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Chapter 46
Traditional Instructional Design for Online Learning vs. Unconventional Instructional Design

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ABSTRACT

In the field of online learning, instructors need to move past the limitations that are imposed by a traditional instructional design mindset and embrace new ways of approaching instruction. Online learning can remove barriers of space and time and provide a learning experience that is focused on the learner. Educators need to understand the way technology is reinventing communication and enhancing how information is processed. Only by accepting the unconventional instructional designs that technology can bring, can educators be prepared to reach and teach the students of this digital age.

INTRODUCTION

In just a few decades, the advent of the internet has opened the door for a whole new world of instructional methods. From virtual classrooms and learning communities to virtual high schools, online learning provides new opportunities for both the teacher and the student to engage the learning process. Some educators claim that online learning may drive traditional conduits for education, such as schools and classrooms, into extinction.

Although these claims may be extreme, there is no denying that all levels of the educational system are increasingly embracing online learning as a viable method for educating students. In higher education, researchers have estimated that as of fall 2007, over 3.9 million students were taking at least one on-line course, and that the number of students taking on-line courses increased by 12.3% from the previous year as compared to the 1.2% of overall growth of higher education students

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(Allen & Seaman, 2008). The addition of online learning in the postsecondary system has allowed many nontraditional students, like adult learners opportunities to continue their education within the framework of their needs. Besides postsecondary education, there has also been more growth of online learning in secondary education. Although it is more common to see a high school offer a few online courses as an option for students, in Florida there is a movement to make an online high school, to which students throughout the states can have access (Prabhu, 2009).

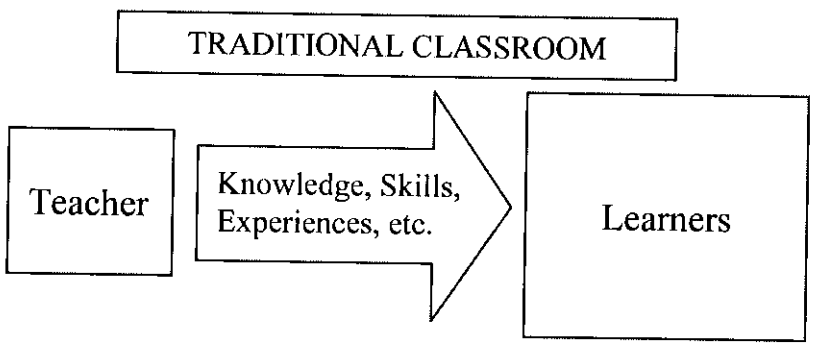
According to Driscoll (1998), online learning has also opened up new methods of the delivery of instruction in the workplace. As businesses and employers seek to educate and train employees and clients, they have found that on-line learning provides a myriad of benefits, such as lowering costs from travel, reducing time of training, and allowing easy, convenient and quick access for the learner.

With all these new, growing avenues of online learning, instructional designers are given the task to transform traditional forms of education that occurred in a classroom into a virtual environment with limitless possibilities. With new technology come more possibilities to expand the way teaching and learning takes place. Technology and online learning offers synchronous and asynchronous interactions between teachers and students. Multimedia, virtual environments, and networking provide alternative avenues to engage learners. Unfortunately, just because technology is added to the learning process does not mean that instructors will change their viewpoint on teaching or their teaching styles (Cuben, Kirkpatrick, & Peck, 2001). Instructors and instructional designers who have traditional styles of teaching or viewpoints on teaching often produce on-line instruction with a traditional design framework.

Figure 1 shows a basic example of a traditional classroom model with a teacher communicating knowledge, skills, and experiences to the learner. This model can be found as the predominant mode of teaching in most schools, universities, and training programs. There are many characteristics of the traditional classroom model. Several of these are listed below:

1. The teacher and the learners meet in a designated, physical location.
2. The teacher and the learners meet at a designated time for a predetermined length of time.
3. A majority of the learning occurs in the classroom with some expectations on the learner for self-study and work outside of the classroom.
4. The content to be learned is typically structured by the teacher and focused around preset objectives.
5. The pace of the learning is set by the teacher.

Figure 1. The Traditional classroom model



6. The teacher evaluates the learner on mastery of the course content through various evaluation tools.
7. Resources are limited to what is brought to the classroom.

There is nothing inherently wrong with traditional design and is highly appropriate in some settings. The problem as mentioned above is that when technology comes into the equation, instructors try fit the technology with the context of the traditional classroom rather than letting the technology transform the model. The characteristics of the traditional classroom have certain limitations, which become even more apparent when brought to an on-line learning setting. A traditional instructional design model for on-line learning does not take advantage of all that technology has to offer or meet the needs of certain students, such as adult learners.

Adults who enter the learning environment are prepared for and expecting to be active participants. Therefore, instructors and trainers of adult learners should be aware of these characteristics:

1. Adults bring relevant, real life experience to the classroom.
2. Adults expect learning to be meaningful within the context of their ordinary lives.
3. Adults naturally adapt and apply their learning beyond the classroom.
4. Adults enjoy analysis, synthesis and problem-solving activities.
5. Adults adapt well to interactive, problem-centered opportunities.
6. Adults want to plan some of their projects and other learning activities.
7. Adults vary in their preferred learning styles.

Keeping these qualities in mind, educators, trainers and facilitators must plan activities that make use of learners' prior knowledge and experience, develop interactive learning experiences, use a variety of approaches for teaching the same concepts, and adapt to the needs and expectations of each group. Traditional instructional methods in online learning may not be adequate to meet all these needs; therefore, unconventional designs are preferred.

To get a better understanding of the differences between traditional instructional methods and unconventional designs, there must be a good understanding of how online learning developed, the characteristics of unconventional design of on-line learning, and the future trends in on-line learning.

BACKGROUND TO ONLINE LEARNING: AN HISTORICAL PERSPECTIVE

The very earliest form of an extended classroom, or distance education, was paper-based correspondence. As early as 1840, Issac Pittman was teaching shorthand in England by correspondence (Curzon, 1977). This form of distance education was just the beginning of what we are experiencing today. It was thought of as an educational experience that, at least part of the time, had the instructor and students at a distance from each other.

As far back as1928 a Columbia University doctoral dissertation found no differences intest scores of college classroom and correspondence study students enrolled in the same subjects (Crump, 1928). As technology changed, so did the methods of transferring information. Video, radio, and television were added to the mechanisms used for information transfer. All the time, the transfer was basically from the teacher to the student, with students providing feedback in the form of mailed in assignments to the teacher. This form of distance education can be best described as a period of autonomy and independence. When the independence of the learner is valued and acquisition of knowledge is successful, this form of distance education has achieved the desired goal for learning.

Independent learning was taking place through television and teleconferencing. By the 1980s, research found that (1) there is no evidence to support the idea that face-to-face instruction is the optimum delivery method; (2) instruction by teleconferencing can facilitate learning as well or better than classroom instruction; and (3) the absence of face-to-face contact is not detrimental to the learning process (Weingand, 1984).

Creation of the traditional classroom setting through the available media was achieved. The expectation was that student independence derived from successful completion and mastery of the subject matter presented.

The Formation of Traditional Instruction for On-line Learning Establishing an Online Presence

The first attempts of instructors to incorporate computer experiences into the traditional classroom were usually in terms of adding enrichment to the classroom lecture. Educational sites that fostered the learning experience beyond what the instructor had prepared were shown in the classroom or were used as assignments for further study (Brewer, DeJonge, & Stout, 2001).

The availability of computers, software programs, and Internet connections often dictated the way this material could be used. When computers were scarce, a virtual trip to a computer destination became almost like bringing to class a guest lecturer. If computers were available to individual students in a laboratory, the lab could be used to reinforce or apply the content of a lecture. Once this was successfully accomplished, the instructor usually found opportunities to let the students explore information on the topics related to the area of study, and new resources quickly became available to all.

According to Brewer, DeJonge, and Stout (2001), as students became more involved in the use of computers and instructors became more comfortable with the technology, the next step was often putting the course syllabus online. This enabled students to have access anytime and provided a mechanism for sharing the overview of the course with prospective students. Reference lists and URL sites for additional resource material or exercises could also accompany the syllabus. Many times the addition of class notes to the site assisted the students in getting the most out of the material. It helped students to have access to the material at times other than regular class time, and it gave instructors an organized format to answer routine questions from students who may have missed class or who needed to check on course requirements or assignments. All of this is still supplemental to regular classroom experiences.

Online Lectures

Taking the first big step toward putting a class online meant turning the first lecture into an online experience. The instructor transferred the material that would normally be given to students in the classroom into an on-line format. First attempts were usually detailed outlines, Power Point™ slides, or simple HTML pages, while were interjected with visuals, direct quotes, and side trips to additional online sites. As the instructor's technology skills developed, he or she could include audio or video streaming segments to emphasize the material. All of this is still used in the traditional model of a classroom-learning situation that emphasized the imparting of information to students. It futhered the goal of student independence because of the responsibility placed upon the student to take action to receive the material, rather than sitting in a passive classroom.

Has this method been successful? The Carnegie Foundation, in considering a possible restructuring of a university of technological change, reviewed many comparative studies of traditional and online courses. As has been typical of sound research findings, the reseacher stated that there were no significant differences in student learning out-

comes for courses taught in traditional classrooms compared to online courses (Bates, 1997).

There have been dramatic changes in delivery methods for training programs. The American Society for Training and Development (ASTD) projections for 1996-2000 stated that the percentage of training time using instructor-led methods will decrease from 80% to 55%. At the same time, learning technology methods are expected to increase from 10% to 35% (Piskurich & Sanders, 1998). The Internet has changed the way we do business; education and training are changing as well. According to Ellis, Wagner, and Longmire (1999), "Using the Web, training and development professionals can leverage instructional resources in ways never before possible" (p. xiii).

The delivery methods for training have been undergoing dramatic changes. American Society of Training and Development (ASTD) projections from 1996 to the year 2000 show the percentage of training time delivery by instructor led method to decrease from 80% to 55%. At the same time the learning technology method is increasing from 10% to 35% (Piskurich & Sanders, 1998).

By the late 1990s, resources had become available for instructors to go beyond the goal of independence of the learner in online experiences. Learning interdependence could be sustained by collaborative experiences between teachers and learners and /or among learners with other learners. Management systems for online courses now allow various types of interactions and provide means for tracking involvement. These techniques for interaction and sharing make the communication pattern more complex. These patterns include both *synchronous* (real time) and *asynchronous*(delayed) communication.

As increased involvement and interaction occurs, learning begins to transcend acquisition of knowledge and skills to comprehension, application, analysis, and even synthesis. Students are not just accepting information but are dealing with it in discussion or application form. They become involved beyond listening and taking in facts. They question and engage in problem solving in their interactions with the teacher and other students. The teacher's role evolves beyond content "master" and presenter to facilitator of learning experiences. The teacher directs the learning experience and observes as students take charge of their own learning.

In the *Journal of Computing in Higher Education,* Navarro and Shoemaker reported that cyber learning can be as effective as traditional classroom learning. In the study they reported two groups achieved at approximately the same level as measured by test scores. The findings of this study appear to provide preliminary evidence that cyber learning can be as effective as learning in the traditional classroom (Navarro & Shoemaker, 1999).

It must be noted that for successful learning experiences to occur, someone must first identify the level or type of learning to take place. Learning can be successful when the expectations are independence of the learner and mastery of information. Learning experiences can be straight lecture in a large lecture hall or in an online lecture presentation involving words, audio and visual effects. However, if the learning expected is required to go beyond the beginning stage of knowledge acquisition, the experiences must involve the learner and must allow for opportunities to interact with the information and with others including other learners and the teacher. If the later is the goal, the experiences created by the teacher-facilitator are possible in a traditional classroom setting or in an online form of instruction. It is not the place that becomes important but how to best use the techniques for learning.

UNCONVENTIONAL DESIGN TO ONLINE LEARNING

Being such a relatively new mode of learning, online learning has had difficulties of disregarding the limitations of the traditional classroom

design. With the nature of traditional classroom design engrained into the physique of most educators, it requires a paradigm shift in thinking to take advantage of the full potential of online learning. These special characteristics of online learning provide educators with ways to create unconventional designs of learning that will be effective with today's students.

Beyond Space and Time

One of the first characteristics of online learning to break down the traditional learning model is the ability to remove the barriers of time and space. As observed by Richardson (2009), "Learning is no longer fixed in time and space; it can happen anytime and anywhere that we are connected" (p. 28). Technology allows the classroom to expand beyond the classroom walls and to encompass anyone who has the access to technology. Students do not have to be in the same room with the instructor or the same city, the same state or even the same time zone. Online learning can provide a gateway to connect students with specific needs to instructors who can meet those needs, even though they may be on the other side of the world.

Although there may not be a geographical connection with the learning, online learning provides ways for students to connect and network as never before. In the last few years, networking sites such Facebook, MySpace, Linked-in, and many others soared in popularity and use. Educators can use these portals as opportunities to connect with their students and provide other quick tools to communicate with them. The students also are given an opportunity to interact with each other to further enhance their educational experience.

With the barriers of space being made immaterial, the issue of time is also easily mastered with online learning. Online learning can be designed to occur at one time (synchronous learning) or varying times (asynchronous) or a combination of both. As noted by Driscoll (1998) and Beer (2000), web-learning activities may be planned for either asynchronous or synchronous participation [both instructor and learner/s participate at the same time, although usually not at the same location.] Synchronous learning activities provide for real-time interaction among participants who are at different geographical locations. Thus the needs and expectations of adults with other real life demands can be met—including needs for interaction—without many of the constraints imposed by travel and scheduling barriers. The three following points emphasis this:

1. Satellite instruction involves students and trainers participating *synchronously* via t.v. beamed to pre-arranged satellite locations. This method may involve presentations plus (a) telephoning in questions and comments to be shared by the presenter/s, (b) active learner participation through monitors that transmit to the various locations, and/or (c) planned group activities at each location following the presentation. Satellite instruction can also be video-taped for *asynchronous* use in other learning situations.
2. On-line courses and workshops are frequently established through special Web pages just for that specific audience. Through this option, educators design a Web page to link students with course materials (including video) and to supplemental sites on the World-Wide Web to increase learner interaction with a variety of other information sources. Listservs, including response options similar to chat rooms, offer further options for *synchronous or asynchronous* interactive learning through on-line courses.
3. Traditional classes can also incorporate Web-based instruction, and this often provides at least three major advantages. First, it brings additional knowledge sources into the classroom. Second, when several options are presented simultaneously, it encourages lively exploration in a learner-directed environment. Finally, this *synchro-*

nous option provides an excellent learning situation for developing learners' computer skills. Especially when neophytes are paired with more experienced learners, classroom Internet use provides a safe learning environment for computer literacy training as well as for the other instructional objectives of the course (Brewer, DeJonge, & Stout, 2001).

Student-Focused

Another difference of on-line learning design from traditional design is that the focus switches from the instructor to the learner. With online learning, more responsibility falls upon the leaner to take control of the learning process. The instructor becomes more of a guide and facilitator of the knowledge providing a forum for learning to take place. Technology allows for content to be personalized for the student so that it matches the student's needs or personal learning style.

On-line instruction also allows the learners to engage the learning at their own pace. Although the overall scope may be laid out for the instructor, there should be planned time frames for the learners to engage the learning on their time frame. This puts more responsibility on the learners to regulate themselves to fully participate in the learning process.

Also, as the learning process becomes more focused on the learner, educators must realize that today's learners are more distracted than ever before. With televisions, internet, cell phones, and media players, many students are mutli-tasking with several pieces of technology at the same time. While students are working on papers, they may be listening to music and sending text messages back and forth with a friend. While educators may wonder how a student doing this gets anything done, students are more commonly having their attention diverted in multiple ways during the learning process. On the issue of multi-taskers, Gasser and Palfrey (2009) recommended that "we have to embrace and master it, while providing limits from time to time to create contemplative space for young people." (p. 16). The issue is becoming a fabric of today's students; therefore, instructors must adapt to it and learn to use it to enhance their teaching.

Unlimited Learning Resources

The amount of information in a traditional classroom was once limited to what the teacher, students, and the text brought to it. With online learning, unlimited information is just a click away. Information search engines such as Google, Bing, and Yahoo allow students to quickly find information regarding almost any topic. According to Knobel and Wilbere (2009), there are other sites, such as Wikipedia and blogging sites, that allow students to contribute to the information available on the internet.

Instructors must realize that this a powerful tool to enhance learning. The instructor and the textbook are no longer the sole owners of information. Instructors must help students develop the skills to process the enormous amount of available information to help prevent frozen by information overload. Along with processing skills, students need to learn analytical and critical thinking skills. With the internet being an open forum for anyone to create and post a webpage on any topic, students need to be able analyze the information that comes across their screen to determine the validity of the content.

Communications Reinvented

In the traditional classroom model, communication between the instructor and student was restricted by the classroom space and time. Although the dialogue could have occurred in a variety of ways, when the class was over, the dialogue would end until the class resumed next time. Online learning reinvents how communication occurs between instructor and student and between student and student.

Technology, such as e-mail, message boards, and blogs, allows students a way to communicate with each other and the instructor which can be done at a time that is convenient for all. Students can take the time to write out their own viewpoints, read the thoughts of others, critique responses, and post their responses. These asynchronous interactions can provide depth to a conversation regarding topics discussed by the class.

Technology, such as instant messaging, texting, and Twitter, allows for communication that is more on demand, as well as more synchronous interactions. With a majority of students owning some type of cell phone, they are use to instant communication with other people. These types of communications are helpful to getting information out quickly. They are easy to use to provide a way to dialogue with each other, but they do not allow the depth of the other methods.

Students rely on numerous ways to communicate, and therefore, instructors need to take advantage of these methods to send information to their students and promote dialogue with them. Instructors then need to analyze their roles of promoters and facilitators of the dialogue and not the controllers of the dialogue (Collison, Elbaum, Haavind, & Tinker, 2000). Promoting dialogue with students is important. Below are some thoughts regarding promoting dialogue, including:

1. Instead of being the focal point of the dialogue, rather a facilitator of dialogue between the students.
2. Promote healthy online dialogue in which students feel safe and comfortable to contribute to the dialogue.
3. Provide a tone for the dialogue that will promote collegiality.
4. Guide the dialogue so that students are required to use critical-thinking strategies to participate.
5. Avoid common pitfalls of a facilitator by trying to control the dialogue, ask too many questions, or push the conversation in a direction the students are not really interested in to make a point.

Information Processing Enhanced

The days of having text as a primary mode of information processing are fading. Students of today are used to browsing webpages that are a conglomeration of text, pictures, hyperlinks, videos, and audio information. These portals of information provide ways for the learner not to just read the information but to engage with it. In an online format, walls of text are considered undesirable by most and quickly dismissed without any engagement by learner. Therefore, instructors cannot rely on simple, long, drawn out written information. As Ohler (2009) recommends, instructors need "to be able to construct an articulate meaningful, navigable media collage" (p. 10). A media collage refers to a collection of text, pictures, video, and other media group together to present information.

Since students are now conditioned by web-browsing to receive information in these types of formats, instructors need to embrace this new way of presenting information to best communicate with their students. When presenting information to their students, instructors should remember:

1. Avoid the use of long stretches of text. Utilize outlines, space, bullets, and boxes to break up the text.
2. Use boldface, underlining, and colored fonts to draw attention to specific parts of the text. Also, do not be afraid to utilize different fonts as long as it's not distracting.
3. Utilize hyperlinks at the beginning of the information and throughout so that students can easily navigate to the information that they desire to find within or without of the text.
4. Insert graphical and video media to enhance the points made by the text.

5. Limit the amount of information that is shown on the computer screen at one time. If there is too much, students may just glance over it. Break up long expanses of information into smaller, more manageable pieces.

The most important thing for instructors to realize is that way information is presented on a computer screen is completely different then it is in presented in a book. Students may be fine with reading a book, because they come to the book with the expectation of how the information will be presented. When approaching a computer, their expectations for how the information is presented changes, and if the presentation does not meet their expectations, the students are less likely to engage it (Ohler, 2009). Instructors need to learn to adapt to these new expectations to improve the learning process.

FUTURE YEARS

Is there a next step in this development that we can see coming even now? We are learning more through research about the online learning experience every day. For this experience to be successful, we must understand the special needs of learners in the online environment. The technology at first is a novelty to some and a barrier to others. As teachers and facilitators of learning, we must prepare learners to go beyond the technology. Technology must become transparent for the learner to begin the interaction with content. Studies are now being conducted that will help us to understand online learners and how interaction with the technology may affect learning experiences. Once we know more about the barriers to learning, the motivation for learning, and the progression to successful learning online, we will be able to provide better experiences to ensure success.

Multi-Dimensional Learning Experiences

One could believe that the next phase of online learning would be even more learner-driven. The learner who selects the experiences from materials prepared and organized by instructors may manage online experiences. Learners would have branching learning opportunities to take them into different paths, depending on their knowledge and personal educational goals. Development of such materials is now possible. However, the technical skill needed to develop them is beyond most classroom instructor's or trainer's computer skills. In the future, however, just as classroom management tools have made on-line classes possible, user-friendly products for the development of complex learning experiences will be accessible to all.

The availability of higher-definition computers and the improved preparation and transfer of video and audio will make attempts at streaming video today seem archaic. The ease of synchronous communication (both audio and visual) will bring students into sight and facilitators into students' homes virtually face-to-face. The next generation of online learning will go far beyond our imagination or technical ability.

The Microtization of Technology

Comparing the computers on store shelves today to ones available 15 years ago shows the remarkable way technology has changed through the process of microtization. Microtization has been defined as the trend of computers and other technology to become even-smaller (ASTD, 2001). Microtization not only applies to computers but other technologies such cell phones, laptops, and media players. Along with this trend of microtization, there is a trend of integration in which the technologies are merged to one device that does it all. At one time there were cell phones and there were media players, and now there are cell

phones that are also media players. These trends of microtization and integration will create smaller devices, which can do more providing easier accessibility for people to utilize technology for the learning process.

The Virtual Classroom

Another trend for online learning is the creation of the virtual classroom in a three dimensional, computer generated environment (Gee & Levine, 2009). Although this technology is still in its infancy, virtual programs such as Second Life provide new avenues for teachers and students to interact behind avatars in a created reality. The limit of what can be done in these environments is only set by the imagination and the technology behind the program. They create new ways to challenge students' critical thinking and problem solving skills. Scenarios and environments can be created that might not be available in the real world or may pose too much danger. As virtual environments become more common and easier to create, instructors will have whole new worlds of learning possibilities open up to them.

CONCLUSION

The incentive for online learning may at first be convenience for the student. However, when the computer is used to move beyond traditional classroom walls, opportunities for learning expand. Education is becoming an experience of learning and sharing for students and teachers as they move to a community of learners online. The sharing can go beyond the teacher—student alliance to provide significant opportunity for virtual alliances with organizations and industries that contribute to the learning experience.

Educators can only begin to predict the changes in store for us. Our skills and abilities to transform the cyber classroom into the leaning center of the future will depend upon our ability to provide a variety of experiences for the learner and our desire to continue learning ourselves.

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KEY TERMS AND DEFINITIONS

Asynchronous: A delayed communication. For example, electronic mail is asynchronous communication because it does not require the sender and receiver to be connected at the same time.

Learning Interdependence: This could be sustained by collaborative experiences between teachers and learners or among learners with other learners.

Management Systems: Management systems for online courses now allow various types of interactions and provide means for tracking involvement.

Microtization: Microtization has been defined as the trend of computers and other technology to become even-smaller. It not only applies to computers but other technologies such cell phones, laptops, and media players.

Synchronous: A real time two-way communication with virtually no time delay, allowing participants to respond in real time.