

Learning Theories in Relation to Web 2.0 Technologies in the Classroom

Ally Gilin

Boise State University

Abstract

The use of technology over the last decade has become increasingly popular in personal, business, and educational settings. In addition, the use of Web 2.0 technologies such as blogs, wikis, social media networks, podcasts, video sharing, etc. are also on the rise. The use of these technologies has the ability to greatly enhance any classroom setting, however, proper teaching and learning techniques must be put into place in order for this usage to be most effective. The following research explores several learning theories including connectivism, Piagetian-based constructivism, sociocultural constructivism, constructivism and social media, and the activity theory in correlation with Web 2.0 technologies. By aligning each learning theory to Web 2.0 technologies, instructors will possess a variety of ways that they are able to create a collaborative digital learning environment in which all students will benefit regardless of their learning levels and abilities. Students will be able to experience reflective discussions in numerous formats which will allow for enhanced levels of critical thinking, providing a deeper meaning to one's learning.

Keywords: Web 2.0, learning theories, connectivism, constructivism, social media, activity theory

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The purpose of this research is to connect and apply several learning theories to the benefits of using Web 2.0 technologies in the classroom. Technology has become part of everyday life, not only in a personal and professional aspect, but educational as well. “Over the past decade, the use of Web 2.0 technologies with students has been increasingly adopted in education settings and many educators have integrated these technologies into reflective assignments” (Dyment & O’Connell, 2016, p. 392). Although technology provides numerous benefits to users, there are also barriers that must be overcome in order to experience the convenience that technology provides. Properly training educators to use and incorporate such technologies in a way that is meaningful to student learning is vital before assigning students to use technology to learn, collaborate, and reflect.

Technology is ever-changing and the challenge to keep up can be overwhelming. Through Web 2.0 technologies and the use of different learning theories, students will be able to experience a different type of collaborative learning environment and instructors will have the knowledge to properly facilitate such learning. The evolution of technology in education within the last ten years is astounding, and will only continue to evolve. Strictly traditional classrooms are no longer the norm. Practices such as reflective journals have been examined to determine effectiveness, resulting in low levels of critical and reflective thought. In response, “educators have attempted to address these issues through providing training to students, clarifying expectations, giving exemplars, and offering alternative, more creative, forms of reflecting than traditional pen and paper formats (i.e. blogs and portfolios)” (Dyment & O’Connell, 2016, p. 393). Through the use of Web 2.0 technologies, the goal is to push students to a level where they

increase engagement through discussion-based learning, constructing creativity through the collaboration of others, ultimately allowing for students to take action in their own learning, enhancing critical thinking and reflective skills. By pairing best practices, the following learning theories, and the numerous Web 2.0 technology resources available, students will heighten their knowledge and understanding through a collective digital community.

Applying Web 2.0 Technology

An increase in technology use has sparked the growth of new tools, gadgets, applications (apps), communication devices, social media platforms, etc. being used as valuable resources. Our world is constantly looking for ways to improve and update so that the latest and greatest technologies are available. One no longer has to search for information, the information finds us. Personal smart devices allow for instantaneous interactions, communication, updates on news, weather, sports, email, etc. with simply the press of a button or the click of a mouse. The connection to one another is constant, which can be intimidating. This is a curse and a blessing in the social and business world. With this comes the expectation to always be available and be up to date with the latest and greatest technologies. It has encouraged the expectation of an immediate reply and the connection to technology devices that has become nonstop.

Despite the pressures to always be “in the loop,” technology has several benefits, especially with the new advances and applications in the classroom. A type of technology that possesses numerous technological resources is Web 2.0. Web 2.0 is defined as “accessibility of the user to take in information and create, organize, and connect with others interested in the same topics” (Pritchett, Pritchett, & Wohleb, 2013, p. 33). This allows for a unique type of learning platform that is different from face to face interactions or pen and paper responses. Web

2.0 technologies include, but aren't limited to blogs, wikis, social media networks, podcasts, video sharing, etc.

These technologies each have multiple uses. Blogs allow for users to express themselves in an informal format and can be used to share or reflect. Wikis create a space where a community of individuals can put their knowledge of specific topics in a central area and collaborate and edit the content that is available. A variety of social media sites such as Facebook, Twitter, Instagram, etc. are used for personal and social aspects, but also can be used to filter information through the use of hashtags, and the promotion of events, businesses, etc. The use of social media is infinite, and using it for the purpose of creating educational discussions has become increasingly popular. This can be done by posting reflective questions and allowing learners to respond by commenting or tweeting their responses and organizing information by using assigned hashtags. This format allows for not only informal reflective practices, but also the instantaneous collaboration of users around the world! Podcasts allow the user to create digital audio files on the topic of their choice and allow other users to listen and subscribe. Video sharing uses sites such as YouTube makes it easy for users to create "how to" videos or informational clips that can be shared through email, social media, and other platforms. These technologies are endless and many times free, readily available for use, and are continuously being updated and explored, determining the best uses in a classroom environment.

Web 2.0 technologies allows for the collaboration with other users, creators, and instructors, establishing a collective environment. Although Web 2.0 technologies are numerous and described to be "user friendly," many educators face challenges deciding which technologies to utilize in a way that supports the pedagogical knowledge and needs of their students. With so many technologies available, it can become overwhelming to determine which technologies fit

well with the content being taught. Educators are not the only ones who struggle to keep up with these new technologies. Although there is the common assumption that the generation of millennials is tech savvy, this is not the case for all. Students may experience such barriers as well in terms of using and navigating new technologies such as Web 2.0. In addition, Web 2.0 technologies may shy away from traditional, factual knowledge responses. Responses may become more open-ended to the expression of users' interpretation of questions, thoughts, opinions, and reflections. This allows for students to express their thoughts and ideas freely. Students may struggle with the "contradictory nature of teaching and learning Web 2.0 technologies (in which they are more responsible for creating knowledge and understanding for themselves)" (Dyment & O'Connell, 2016, p. 397). Having ill-defined instructions and this type of creative thinking can be a challenge for students. With this in mind, Web 2.0 technologies are increasing in popularity in traditional and distance learning. With proper training of educators regarding the specific technologies uses, students will be able to not only learn new technological skills, but also grow in a community of others that challenges them to think outside the box. With the alignment of learning theories and Web 2.0 technologies in the classroom, the possibilities are endless.

Learning Theories

Since education began, learning theories have been around to assist educators in determining the best practices for teaching students in order to promote life-long learning. Although there are numerous learning theories to explore, the following theories stood out as those that correlated well with Web 2.0 technologies in the classroom. These theories are connectivism, Piagetian-based constructivism, sociocultural constructivism, constructivism and social media, and the activity theory. Each supports Web 2.0 applications in a similar, but unique

way. It is important to understand ways that educators can not only learn such technologies themselves, but also, how to guide students to get the most out of the technology resources that are available. “Media shape how learners, especially the millennials onward, learn and how they know” (Schrader, 2015, p. 28). As one can see, we live in a generation reliant on technology. Embracing these types of technologies is inevitable, however, it is still important to apply these theories so that learning can properly be facilitated and actually take place. The following theories are described and examples are given explaining potential uses of such theories in connection with Web 2.0 technologies.

Connectivism. Connectivism incorporates work experience, learning, and knowledge. It involves “learning that occurs when knowledge is actuated through the process of a learner connecting to and feeding information into a learning community” (Hill & Kop, 2008, p. 2). The sharing of information and collaboration can be found in a community that comes together for a common purpose. Such learning communities are described as a “culture of learning in which everyone is involved in the collective and individual effort to understand” (Land & Jonassen, 2012, p. 269). This community allows for interactive learning and improvement through constructive feedback. In this learning model, a learning community is described as a *node*. These nodes are developed out of connection points that are found within a network. These information networks allow for knowledge to be stored and explored in numerous digital formats (Hill & Kop, 2008). Web 2.0 technologies fit well within this learning theory. For example, students are able to collaborate with one another through interactive discussions on multiple platforms. The use of sites such as Blackboard, Google+, and social media sites are just a few of the most popular. This allows students to not only post their thoughts and ideas regarding a specific topic, but also interact with classmates and the instructor to provide for organized

discussions, reflection, and feedback from both parties. A main benefit of learning communities is that learning is not restricted to a classroom setting. As a result of the advances in technology, learning communities allow for constant and direct interaction, whether it be in a traditional classroom or thousands of miles away in a different country.

Piagetian-Based Constructivism. Piagetian-based constructivism focuses on “how people make meaning of or construct knowledge when interacting with content knowledge and the active process of this interaction” (Schrader, 2015, p. 24). This can either happen individually or as a group. The “process of construction of meaning, of learning, and of knowledge development involves active engagement with the objects and people in the environment” (Schrader, 2015, p. 24). Through this engagement, assimilation, accommodation, and equilibration are processes used to interpret and shape what the learner already knows and what they learn from the engagement of the experience. This allows for deeper thinking, which in turn will require students to reflect on their own learning and potentially question the learning of others. Active engagement and application will result, leading students to be held accountable for taking ownership of their own learning. In connection to Web 2.0 technologies, learners can use online discussion posts to share their ideas, post videos, or presentations. Classmates will be able to comment their ideas and feedback which will create a collaborative environment that will challenge students to expand their knowledge and learn from the interactions with others.

Sociocultural Constructivism. In this theory, culture plays a vital role in learning and development. Lev Vygotsky-based sociocultural constructivism “focuses on the social and cultural environment, artifacts, tools, temporal elements, and engagement with both peers and more expert others to both explain how meaning making takes place and how learning occurs” (Schrader, 2015, p. 24). With the use of Web 2.0 technologies, users will not only reflect on their

own learning, but use their collaboration efforts to learn from their peers. Through discussion-based learning, collaboration and constructive feedback is welcomed. Learning interactions will produce thoughtful discussions and responses, allowing for a culture of high expectations. Students will be able to problem-solve with one another through dialogue, which is the core of constructivism. “Expert students” will be available to guide students and assist when necessary, creating a solid retention of knowledge. This guidance occurs in the zone of proximal development, or ZPD. The ZPD is “the difference between what the knower can do on his or her own and what can be done with assistance” (Schrader, 2015, p. 25). The course instructor will act as an “expert” as well. Instructors are available to guide students, participate and question answers when applicable, and push the students to higher levels. With the use of Web 2.0 technologies, sociocultural constructivism can easily take place in a traditional classroom setting or be transferred to an online course. Because of its flexibility, learners are not be isolated to one area, but rather, can collaborate from the location in which they reside. Learners will greatly benefit from this culture of guided exploration.

Constructivism and Social Media. “Social media is a process by which learners and teachers can co-construct the knowledge and skills necessary to effectively know and communicate the self, to interact positively and ethically in social relationships, and to co-construct knowledge necessary for the world of work” (Schrader, 2015, p. 30). Created for personal use, social media has widely expanded to become applicable in business and educational settings as well. We live in a world where an “impressive 83 percent report they sleep with their smartphones, 74 percent report technology makes their lives easier, and 54 percent report closer relationships with friends and family due to technology” (Schrader, 2015, p. 28). These numbers are only rising and the need for such social interactions has become

addicting. It is important to utilize social media in a way that is meaningful for learning. This technology-based communication promotes “students learning to both think and explore within and outside of their own perspective or mindset. They also learn to take perspectives of others in important ways that influence social-emotional learning” (Schrader, 2015, p. 28). Seeing the real world in action will promote students being open to others’ thoughts, opinions, and ideas regarding endless topics. As one can see, constructivism aligns perfectly with the goals of using Web 2.0 technologies.

Activity Theory: The activity theory is a “psychological and multidisciplinary framework useful for studying human practice by interlinking the individual and social levels” (Heo & Lee, 2013 p. 135). Much like constructivism and social media, interactions become a necessity with this theory. “Learning emerges from activity, more specifically, the interaction of human activity within a certain context” (Heo & Lee, 2013, p. 136). The activity theory can easily be utilized with several Web 2.0 technologies. Certain contexts may include specific discussion board topics or blog posts that allow for response and feedback through digital interactions. It may also include the use of social media networks such as Twitter, grouping information through the use of hashtags that relate to the discussion at hand. The activity theory “explains the learning processes that result from particular actions of learners in a particular context, actions that eventually benefit the learners through expanded knowledge, skill, and attitudes as a final result” (Heo & Lee, 2013, p. 136). Much like the previous theories described, the activity theory promotes active engagement in the process and “learning by doing.”

Conclusion

New technologies, such as Web 2.0 applications, have made it easier to incorporate technology in the classroom, however, there are still challenges to any type of technology

integration. Staying up to date with such technologies has become a necessity and will only continue to be a part of our world in social, business, and educational settings. Web 2.0 technologies provide users the opportunity to communicate and collaborate in a way that makes learning and application meaningful, allowing for learners to take an active role in the process. As great as these technologies are, it is important that proper trainings of educators and students are a high priority so that both parties can first become well-versed in Web 2.0 technologies. Web 2.0 in alignment of learning theories such as connectivism, Piagetian-based constructivism, sociocultural constructivism, constructivism and social media, and the activity theory, the possibilities are endless. Technology integration in the classroom is a work in progress that requires educators to begin with the foundation of these learning theories as the framework. By successfully incorporating such practices in all classroom settings, students can experience higher levels of critical thinking and reflection that will be achieved through the collaboration of users in a digital community.

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