Interactivity in a distance learning environment
What is it? How do we know we have it?   What's the Value Added?

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University and high schools alike are being pushed by the competition to offer courses in a distance-learning environment. In an effort to make their courses accessible to learners "any time, any where" professors and high school teachers are being asked to develop online learning opportunities. Some come willingly, others are more hesitant. The "promise" of interactivity is alluring, but fearful to many. Having a clear definition of *interactivity* and having ways to analyze the extent to which one has created an interactive learning environment will help to ease ones fears and smooth the transition from face-to-face to online teaching.

A Definition

A simple definition of the term *interactive* as provided by Merriam-Webster is *mutually or reciprocally active*. The American Heritage Dictionary of the English Language (4th ed. 2000) provides the computer science definition as *of or relating to a program that responds to user activity*. A similar definition is provided by webopedia.com as it describes *interactive* as *accepting input from a human*. When speaking of using the Internet or Two-way Telecommunications for delivering courses or student work it is often the computer science definition that is attached to this word *interactive*.

As a constructivist science educator I propose that we must approach the development of any online courses, or smaller teaching units, with an expanded definition of the term *interactive*. This expanded definition must take into account that the interactivity does not come just from the human interacting with the technology, but also from humans interacting with one another across a distance. Believing that interaction among humans in a distance-learning environment is essential is consistent with the constructivist perspective on learning. As noted by Martin & Sexton "A constructivist perspective emphasizes the role of the learner, regarding the role as active – physically, mentally, and socially – rather than passive. The constructivist teacher seeks ways to challenge and stimulate mental connection-making in order to enhance the active participation of learners in lessons and encourage learners to construct their own understanding from their sense of reality, which arises from their experiences" (p. 121, Allyn & Bacon, 2001). Thus teachers preparing classes for an interactive online learning situation may find it easier to prepare their materials if they believe that *interactive* refers to the learners as well as the technology used to link the learners.

Critical Components

There is four critical components necessary to create interactive distance learning: the learner; the learning environment; the teacher and the technology. The learner is foremost in our expanded definition of *interactive*.   To create a learner-centered environment in an online course one must understand learner attitudes toward distance learning. It has been shown that student-teacher interaction significantly affects the student's attitude toward learning in an online environment. Courses delivered via two-way video are enhanced when the teacher makes an effort, whenever possible, to spend equal time at all of the distance learning sites. When delivering courses via the Internet, frequent email communication with students will favorably impact their attitude.

The learners are active participants when they are expected to perform individual and collaborate investigations and explorations, regardless of location. Designing assignments so that a student at one location has to communicate with a student at another in order to solve a problem or complete an experiment can promote interactivity. The students should be encouraged to initiate discussions, pose questions for all to respond to, and to create projects that demonstrate their understanding of concepts taught which require the use of a variety of media (graphs, pictures, video), and are evaluated by their online peers through a collaboratively created rubric.

The learning environment is the second critical component to an online learning situation. If, as a professor or high school teacher, you accept the challenge of creating a course to be delivered via the Internet or Two-way video then you should strive to create learning opportunities that are conducive to engaged learning, opportunities that truly promote interactivity. That is, your lessons should reflect the principles of constructivism even though you are not meeting with your students in the traditional face-to-face environment. The learning environment should extend an understanding of the concepts taught to different situations based on the unique perspectives learners from the different locations may bring to the lesson. The learning environment should be designed so that it increases the opportunity for learners to articulate their understanding of concepts in a variety of formats. Most importantly the learning environment should be consistent with the teaching strategies, learning activities, and lesson objectives.

The teacher is the third critical component in creating an interactive learning situation. When preparing materials for an online course or unit the teacher should design tasks that elicit, engage, and challenge learner ideas. Using a variety of teaching methods, those that place less emphasis on lecture in the Two-way video format, or less emphasis on reading large passages of text in a web environment, tend to enhance student interactivity. In a Two-way Telecommunications delivery system the teacher should facilitate and maintain fair classroom interaction between the teacher and the learners and among learners regardless of learner location. The same is true when delivering the course via the Internet. The teacher should establish and maintain rapport with the learners, promote learner communication, and celebrate learner diversity.

The technology itself is the fourth critical component in creating an interactive learning situation. As noted previously the technology is considered interactive whenever a human provides input. However, one should expect that the technology chosen as your deliver system for your distance-learning course should almost be transparent and not hinder the interaction between and among the learners. When two-way video is used the technology should allow the participants to be clearly viewed and heard, it should be free of distractions as it switches between sites. Readily available technical support is essential for any professor or teaching taking their first steps in delivering an online course. One should expect and be provided with high-speed connections and adequate server space to truly create an interactive learning opportunity.

Value Added Profile

So once you've put all this effort into addressing the four critical components in the creation of your online course or unit, how do you know that what you've created has any value? Are all of the components consistent with one another so that true interactivity – meaning interactivity among the learners – not just the learner with the technology – has occurred? One way of assessing the extent to which value has been added is by using the *Value Added Profile* developed by Beach & Sexton. To create this profile they use the *LETT Indices – Learner, Environment, Teacher, Technology.*

In 1996, this author and a colleague, Dr. Bonnie Beach, were concerned about the level of interactivity found in two-way video projects connecting high schools and cultural institutions across the state of Ohio. In an effort to get novice users of this technology to understand how to create engaged learning environments when delivering to students across a distance, and how to view the term *interactivity* as was described above, we created the *Value Added Profile*. Members of telecommunities, to evaluate the lessons they delivered online used it. Teachers videotaped their online lessons and then critically reviewed the videotape using their responses to the indices to create a value added profile. They also had a *critical friend*, such as another teacher or school administrator, view that actual teaching episode or the videotape and complete the profile as well. Through discussion about the results they were able to improve upon whichever of the four components was lacking, or when all were consistent determine what they could do to increase the value added that came from delivering the lesson in a distance learning environment.

We believe that the four critical components are as essential in 2001 as they were five years ago. What may have changed over time is the delivery system, thus some of the criteria about each of these components can change. Below is the profile as we developed it in 1996. We suggest that you look at the five criteria under each essential component and determine if those criteria are appropriate for your distance learning environment delivery system. You may need to change the statements to reflect the delivery system you're using for your distance learning opportunities, while maintaining the spirit of *interactivity* through the new criteria you may write for each index.

Insert Value Added Profile here

As you can read under "Interpreting the Profile" when the shape of the figure plotted is square all of the indices (learner, environment, teacher, and technology) are consistent. If your figure is not square, the shorter sides will indicate which component must be modified to bring consistency to the teaching episode evaluated. As the size of the figure increases, the contribution of distance education to the teaching episode increases.

Conclusion

The thought of creating a course, or even a unit, to be delivered in a distance-learning environment can be unnerving for even the most seasoned teacher. Thoughts of giving up student interaction often thwart any extra perks or monetary benefits provided by some institutions for professors or high school teachers to accept the challenge. Those concerns need not keep one from rising to the challenge when a single definition of *interactivity*, one that speaks of student engagement, active learners, and a seamless delivery system drives the course development. Using the *LETT Indices* to create a *Value Added Profile* will help the instructor determine the extent to which one has created an interactive learning environment, will help to ease ones fears about teaching in such an environment, and smooth the transition from face-to-face to online teaching.

References

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