ETCV 510 Learning Theories
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ONLINE LEARNING IN THE WORKPLACE:
CONSIDERATIONS FOR INSTRUCTIONAL DESIGNERS

"The whole of life is a school. [...] Between the ages of twenty and eighty lie a person's best intellectual and educational opportunities." - John Heyl Vincent, bishop and pioneer of distance education, 1886

PHILOSOPHY STATEMENT

We are currently in a world where MOOCs (Massive Open Online Courses) dominate popular media discourse about higher education, while books suggest that students should "DIY U"[1] and organizations say they should "replace college with self-directed learning"[2] and "jailbreak the degree."[3] Workplace learning is undergoing similar changes, transitioning from instructor-led classroom training to online courses and self-directed e-learning. The ideas of both online education and learning outside of a formal institution are becoming more popular by the day as U.S. higher education becomes less affordable and companies require employees to have current, up-to-the-minute skills.

The "smart workers" of today, as described by Jane Hart,[4] are comfortable learning and finding answers online, are autonomous in their learning, want to learn continuously and keep up to date in their field, want immediate access to solutions, will share what they know, learn best from others and have a trusted network of resources.

Because of ever-changing attitudes and technologies, it is an exciting but challenging time for instructional designers when it comes to creating the ideal courses or environments for workplace-based online learning. In this specific setting, I believe a designer should first assume that the adult learner is both motivated and autonomous. Secondly, they should take full advantage of Web 2.0 technologies (defined primarily by its interactive and collaborative elements) where appropriate, in order for the independent learner to continue their education beyond the "walls" of a particular course.

THEORETICAL PERSPECTIVES

Online instructional design can be approached from many theoretical perspectives. As Mohamed Ally puts it:

> *"Behaviorist, cognitivist and constructivist theories have contributed in different ways to the design of online materials. Behaviorist strategies can be used to teach the facts (what); cognitivist strategies to teach the principles and processes (how); and constructivist strategies to teach the real-life and personal applications and contextual learning."* [5]

Pointing out the differences between types of online instruction and learning theories, Rekkedal and Qvist-Eriksen say:

> *"When learning materials are pre-packaged with prescribed objectives with the purpose of stimulating independent self-instruction, the approach reflects a behavioural perspective. ... [A] cognitive/constructionist approach, which encourages the construction of new learning structures … must take place in a highly interactive environment with feedback from teachers and fellow learners."* [6]

London and Hall suggest ideas for instructors who want to apply common learning theories in their online course design this way:

> *"For behavioral learning, make expectations clear and test learners through online methods (simulations, 'what-would-you-do-if' multiple choice questions, applications to problems, and other forms of assessment). For cognitivist learning, give learners a chance to perceive and recognize information using a variety of senses. … [For] constructivist learning … assignments are real world – for example, projects to solve problems that don't have a single right answer rather than puzzles that require applying a formula to retrieve the one correct answer."* [7]

Obviously, an instructional designer cannot apply one theory to all types of classes, and could reasonably use elements of several theories within the same course. For workplace learning, some courses rely on a person taking themselves through a specific set of pre-prepared materials, and perhaps being quizzed at different stages or at the end to show they have achieved the learning objectives. For another course, it may be important for a group of employees to go through material on a similar timetable and be able to discuss the concepts with an instructor and each other.

To complicate matters even more, workplace learning encompasses both formal courses with specific learning objectives as well as informal methods such as joining professional networks or collaborating with teammates on projects, all of which can be online, "offline," or both. It needs to be situated in the idea of *continuous* learning in various settings that results in improved skills.

Additionally, an instructional designer must consider the specific student audience and tailor each course effectively to their workplace environment and needs. As Martyn Sloman emphasizes,

> *"The most appropriate processes, or interventions to support, accelerate and direct learning can be determined, but only within the context of the organisation. [...] Learning depends on context; there is a great difference between what applies at an international consulting firm and a small rural garden centre."* [8]

With so many variations between types of workplace learning and what's appropriate for each setting, I believe the most useful theories for workplace e-learning designers to consider are those of traditional distance education (self-directed learning) and the more recent idea of connectivism (network-directed learning), both of which are based around adult learners.

In distance education, where learners are physically separated from an instructor and (usually) other students, it is taken as a given that they are independent and motivated. Many foundations of distance education philosophy and practice have clear parallels

with online learning, particularly in a workplace environment.

Distance education was described by Charles Wedemeyer in 1981 as comprising 10 defining characteristics, including the ability to be accessed anywhere at any time with progression paced by the student, the student being responsible for their learning, and the teacher's mixing of a variety of media and methods within a subject where appropriate. [9]

In 1988, Hillary Perraton synthesized many distance education theories and came up with 14 statements, or hypotheses. The last five are most relevant to online instructional designers:

- *A multimedia program is likely to be more effective than one which relies on a single medium.*
- *A systems approach is helpful in planning distance education.*
- *Feedback is a necessary part of a distance learning system.*
- *To be effective, distance teaching materials should ensure that students undertake frequent and regular activities over and above reading, watching, or listening.*
- *In choosing between media, the key decision on which the rest depend concerns the use of face-to-face learning.* [9]

Another consideration for online course designers is the difference between what distance education researchers call "autonomous" (learner-determined) and "non-autonomous" (teacher-determined) courses – while the responsibility for both types rests on the student, the latter requires more clear learning objectives, evaluations and assessments.

So in designing workplace e-learning, it is more useful to begin by considering the attributes of the learners and what methods have been previously shown to achieve the learning goals in that type of student. A study of distance education theory is helpful in this case because it has developed over decades of research on independent adult learners, and encompassed many types of delivery methods (postal mail, recorded tapes, broadcasts, computer-based, etc).

In addition to traditional theories, connectivism is also a good way to think about what type of learning is suited to today's workers. Often referred to as "a learning theory for the digital age," connectivism was introduced in an article of the same title by George Siemens in 2004. Recognizing that "chaos is a new reality for knowledge workers," he explained that connectivism

> *"addresses the challenges that many corporations face in knowledge management activities. Knowledge that resides in a database needs to be connected with the right people in the right context in order to be classified as learning. Behaviorism, cognitivism, and constructivism do not attempt to address the challenges of organizational knowledge and transference."* [10]

Stephen Downes, who taught a Massive Open Online Course (MOOC) with Siemens in 2011 on connectivism, put it simply:

> *"At its heart, connectivism is the thesis that knowledge is distributed across a network of connections, and therefore that learning consists of the ability to construct and traverse those networks."* [11]

The key points of Siemens' principles of connectivism to be considered in workplace e-learning include: that learning's end goal "is an increased ability to 'do something,'" that tapping into networks and forming connections can vastly increase learning, that "accurate, up-to-date knowledge is the intent of all connectivist learning," and that "choosing what to learn and the meaning of incoming information" is an important part of the learning process. [12]

While connectivism appears similar to traditional social learning theory, it relies far more on the individual's internal motivation to learn what they need to know, rather than an instructor or more advanced peers specifically trying to guide them into Vygotsky's "Zone of Proximal Development." Bandura's social learning theory also generally assumes a learning experience being actively mediated or "modeled," whereas connectivism does not. It is also not about how best to gain a particular body of knowledge, but knowing how to use connections in order to find the needed information.

An online instructional designer applying connectivist ideas would not only make materials available to the learner at any time, but (where possible) ensure that some materials led to resources where the learner could connect with others outside (or across) the organization and find new sources of information outside the course. The designer could also encourage "communities of practice" by creating or directing the learner to (private or public) online forums where they could connect and share knowledge, or a relevant Twitter hashtag so learners could find others interested in the same topic. In this model, the instructional designer needs to consider that the learner will need to be able to learn continuously, as well as staying up-do-date on current information on the subject. It is no longer a matter of merely packaging a set of instructional materials online and putting a quiz at the end – an online course designer must take into account the unique nature of today's workplace learning, which often involves connections with coworkers, professional networks and online communities.

CONTEMPORARY MODELS OF INSTRUCTION

Moving traditional classroom instruction materials to the web and expecting the outcomes to be identical to previous instructor-led training is not a reasonable expectation for workplace learning. For it to be most effective, it must take full advantage of technologies already used by workers (many of which are connectivist in nature).

London and Hall explain that "Web 2.0" technologies are defined by the ability to:

> *"(1) facilitate learner self-initiation and control, (2) combine use of a variety of media, (3) provide a wide range of sources for information search, (4) facilitate data aggregation and analysis, (5) encourage file-sharing for joint work, (6) supply interpersonal communication, and (7) provide access anytime anywhere through web hosts and portable wireless delivery mechanisms."* [7]

Bloom's Digital Taxonomy, described by Andrew Churches in 2009 [13] as a way of making the Bloom's Taxonomy of 1956 and the Revised Bloom's Taxonomy of 2001 relevant to today, can be helpful for online instructional designers. Using the revised taxonomy of lower-order to higher-order skills (Remembering, Understanding, Applying, Analyzing, Evaluating and Creating), Churches offers ideas of how to implement these concepts in a Web 2.0 world. For example, to help a student at the "Remembering" level of learning facts, Churches suggests activities such as local and social bookmarking and social networking (which are also considered connectivist behaviors). For a student at the highest level, "Creating," he suggests having them program, animate, or produce a video blog, podcast or wiki. With active verbs at each level (such as "mashing, linking, validating, reverse engineering, media clipping" for the key term "Analyzing"), the digital taxonomy inherently and specifically triggers a Web 2.0 way of thinking.

Using Bloom's Digital Taxonomy as a base, an instructional designer needing to create a course for workplace learning could find relevant Web 2.0 activities at each level to incorporate into the course content, keeping the learners engaged and ensuring they are mastering each level before moving on to the next one. There are countless articles and charts on the web recommending various online tools for each level of the taxonomy, and even something called the "Padagogy," a visual wheel of how 62 iPad apps can be applied in Bloom's Digital Taxonomy. [14]

By considering theories of what has previously worked well in distance education, newer connectivist ideas involving Web 2.0 technologies, and how to apply those technologies to course design using concepts such as Bloom's Digital Taxonomy, an instructional designer should be well-placed to create high-quality, relevant courses for online learning in the workplace.

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