

Mobile Technology - Participativism Theory

Otaiwan Day

Purdue University

EDCI 531, Dr. Paul D. Henry

March 1, 2015

Author Note

Otaiwan Day, Senior Learning Consultant, Kaiser Permanente, Oakland, CA

Correspondence concerning this article should be addressed to:

oday@purdue.edu

Introduction:

In Ertmer & Newby's updated article, *Behaviorism, cognitivism, and constructivism: Connecting yesterday's theories to today's contexts* (2013). The authors describe the Internet with its accessibility and content as the "participatory web" which enables users to share knowledge from a handful of contributors or sources (Ertmer & Newby, 2013, pg 66). This type of informal learning has been called ubiquitous learning, here and now learning, and mLearning. These terms are in reference to mobile devices (phones, tablets, and mp4 players) and they suggest that anyone with a mobile device can join in and participate in learning. Participativism uses Vygotsky's zone of proximal development, the use of scaffolding to provide feedback and guidance, and aspects of situated learning theory such as authentic experiences and informal learning to specifically target mobile technology usage for learning. This theory will help instructional designers understand the new learner so that learning will engage and motivate them. They offer the idea that technology has "rewired" the learner's brain in doing so a new kind of learner has evolved. They contend that new learners "want and prefer to learn differently, they seem exceptionally capable of doing so" (Ertmer & Newby, 2013, pg 66). New learners may prefer learning through mobile devices and studies have shown that learners are more motivated and enthusiastic about their learning.

Literature Review:

Participativism is derived from the phrase, "participatory web" from Ertmer and Newby's article. They state that the learning theories discussed 20 years ago are still very much the same today. What has changed is technology and teaching methods. Both

changed to keep up with the changing learner, the “digital native.” Ertmer & Newby call for instructional designers to create and implement learning strategies to engage learners in a variety of contexts (Ertmer & Newby, 2013, pg 69). Hear and now learning has been around for decades and has been widely researched as situated learning (Lave & Wenger, 1991, as cited by Martin & Ertzberger, 2013, pg 77). Adding mobile devices to situated learning opens up new dimensions and capabilities.

Mobile technology can be the answer to accessibility but “the challenge is for educators to rethink their current approaches to teaching” (Elias, 2011). Instructional designers will need to focus on content and not just the technology. The technology is here and educators need to know how to design for it. Included in this research is a Taiwanese study that talks about the importance of developing specifically for a mobile learning environment. The results show that it not only promotes the learner’s interest and attitudes but also their learning achievement.

Two recent studies are highlighted below comparing mobile device users and non-mobile devices users.

In a Taiwanese study done by Hwang & Wang (2011), the control group was given a tour-based mobile audio system that pointed those learners to the same learning objectives and asked a series of questions. The experimental group was given the same set of learning objectives but instead of providing answers, they were given hints and instructed to find the correct answers. This approach provided a more challenging learning environment. The result of that study showed that the experimental group

revealed higher both higher learning motivation and learning achievement (Hwang & Wang, 2011, pg 1029).

In another recent study done by Martin & Ertzberger (2013), the control group was given a list of paintings to view, and then returned to the classroom to read about the paintings. They were given a posttest and an attitude test. The experimental group used their mobile devices with a QR Reader installed, and was given a map of the location of the paintings. While in front of each painting, the experimental group used their QR Readers to get information on the paintings they viewed. They then went back to the classroom to complete the posttest and attitude test as well. The result of that study was the control group had higher achievement scores on their posttest. The experimental group scored higher in attitudes but lower in achievement (Martin & Ertzberger, 2011, pg 83).

Additional research will need to be conducted to see if in the control group in Martin & Ertzberger's study retained their achievement scores and if they retain interest in the subject (the paintings that were viewed). In turn, will the experimental group's attitude and interest surpass the control group's score over time? Based on the short timeframe of these studies, it would be wise to conduct a longer study in order to gauge the novelty of the device and how that affects attitude and motivation.

With rapid growth and reach of technology, "a 'new' kind of student who thinks differently than previous generations [has evolved]" (Ertmer and Newby, 2013, pg 65). New teaching methods and modes will need to be fashioned for the new learners. Due to

mobile technology, learners now think and process information differently than five years ago.

Here and now learning has the ability to engage learners because of its authentic learning and context based applications (Martin & Ertzberger, 2013). The literature used was useful in allowing the author to make direct connections to Participativism.

- (1) Vygotsy's zone of proximal development
- (2) Scaffolding learner guidance and the role of the instructor
- (3) Situated Learning – social, authentic, and informal

Application/Synthesis:

For digital immigrants - learners who were not raised with a computer in the home as children (Ertmer & Newby, 2013, pg 66) - the use of mobile devices, smartphone, tablet or and MP4 player, will find that incorporating them into face-to-face (f2f) learning (Gedik, et al, 2012) a novelty and useful tool as it extends the flexibility of learners to tap into their mobile devices to learn anywhere at any time. For those who were raised with computers in their home (digital natives) would also find mobile devices incorporated into f2f environments a novelty too. This is because instructional designer are beginning blend in mobile learning with regular classroom learning. Participativism will help the instructional designer bridge the gap of classroom with mobile learning.

- (1) Vygotsky's zone of proximal development

Participativism theory borrows Vygotsky's zone of proximal development to base the number of interactive elements in a mobile learning (mLearning) environment and to also develop material that will encourage critical thinking and challenge the learner at an appropriate level (Hwang & Chang, 2011, pg 1027). Users will have the flexibility to access learning at any time whenever they have a free moment to learn. For mature learners, this flexibility will afford them better use of otherwise unproductive time. One of the consequences of anytime accessibility to learning material is information and interaction overload. This might become chaotic to learners if they are not used to learning this way and have not learned to manage their time wisely (Motiwalla, 2007, pg 594). This theory also takes Vygotsky's natural process of development with the emphasis on seeking the task method and understanding its importance while not over-emphasizing the final product or performance (Driscoll, 2005, pg 248). This can be done by asking open-ended questions and asking the learner to seek the answer.

(2) Scaffolding learner guidance and the role of the instructor

Instructional designer will need to put cues in place for learners within the design of the mobile application help "learners ... bridge the gap between the learner's current skill level and a desired skill level" (Driscoll, 2005, pg 258). For example, when the learner fails to answer a question correctly, the application will give hints to guide the learner to make further inquiries and observation. The learner is prompted to find the correct response to the answer on their own (Hwang & Chang, 2011, pg 1025). The instructor should facilitate initial discussion and fade out of the discussion to give more dialogue to the learners only jumping in to sustain or coach the learners if they veer off

track. They will also focus on learning outcomes and push reminders about assignments and expectations via mobile technology or face-to-face. Regardless of the venue, f2f or mobile device, the primary focus for the instructor is to foster a collaborative and sharing environment which all the contributions of all the learners are valued (Elias, 2011, pg 152).

(3) Situated Learning – social, authentic, and informal

In current studies on mobile learning the social aspect of mobile technology is as ubiquitous as the technology itself. Here and now mobile learning may be the best example of situated learning to date. “Here and now mobile learning is defined as learning that occurs when learners have access to information anytime and anywhere via mobile technologies to perform authentic activities in the context of their learning” (Martin & Ertzberger, 2013, pg 77).

Participativism uses similar characteristics, social engagement, authentic activities, and informal learning. Social engagement due to the nature of the mechanism of delivery is more sociocultural as handheld devices have cameras, navigation, search, and social networking capabilities for on-demand learning. Mobile learning allows the learner to adapt to new environments and situation by learning what the social context is through their device.

Mobile devices allow for more authentic activities to be presented to the learner to enhance their experience. In the example of the learner who gives an incorrect response, the application will prompt the learner to find the correct answer using their device for hints and instruction. The mobile device can be used in any location and context. The

learners can use the camera to take a photo, type notes, use geospatial technology to get to directions, or scan a QR reader to record additional information. The learner participates in their learning with authentic experiences that have meaning for them.

Authentic activities and social engagement both lead to informal learning which is a key aspect of situated learning and Participativism. At times during social and authentic activities, learners do not realize that they are experiencing instruction. They view it as being in the world and interacting in it. Mobile technology, with its ubiquitous nature in today's society, makes informal learning easier to obtain.

Conclusion

Classrooms have changed in the last 20 years. Technology has advanced faster than instructional designer's ability to keep up with it. We have gone from correspondence courses using cassette tapes to ubiquitous here and now mobile learning in that span of time. Instructional designers need to understand how to turn what was once a distraction (mobile devices) into a learning tool. Participativism can be used as a framework for constructing mobile learning. Eventually, all new learners will be digital natives and we will have a shrinking population of those who refuse to use the technology.

References:

Andrews, T., & Tynan, B. (2012). *Distance Learners: Connected, Mobile and Resourceful Individuals*. *Australasian Journal of Educational Technology*, (4), 565-579.

- Driscoll, M. P. (2005). *Psychology of Learning for Instruction* (3rd edition.). Pearson Allyn and Bacon.
- Elias, T. (2011). *Universal Instructional Design Principles for Mobile Learning*. *International Review of Research in Open and Distance Learning*, (2), 143-156.
- Ertmer, P.A., & Newby, T.J. (2013). *Behaviorism, cognitivism, and constructivism: Connecting yesterday's theories to today's contexts*. *Performance Improvement Quarterly*, 26(2), 65-71.
- Ertmer, P.A., & Newby, T.J. (1993). *Behaviorism, cognitivism, and constructivism: Comparing critical features from and instructional design perspective*. *Performance Improvement Quarterly*, 26(2), 43-71.
- Hwang, G.J., & Chang, H.F. (2011). *A Formative Assessment-Based Mobile Learning Approach to Improving the Learning Attitudes and Achievements of Students*. *Computers & Education*, (4), 1023-1031.
- Gedik, N., Hanci-Karademirci, A., Kursun, E., & Cagiltay, K. (2012). *Key Instructional Design Issues in a Cellular Phone-Based Mobile Learning Project*. *Computers & Education*, (4), 1149-1159.
- Martin, F., & Ertzberger, J. (2013). *Here and now mobile learning: An experimental study on the use of mobile technology*. *Computers & Education*, 68, 76-85.
- Motiwalla, L.F. (2007) *Mobile learning: A framework and evaluation*. *Computers & Education*, Volume 49, Issue 3, November 2007, Pages 581–596.