many new delivery platforms are pioneered Volery (2001). With such diversity in the technology, faculty are often at a loss of how to remain current with the myriad of new communication tools. Instructors reported that learning new technologies is not only time consuming but also takes away from their work in course preparation and teaching (Wallace, 2003). Further research by Dunlap, Sobel & Sands (2007) clarifies that if the interactive tools are not seen by instructors as readily available and simple to use, the tools will remain on the shelf.

Isolation vs. Sense of Community

Online students often report a feeling of isolation in the online classroom (Collins, DeBoer & Slotman , 2001). If opportunity for discussion is provided, the communication is often linked to a specific topic or assignment. There is little time devoted to general conversation. Prior to establishing a foundation on which a sense of community can be built, students must have numerous opportunities to interact with the online environment. Elrich (2002) offers a passage in his book "*No Sense of Place*" to capture the notion of isolation. "Our world may suddenly seem senseless to many people because, for the first time in modern history, it is relatively placeless" (p.52). Online students are articulating this "placelessness" when interaction is only devoted to assigned topics and associated with grades. Numerous studies

have pointed out the idea of learning as a social activity and the necessity of building an online learning community (Horoky, 2011; McElrath & McDowell 2008; Ritter, Polnick, Fink & Oescher, 2010). Therefore how to proceed to set up such a community is an important topic for many online course developers, program administrators, and instructors.

Bridging the virtual distance involves developing a community, a sense of place, for both student and instructor. It is not necessary to sing “Kum-ba-ya” but simple methods for creating a welcome feeling in the initial weeks of the class are important and easily supported by electronic classroom tools (Wagner, 2004).

Research by Exter, Korkmaz, Harlin & Bichelmeyer (2009) indicates students who lack a sense of community feel posting a message to a discussion is like putting a note in a bottle and tossing it into the sea. Without timely feedback and interaction, the student is never sure their message has reached the receiver, has been read, or has been accepted. Added research by Faux, Black-Hughes (2000) suggests that a sense of community increases critical thinking by all members of the learning community and enhances the learning experience. Picciano & Seaman’s (2009) work continues this premise by stating for online learning to be effective; it must be more than an electronic learning environment. Instead the environment must be humanistic, full of participation and feedback. Through a sense of community the student begins to develop as a self-actualizing citizen.

While a sense of community provides a foundation on which to assess one's own learning, Ritter, Polnick, Fink & Oescher, (2010) contend that an additional component is necessary. The student must have a feeling of self-worth or personal autonomy within the community. The World Wide Web allows students to access numerous paths on a single topic, and to determine how their own individualized learning will be constructed. The web also allows the student to regulate the amount of information being received and to authenticate the new knowledge by interactions with the community. Online also provides 24/7 access within a purposeful learning community and opportunities for reflective dialogue between the instructor and students, thereby cementing new knowledge with past information (Hutchins (2009). Students therefore, become responsible for constructing their own knowledge.

Constructivism

Constructivistic learning allows the student to construct knowledge from personal experience. It involves social interaction and collaboration to verify the link between new knowledge and that previously acquired (McInnerney & Roberts, 2004). The interaction provides the communication environment where students can share multiple perspectives, present personal experiences and question personal interpretations of the world and finally, learn the perspectives of others in the class. The interaction helps create socially constructed and verified meaning (Anderson & Ellourni, 2004).

In a subsequent study, Biggs (2010) suggested creating an interactive learning place in which students think and reflect on their beliefs and knowledge in a joint intellectual effort to add meaning. This same study suggests that a sense of community allows students to escalate learning levels by constructing knowledge and interacting with others. Interaction in the process of constructing new knowledge facilitates cognitive growth so learners construct personalized conclusions based on the collaboration that occurs through interpersonal communication (Berger, Jackson & Willis, 2009).

As the knowledge is being constructed, another important factor to note in an online classroom is the students themselves. Cultural backgrounds, skill levels, and learning styles all play a role in interaction.

Different Types of Students

Previously, this review of the literature has shown the difference in student's technical skills but other diversifications are important when developing quality interactions in distance education. Anderson, (2004) found to meet the needs of the diversity of students who enter the online classroom, the approach to interactivity needs to be carefully constructed. The course material must provide a series of learning paths in which to approach a topic.

The queries in the interactive portion of the class must be open-ended with more than a single correct answer. Allowing students to read the perspectives of others and to verify their own perspective broadens cognitive skills and critical thinking (Picciano & Seaman, 2009).

Culture and interaction

Cultural communication patterns are also important in the community of learners. Communication is both verbal and non-verbal even in the online classroom said Ritter, Polnick, Fink & Oesher, (2010). Cultural backgrounds can stand in the way of active communication as some ethnic groups do not value high levels of interaction. Instead, the culture may emphasize individual achievement. Failure to communicate can be subject to misinterpretation (Hackman &Walker, 1990). The lack of body language in electronic communication can also result in misunderstandings. Students utilize capital letters, colored type styles and even emoticons to convey their point effectively. These diversions from typical type styles require oversight by the instructor so as to achieve understanding as well as a safe environment for the sharing of ideas (Arbaugh, 2000).

Gender and interaction

Gender also adds to the communication patterns of students. Belen, Goldber,& Tarull (1999) suggest that males and female communication patterns are very different. These researchers define communication patterns as" the quality of one's communication that

conveys his or her attitude, personality and character" (P. 14). The work by Belen, Goldber,& Tarull (1999) also appears to influence the online communication dynamics. Women are more likely to seek supportive communication environments (Ehrish, 2002) and are thus likely to have significantly different expectations when it comes to the frequency and nature of communication in their online class. Instructors attempting to enhance the interaction must also keep in mind that messages from males, engaged in threaded discussions, tend to be more certain, confrontational, autonomous, and controlling than messages in the same class from females. The female messages are more empathetic and cooperative says Belen, Goldber,& Tarull (1999). Other research by Arbaugh (2000) found that women participated more than men in the class discussions and were more collaborative, while men were more competitive. This same research also found that females participated more when the instructor actively promoted a civil and focused discourse. These differences need to be understood and even utilized to promote interaction by both genders.

Status and Interaction

The Expectations Theory (Berger, Jackson & Wllis, 2009) predicts that students with self-proclaimed low status with their peers will interact less frequently and will feel less a part of the learning community than their peers who consider themselves as having a high status.

Bandura (2008) supports this finding by reporting that low status students engage less frequently in discussions and often do not complete the interactive portion of the online class.

Self-motivation, which is defined as the motive a student has to attain a goal, is an important consideration within the realm of status. Students who are self-motivated (internal locus of control) often show little desire to interact (Berger, Jackson & Willis, 2009). These students like to construct their own learning and interaction is often considered by internally motivated students as an intrusion in their learning path. On the contrary, for students who are not self-motivated (external locus of control) learners, the interaction becomes a way to validate their learning. These students seek the interaction to feel a part of the community (Beyth-Maron, Saporta & Caspi, 2005).

How to Achieve Quality Interaction

Starting as early as 1978 with Vygotsky's work on interaction and continuing to today's view of the importance of interaction in conveying learning, Banger's (2011) research has clearly shown that learning is a social activity and requires communication at its very foundation. Thus far the focus of this paper has been on establishing the need for the interaction and relating it to the diversity of the student in online education. The remainder of this paper will determine what methodologies are being used successfully based on the literature (McElrath & McDowell, 2008).

Guide on the Side

The first strategy for faculty is to facilitate the interaction in such a way as to develop and maintain an interactive presence but not be on center-stage. The challenge for the online instructor is to assure students that their posts are welcome and important to the well-being of everyone in the class. Doing this from the sidelines, is more of an art than a pedagogical science, reported Liu, Maguka, Bonk & Lee (2007). According to Knowles (1989)

> "An effective facilitator has unqualified positive regard for students and values their comments because of the substantial experience adult students bring to the class. He concluded that adult learners who sense a feeling of being valued for their contributions gain a positive attitude toward learning (p.45).

McElrath & McDowell (2008) also observed that the instructor's role takes on different orientations throughout the duration of the course.

> "Early in the term, the instructor is likely to lead by example and direct the discussions but, as the weeks progress, the instructor should assume the role of 'provocateur' rather than 'academician' and produce no more than 20 percent of the class input" (p. 127).

Similar research (Picciano & Seaman, 2009) also encouraged faculty to incorporate "real life" stories and humor to foster a discussion-friendly climate. The instructor must introduce themselves with more than a list of degrees and accomplishments. If the instructor is to become an effective facilitator in the community of learners, then their presence must be seen as a "real person" reports Bearly (2009)).

Humor and openness toward student ideas in the discussion continues to encourage participation.

The demeanor of the class also becomes important as it includes the rules to be used within the community. The rules of order are no different from those in a traditional classroom that relate to how the interaction will be controlled. To be most effective the rules need to be presented early in the term and understood by all. Finally, class demeanor means creating a safe and challenging online community in which participation is carefully monitored (Bearly, 2009). Strategies that promote effective discussion include motivating, inquiry with thought provoking questions, intervening effectively in group discussions and supporting individual students. It is important for the instructor not be the central focus of the discussion; nor should the instructor be an equal partner, yet the instructor's guidance is crucial (Berger, Jackson & Willis, 2009).

Interaction and Immediate Feedback

The second strategy is responsiveness or feedback to students. Feedback is recognized as one of the most critical components in the learning process says Dunlap, Sobel & Sands, (2007). Feedback must be timely (within 24 hours) and specific. Students who wait more than 24 hours feel their sense of isolation grow with each passing day. This is a negative loop that

contributes to a loss of sense of community and leads to lack of participation in future interactions (Gallagher-Lepal, Reilly & Killion, 2009).

Timely feedback provides the student with not only a sense of belonging but also a sense that their communication is read and important enough to warrant a quick response. The response does not necessarily need to come from the instructor as other students should be encouraged to respond and answer the questions of fellow students to the best of their ability (Thurmond, 2010). The instructor's role is now to monitor the replies for accuracy.

Giving immediate praise to students who offer responses, triggers the interaction to accelerate. Students are pleasantly surprised and motivated by a short reply from the instructor applauding them for their timely communication (Hackman & Walker, 1990).

Hutchins (2009) emphasizes the responsibility of the instructor is to deepen the thinking of the student though carefully constructed comments and questions. Knowing how to intervene is critical. Using names, a variety of tones and even humor can help move the students to a deeper understanding of the topic and open lines of communication. The facilitator is the "guide on the side" who must carefully monitor the discussion posts for accuracy and compliance with the rules. Interventions from the instructor are sometimes needed to bridge a cognitive gap in the understanding of the group (Jaffee, 2007).

Instructors who are best at facilitating interaction in online classes are those who are proactive, adaptive and resilient. These instructors seek to know the participants in the discussion and adapt their techniques to fit both the group and the individuals. This can sometimes mean encouraging more cooperation and less competition (Lee, Driscoll & Nelson, 2004). At other times it means emphasizing the importance of quality interaction or commending a student for their significant contribution to the interaction.

Although the development of the learning community ultimately lies in the hands of the online instructor, several course design techniques can enhance the communication structure. These include a grading structure developed to support expanded communication, use of biographical posts and a sharing of personal experiences related to the course content. Each technique requires further explanation (McElrath & McDowell, 2008).

The grading structure in an online course must stipulate the required number of posts and also the length of the discourse. A student who responds with “good job” should not be rewarded with the same number of points as the one who replies with in depth thought consisting of several paragraphs (Swan, 2010). At the same time, the student who rambles in order to receive a higher number of points needs to be encouraged to concentrate on the center point of the topic only. If the grading structure allows for students to share new

knowledge as well as related experiences and to talk to one another, McElrath & McDowell, (2008) believe unparalleled quantities of interaction will occur.

Composing a biographical post provides an introduction of oneself to the class. The post must be structured, said Banger (2011), to assume students receive sufficient information to feel an acquaintance the virtual students in their class. This is the first step to building a community of learners. Students should be encouraged and rewarded for replying to each other and expanding their comprehension of others student's backgrounds. Biographical posts often result in the formation of "study buddies" or study groups (Banger, 2011). This same research continues by stating that students who form virtual friendships are more likely to have higher levels of retention.

Finally, a personal experience not only allows for greater understanding but also links the student to the topic. The linkage encourages others to share similar experiences and to open even more lines of communication reported Lee, Driscoll & Nelson (2004). Students want to know their instructor and fellow students have more knowledge of the course content than what can be read in the textbook. Experiences that delve deeply into the mechanics of the topic become important in expanding the learning. Wallace (2003) believes this sharing harnesses the real power of the learning community.

Summary

This “critical conversation” has consistently stressed the importance of interaction, however, even before interaction can begin, the course design and training of faculty must address the technology to be used to deliver the material and the methodology for assuring an appropriate degree of interaction. The early days of distance education witnessed the inclusion of the worst aspects of the old passive/lecture paradigm, which were even more deadly from a distance than in person. Today’s students who consistently “surf the world” with the Internet will not tolerate this non-interactive style of instruction and will quickly search for a more active course that provides vigorous communication with instructor, fellow students, content and technology.

History has shown that interaction is an essential component in the learning process. Research, from as early as the 1960’s, indicated a need for a movement toward more active communication in online learning. Distance education is made up of a network of learners and instructors who travel electronic highways and meet in virtual classrooms. This new media for delivery of instruction brings with it a challenge and an opportunity for interaction. The challenge lies in the refocusing of the instruction to embody a component of interaction. The opportunity lies in interactive access to education for a worldwide coalition of students.

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