ENHANCING ONLINE INSTRUCTION THROUGH BETTER INTERACTIONS

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ABSTRACT

Instructional design, development, and planning decisions are fundamental to effective online learning. However, interactions that occur within the online environment have been underestimated, despite their significance for the success of online learning. Moore (1989) suggested viewing the interactions among individuals and content in three categories: student-teacher, student-content, and student-student. The purpose of this paper is to situate the issue of quality online pedagogy within the three types of online interactions and offer specific instructional applications for effective online learning.

Keywords: *types of interactions, online teaching, online learning, online education, quality instruction*

INTRODUCTION

Due to the COVID-19 global pandemic, educators all around the world and across all teaching levels and subjects suddenly found themselves unable to carry on business as usual. Educators were challenged to find alternative ways to continue teaching and preserve learning environments. The circumstances of the pandemic forced a re-examination of the fundamentals of traditional face-to-face instruction. Overnight, many professors, teachers, educational specialists, and other school support personnel were forced to implement some version of online instruction. Initially, this seemed to be a satisfactory alternative, but was this the same online instruction that teachers had been implementing prior to the COVID-19 pandemic?

Emergency Remote Teaching

It soon became clear that these new online alternatives were hastily constructed, intended for use by very large numbers of students, and were of a substantially lower quality than most online courses used prior to the pandemic. Due to the rapid development of these online courses and programs, it became very clear that the instructional design process and, in turn, the teaching and learning outcomes were compromised and significantly different than traditional online programs. Traditional online programs have no required face-to-face sessions within the program and no requirements for on campus activities for students (Sener, 2015). The new online alternatives developed during the COVID-19 pandemic have been referred to by Hodges et al. (2020) as Emergency Remote Teaching (ERT). Such ERT efforts were described by them as

> *a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances. It involves the use of fully remote teaching solutions for instruction or education that would otherwise be delivered face-to-face, or as blended or hybrid courses, and that will return to that format once the crisis or emergency has abated (Hodges et al., 2020, "Emergency Remote Teaching," para. 1).*

Although ERT was originally intended only to be a temporary shift in instructional delivery, the COVID-19 pandemic, and its impact on the educational system, have persisted longer than anticipated. Therefore, what was initially perceived as a temporary shift in instructional strategy is no longer temporary. It now seems that ERT has merged with the prepandemic online education initiatives, resulting in an even greater need to

understand and document the quality practices used in online learning environments.

Online Learning Quality

Ensuring the quality of instruction within online learning environments is important to help learners achieve the designated learning outcomes. In that regard, several researchers have studied the idea of quality in online teaching and learning to clarify the concept, resulting in some published papers about the definition of effective online pedagogy, online specific learning theory, measurement of online learning effectiveness, etc. (Fredericksen et al., 2000; Shea et al., 2001; Siemens, 2004; Steele et al., 2019). However, due to the unique circumstances of the pandemic, there was very little attention focused on the effectiveness of online learning at the onset of ERT. The emergency nature of needing to "keep learning alive" immediately following the COVID-19 pandemic outbreak may have contributed to a diminished quality of the teaching and learning process. The sudden addition of millions of new online learners did not allow sufficient time and attention to develop high-quality online courses. Therefore, this (supposedly temporary) lack of high-quality online learning was perceived as being acceptable. For this reason, Hodges et al. (2020) suggested divorcing ERT from previous online learning efforts and indicated that "online courses created in this way should not be mistaken for long-term solutions but accepted as a temporary solution to an immediate problem" ("Emergency Remote Teaching," para. 4). Considering the current circumstances, the initial justification for the low quality of ERT practice is now obsolete. There is now a need to merge ERT and online learning and consider all online teaching and learning as one practice while developing a better sense of what is quality online education. This is because quality does matter when we consider online learning.

Conceptual Framework: The Importance of Interactions

Since online learning is a general term that typically denotes the diverse learning environments in which learners do not share a physical space. The interactions within this digital, learner-centered environment have a crucial impact on the success of the teaching and learning process (Gurvitch & Kim, 2022). The presence of interactions within the online environment has been emphasized by the U.S. Department of Education as it considers regular and substantive interactions as defining features of distance education for which students may use federal financial aid. Several scholars (Anderson, 2003a, 2003b; Fulford & Zhang, 1993; Hartnett, 2019, Moore, 1989) have agreed that interactions are essential components in online education and that its goal must be to foster the achievement of learning outcomes (Bernard et al., 2009). Moore (1989) suggested viewing these interactions among individuals and content in three categories: student-instructor, student-content, and student-student.

The student-instructor (SI) interaction focuses on the interaction between the student(s) and the figure of authority who conceptualized and designed the instruction (i.e., instructor). The goal of the instructor is to generate "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" (Moore, 1989, p. 2). Through the design of the online learning content, instructors provide focused activities intended to enhance the motivation of students to engage in learning the content. Such activities can include direct communication (i.e., text, audio, or video) between the teacher and an entire class or between the teacher and an individual student.

The student-content (SC) interaction is designed to facilitate learning through written and recorded content that facilitates a more generalized, autonomous learning process. Moore (1989) describes the interaction between students and content as "the process of intellectually interacting with the content that results in changes in the learner's understanding, the learner's perspective, or the cognitive structures of the learner's mind" (p. 2). Examples of SC activities may include lecture videos, readings of informational texts/book chapters, completing study guides or structured worksheets, or even analyzing results with specific computerized software.

The student-student (SS) interaction refers to interactions among students through a variety of communication channels, often without the presence of instructor(s) (Moore, 1989). The SS interaction is distinct since these interactions between students are naturally embedded in the traditional learning environments simply by the

virtue of learners meeting in the same physical space at the same time. Therefore, very little effort has been required to generate such interactions in traditional learning settings. However, in online learning settings, these SS interactions require focused and intentional planning. Examples of SS interactions may include a synchronous meet up via videoconferencing (a whole class or small working groups) or asynchronous SS communication via discussion boards, emails, or via a variety of communication apps (e.g., GroupMe, WhatsApp, etc.). Despite being the least intuitive interaction needing to be fostered within a digital learning environment, the SS interaction needs attention because it is an essential component for both cognitive and motivational support for learning in digital environments (Bernard et al., 2009, Gray & DiLoreto, 2016; Oyarzun et al., 2018).

Purpose of the Article

Online teaching requires coordinating several course components, including learning outcomes, methods, assignments, pedagogy tools, and applications. However, interactions within online classes have rarely seen the attention they deserve, despite their significance to the success of online learning. Online learning is not simply traditional learning done online. Unfortunately, many instructors that teach online still lack the fundamental understanding of online instruction and perceive it as being no different from conventional, face-to-face instruction. This is one of the greatest misconceptions within online learning—traditional, face-to-face learning and online learning are *not* the same craft. Several authors (Hodges et al., 2020; Lederman, 2020; Pulham & Graham, 2018) have suggested that instructors need to develop online pedagogy so they can meet student needs within the online learning environment. Given that suggestion, the purpose of this paper is to situate quality online pedagogy within Moore's interaction framework (1989) and suggest some instructional applications for online teaching and learning environments.

INTERACTIONS WITHIN ONLINE ENVIRONMENT

Student-Instructor Interaction

One of the essential components in quality online learning is a genuine connection between students and their instructor. Students learn better when they feel an authentic social connection, despite being on the other side of the screen (Tobin, 2017). Therefore, it is imperative that instructors understand their responsibility to create such connections in the online learning environments. In traditional pedagogy, the interactions between students and instructors are embedded within the nature of the delivery method. The instructor and students share the same physical space at the same time—a simple intuitive feature that enables genuine formal and informal interactions. However, these interactions are not built into the online learning environment. Instructors may spend as much time (or even more) reading and examining student work, posts, projects, but unless they comment, add content, links, or post a response, students will not feel this instructional investment as interaction time. In online learning environments, the interaction time necessarily means leaving a digital footprint for students within the learning environment, which enhances the development of the student-instructor connection.

The following section offers several considerations that may increase the digital footprint of instructors within the online learning environment. These factors include: (a) ratio, (b) timing, (c) communication of feedback, and (d) evaluation.

Ratio

Instructors often post or comment within the course platform to connect with their students. The number of students' posts and instructor's posts, or more specifically, the ratio between the number of student posts and the number of instructor posts, can serve as a quality indicator for instructor's active engagement within the course (Mandernach et al., 2006). The key to effectiveness is moderation. A high ratio of instructor to learner posts (i.e., too frequent instructor posts) may be counterproductive because it may lead to a lower level of student engagement. Students realize there is no need to be engaged if the instructor provides them with excessively frequent posts. Rather than struggle with trying to understand the complexities of the material, students can simply wait for the instructor to do all their work for them. Conversely, a low ratio of instructor to learner posts (i.e., very few instructor posts) impairs the digital footprint of the instructor because it may communicate a lack of importance of engagement from the instructor, which, in turn, may also lead to a decrease in student engagement levels. Therefore, we recommend keeping the ratio between instructor posts and student posts at a moderate level.

Timing

In addition to the ratio and content of the student-instructor interaction, the timing of this interaction is critical. In order to foster higher student engagement levels, instructors should be very mindful of the timing of their interaction with their students. Of course, frequent and immediate post interactions generate higher levels of engagement than delayed interactions. Students benefit more when the communication from the instructor is immediate, and they quickly receive comments regarding their question, draft, or discussion post. Often, delayed interactions become pointless because, with the passage of time, the context of the specific learning segment is lost.

Communication of Feedback

One of the greatest challenges with understanding effectiveness in the online learning environment is the communication of student feedback. The overall goal is to give students feedback on their thinking and provide them with meaningful learning experiences that will stimulate their thought process. Therefore, instructors need to plan for the meaningful communication of feedback in the online learning environment. Although feedback statements can differ in their content, time, target (individual or group), and tone, it is important to keep the feedback within the context of learning. It is understandable that, especially in larger online classes, instructors cannot provide individual feedback on every assignment. In these cases, instructors should consider providing students with meaningful group related feedback. It is important to acknowledge the fact that regardless of the class size or content, the generation of meaningful feedback within the online learning environment requires specific attention to student performance and progress. And, of course, this feedback practice should allow for remediation support as the situation necessitates and when it benefits learning outcomes.

Evaluation

An additional significant indicator of the footprint of the instructor within the online learning environment is learning assessment evaluation and its translation to the grades of individual students. Since learning within an online environment is similar to that of a traditional learning environment, formative assessment has its value and serves a need (Budhai & Williams, 2016). As stated previously, timely communication of feedback is important, and the content of the feedback is relevant as well. Instructors should give some thought to whether they wish to use a grading system that is centered strictly upon a numeric grade, or instead if they want to use a text-based analysis that provides students with more precise supplemental information. Also, the use of a designated rubric tailored to specific assignments should contribute to the assessment process and foster consistency across students throughout the semester. In addition, instructors can increase their footprint through personalized, formative, or summative assessments via a specific, individually crafted grade file (i.e., document, video, etc.). Regardless of the technological application, the individual evaluation should focus on the actual performance and communicate specific areas that need improvement and skills or details that need development.

Student-Content Interaction

The interaction between students and course content is the most intuitive type of interaction for instructors and students alike. Regardless of the course modality, the interaction with the course content has always been an integral part of course expectations. However, it is imperative to acknowledge the significant difference between student-content interaction in the traditional, face-to-face education setting as opposed to the online teaching and learning setting. The next section suggests the following considerations to consider for the student-content interactions: (a) learning construct and (b) return on investment.

Learning Construct

Similar to the traditional learning environment, the online learning environment requires instructors to package the content in a meaningful way. Traditional settings allow for very specific, less flexible content packages since there is a designated day (or days) and time during which the instructor is expected to conduct class meetings. Typically, instructors feel they need to hold the students accountable for the learning process and time, so they tend to keep their students busy. However, they sometimes do this in ways that are disconnected from the achievement of learning outcomes. The online learning environment offers

the ability to package the course differently. Rather than planning on content to "cover" in each class meeting, instructors can be more flexible about reconceptualizing the course content into what are referred to as learning constructs. These learning constructs are meaningful chunks of information grouped together to support the achievement of the course with intended learning outcomes, and they can be created as learning modules, each of which differs in its scope or time for completion. The benefit of planning the course content as a sequence of constructs is that the pedagogy of an ideal course sequence and content packing drives the progression of the course, rather than the logistical constraints of a designated class space and meeting times.

Return on Investment

Teaching in an online learning environment often challenges instructors to create alternative ways to deliver their content. However, these alternative ways may not be as beneficial to the learning process as instructors perceive. Similar to a market standpoint, instructors need to find the most efficient ways to make the greatest impact on their students. For example, instructors may create and post on the course learning management system asynchronous content lectures with narration, thinking that these recordings will deliver on the promise of content dissemination to their students. Creating asynchronous content lecture recordings is a daunting task, and instructors should reflect on their online teaching return on investment and ask their students (or themselves), how many students take advantage of these lecture recordings? The goal of instructors should be to create impactful but manageable learning opportunities so they do not spend too much of their time and energy producing asynchronous lecture recordings from which very few students will ever benefit. Therefore, online instructors should consider this principle of return on investment and develop engaging, meaningful, and impactful content dissemination opportunities.

Student-Student Interaction

The interactions between one student and another, or among a group of students, are the most interesting to examine because they are inherently different between the different course modalities. The existence of these SS interactions has not been a major topic of consideration when researchers discussed these types of interactions within the traditional course modality. This is mainly because these interactions are naturally embedded in the face-to-face learning environment. These SS interactions have always been readily available when students share a physical classroom space and meeting time. Such interactions have always been a natural byproduct of the face-to-face learning environment that did not require any special effort or consideration on the part of the instructor. However, with the increased use of online learning, and the need to make teaching and learning effective and efficient despite having a shared space and time, instructors and researchers now need to focus more attention upon these student-student interactions and their significance to the learning process. Various studies confirm that SS interactions are significant for cognitive purposes and motivational support (Banna et al., 2015; Bernard et al., 2009; Revere & Kovach, 2011; Shea et al., 2001), but they also acknowledge that these interactions do not just happen spontaneously in learning environments. Since these SS interactions are not automatic in online classes, and are not intuitive for online instructors, designers of online courses should carefully plan to include such purposeful learning opportunities that are intended to foster these SS interactions. The following are a few instructional considerations that promote SS interactions: (a) communication modality, (b) peer feedback, and (c) small group activities.

Communication Modality

The mere sharing of the same physical space at the same time while teaching in face-to-face settings provides students with the opportunity to develop an immediate and independent channel of communication between individual students, among small groups of students, or within the entire class. These communication opportunities are typically unstructured and are sufficiently flexible to meet the academic or nonacademic needs of students. Instructors teaching within the traditional face-to-face settings typically do not create SS channels of communication, unless they happen to be linked directly to the purposes of a specific academic project. However, in the online learning environment, at least at the beginning of the semester, all the students do not necessarily know each other, and this may hinder students' opportunity to ask questions of each other. It is important

that the online course instructor acknowledges the importance of open, informal, and unstructured channels of communication, and even encourages such student initiatives. Teachers in online education should embrace the fact that a great deal of learning happens without the instructor and that the SS communication is a significant part of this learning (Oyarzun et al., 2018).

Peer Feedback

Students have always benefited from structured communication with their peer group of students. In the online learning environment, the instructor has the ultimate responsibility for establishing the learning environment in such a way as to create a safe place for peer feedback (Budhai & Williams, 2016). However, once the purpose of the peer feedback is clear and its expectations have been communicated to eliminate social challenges, instructors need to allow for this form of interaction between students to take place. Peer feedback, if conducted correctly, can serve as a powerful pedagogical tool by which students can support each other through the challenges of the course or help explain specific concepts from a different point of view. This exchange of feedback does not have to be limited to basic written verbal feedback. It is possible to expand the feedback to include audio and video feedback, which could add an additional, stronger dimension of communication and increase the degree of SS interaction.

Small Group Activities

After the contribution of SS interaction to the learning process has been acknowledged, it is important to further identify ways in which students can interact with each other while in the digital learning environment. In traditional learning settings, instructors generally viewed small group interactions (i.e., laboratories, simulations) as meaningful adjuncts to the learning process. Even more so within the digital learning environment than in a conventional educational setting, the idea of small group activities should be considered a contribution to the learning process. Instructors who teach online can create small virtual rooms that will encourage the SS interactions in a more purposeful and structured way (Udermann. 2019). These small group interactions allow for the development of both the cognitive and social aspects that are important for the learning process.

CONCLUDING REMARKS: ONLINE LEARNING QUALITY BENCHMARKS

Instructional effectiveness is a broad concept that often includes institutional and general online learning settings components (i.e., the learning management system, institutional resources, the institutional context, the institution's budget, students' characteristics, students' levels of technological skills, the program and curriculum, etc.). As important and impactful as these components can be on the effectiveness of the online teaching practice, many of these components are situated within broader settings or institutional levels that are outside the control of the individual instructor. Therefore, if instructors are genuinely interested in the quality of their online teaching and learning practice, they should focus on setting certain benchmarks for their instruction. These online teaching and learning benchmarks should reflect high standards of excellence that are relevant for teaching in online settings. Moreover, we suggest that future studies on instructional effectiveness incorporate these benchmark attributions in developing a conceptual model of successful online teaching and learning. Hopefully, such a conceptual framework may lead to the development of a relevant classroom assessment technique.

Acknowledging the importance of the three types of interactions in online courses and intentionally planning to embrace these interactions within the online course should be a good starting point. As online teaching and learning practices advance, there will be an increasing number of instructors teaching in these environments, and many of these instructors will develop exemplar courses—courses that stand out and make a true positive impact on its community of learners. The modern educational system in general needs such high-standard courses that will help establish the benchmark for online courses.

We must acknowledge that these benchmarks of excellence in online teaching and learning environments are evolving now, and we do not have a set formula we can apply for each course. However, we do have many instructors who care, who want to excel, and who want to have a meaningful impact with their teaching. The challenge for all these passionate pedagogy instructors should be to create benchmarks of excellence of online teaching and learning in their courses. If they do so,

the students, colleagues, and supervisors of these courses will appreciate their high quality. Such courses will become the benchmark of quality online teaching for others. If they do this correctly, each instructor could be among those who set the standards of high quality for teaching courses in the online learning environment.

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