Benefits of Constructivism

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Abstract

Many in education are turning to the constructivist model as a viable alternative to not only behaviorism but as a more reliable and practical alternative to other theoretical paradigms as well. This paper will highlight some of the benefits of learning in a Constructivist environment. The paper examines three distinct benefits of the constructivist model within the context of educational technology: its promotion of active learning; its emphasis on collaboration; and finally, its emphasis on learning with technology rather than simply learning from technology.
Now that we are comfortably orienting ourselves to the emerging challenges of the twenty-first century, one critical entity that screams for attention and questions our current and future commitment is that of education. Throughout the 20th century (and earlier) technology has existed in the classroom in various forms such as television, projectors, and other technological advances. The reverberation of the need for and use of technology is only becoming more and more prevalent. Each successive generation has continued using technology, especially computers for example, as an inherent part of its educational curriculum. Inevitably this trend has presented educators with some concerns and challenges regarding the application and about how best to utilize these technologies in the classroom both now and into the future.

“The use of educational technologies in teaching and learning presents pedagogical concerns and challenges to educators. Combining multimedia technologies with the Web has created new possibilities for the development of instructional materials to deliver course content. However, this use of technology continues to represent traditional conceptions regarding the use of computers. The question remains as to when and how to use various forms of educational technology and how to best integrate them into the classroom”. (Juniu, S. 2006, p67)

One competing theory used to ground technology in a learning environment is the constructivist theory which provides at least three benefits to the learning process. “According to constructivist theory, learning is an active and social process in which students play an active role in building knowledge, discovering relationships among facts, constructing conceptual frameworks that explain those relationships, and exploring new arenas”. (Woodard, B.S. 2003, p186) Of the three principle theories (behaviorism, cognitivism, and constructivism), the most

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prevalently used among them was behaviorism. Perhaps to a large extent, even today, behaviorism is still the most widely used theory in the learning environment. One of the fundamental flaws of behaviorism however is the inherit use of the punishment and rewards system. Consequently, in this high cultured learning environment the behaviorist theory is now showing its age and is no longer as effective as a viable theoretical foundation. Therefore, the constructivist theory is now seemingly one of the more viable learning theories. This paper will examine and describe three benefits that students may encounter in a constructivist learning environment. That is, it will show how students can benefit from learning in a constructivist environment; and how the integration of technology in a constructivist environment yields the most effective outcomes based on research data.

**Active Learning**

First, a constructivist model promotes students’-active learning. In Behaviorist learning environments, students were positioned as merely passive recipients of information. This view is supported by the author of the article ‘Instructionism and Constructivism: Reconciling Two Very Good Ideas’ when he states: “Currently, as well as historically, the practices of education have corresponded, to varying degrees, to either a static, passive view of knowledge or an adaptive and active view (Prawat, 1996)” (Johnson, G.M 2005, p91). Prawat was not alone in this view when condemning the practices regarding passive learning. From an article entitled ‘Active Learning in a Constructivist Framework’, it states “passive learning activities, in which the students are passive receivers of information, include listening to the teachers’ exposition, being asked a series of closed questions, and practice and application of information already presented”. (Anthony, G. 1996, p350) However, with the constructivist model students are no longer merely passive recipients but rather active participants. “Constructivists believe that
students construct their own meaning through active engagement and by constructing their own representation of what they know. Students learn from thinking and doing, and thinking results from an activity (Jonassen, Peck, & Wilson, 1999). In a constructivist environment, students’ are challenged to become actively engaged throughout the entire learning process in various ways. One way students become engaged is through exploration. Once a learning activity is assigned, students usually begin by exploring the learning activity in order to develop their own understanding. This exploration process requires the student to search out, examine, and analyze the specifics of the assignment in an attempt to identify relevant information. In the article, ‘Beyond Active Learning: a constructivist approach to learning’, the writers make the point that “Students are not passive receptacles. They do not easily process or transfer what they passively receive. In order to make knowledge useful in a new situation, students must make a deliberate effort to make sense of the information that comes to them. They must own it. They must manipulate, discover, and create knowledge to fit their belief systems”. (Cooperstein, S.E., & Kocevar-Weidinger, E. 2004, p2) Another way students become actively involved in the learning process is by synthesizing information. After analyzing and examining the situation, part of the learning process is figuring out how to produce the expected results. Sometimes information needs to be synthesized to determine its relevancy to the task based on the students pre-existing understanding and the new knowledge the student has acquired. “New learning builds on prior knowledge. In making an effort to make sense of information, students must make connections between old knowledge and new information. They must compare and question, challenge and investigate, accept or discard old information and beliefs in order to progress” (Cooperstein, S.E., & Kocevar-Weidinger, E. 2004, p2).
In this graduate program, students are engaged in an online constructivist environment where learning activities are constructed in a way that promotes active learning. These activities require students to incorporate various learning strategies with the teacher being one who prompts and facilitates discussion. In the article ‘Active Learning in a Constructivist Framework’, it defines learning strategies as the “behaviours and thoughts affecting the learners’ motivation or affective state, or the way in which the learner selects, acquires, organizes and integrates new knowledge (Weinstein and Mayer, 1986). By using various learning strategies, people can intentionally influence the form and quality of the knowledge they do acquire (Derry, 1990, p.348).” (Anthony, G. 1996, p351) In my opinion, this definition appears to have some validity; for most course assignments, cognitive skills are actively engaged when analyzing, investigating, problem-solving, participating in small groups, collaborating, and experimenting with lesson activities. This may be a result, in large part, because of the technological tools that are integrated into this constructivist learning environment. The use of these tools provides access to an abundance of information that is evaluated and synthesized.

Collaboration

A second benefit of constructivism is its emphasis on collaboration to construct, share, and challenge ideas and knowledge with peers and teachers. In the article ‘Teaching the Way Children Learn’, the author states:

“Building on understandings that social interaction is indispensable to the development of thought, a constructivist learning environment is organized to include ample opportunities for students to collaborate and to exchange ideas with peers and adults. Classrooms are set up to include cooperative learning and peer-teaching situations so that students can talk together freely as well as question and
argue with each other about ideas. These kinds of exchanges enrich, extend, and solidify understandings as well as continually expose students to different perspectives”. (Falk, Beverly, 1994, p2)

Moreover, with the integration of technology in a constructivist environment, a plethora of technological tools can be used to simplify and support the collaboration process between students, teachers, and peers. For example, email, chat-rooms, video-conferencing, social media, and blogs are just a few ways to collaborate. The benefits of these tools, if used properly, are as follows: first, they challenge students to think critically about topic discussions before and during the collaboration process with peers; students are able to store and retrieve information electronically; and finally, these tools allow students the privilege of sharing information with individuals outside of the classroom and regardless of geographical locations. The article ‘Research on e-Learning and ICT in Education’ lend support to the above claims. The article introduces blogs as a Project-based Learning Environment. The editor of the article states:

“Blogs can be used as collaborative content sharing spaces to support project-based learning activities. Poling (2005) engaged students from different classes in a cooperative project about natural environment. Through the blog, the students shared their reflections, completed a writing project, read, and commented on other students’ posts. In a similar study, secondary education students from two different classes collaborated through a blog to implement a long-term project about the issues of doping and using drugs by athletes to improve their performance in sports (Angelaina and Jimoiannis 2009). The analysis of students’ cognitive presence, ideas sharing and debating showed that educational
blogs could be effective tools to support collaborative construction of knowledge”. (Jimoyiannis, A. 2012, p172-173)

Effective tools similar to blogging are used in this online graduate program to support the collaborative construction of knowledge. This collaborative process takes place with peers in different geographical locations and time zones. In the course, ‘Theoretical Foundations of Educational Technology’, students write and post individual and group views on different learning theories. Students are expected to provide and receive peer feedback to support and/or challenge the beliefs and thinking process of fellow participants. In the article ‘Beyond active learning: a constructivist approach to learning’, the authors assert “feedback is important as an instructional tool and as a motivational factor (Bruner et al., 1956; Mayer, 1987). If students are to function as self-regulated learners, they will need opportunities to assess their progress in understanding content or mastering skills (Good and Brophy, 1994, p. 245)”. (Cooperstein, S.E., & Kocevar-Weidinger, E. 2004, p5)

**Learning with Technology**

A third benefit of constructivist learning, as it relates to the integration of technology, is students having the opportunity to learn with technology versus learning from technology. When learning from technology, the tool is used as a means to deliver information to the student. The article ‘Reframing research on learning with technology’ makes clear the distinction between learning from technology to the advantages of learning with technology. It states the following “As described in Jonassen and Reeves (1996), much of the disappointing results of the application of computers in education can be attributed to a misguided emphasis on using technology as something that students should learn “from” in a fashion similar to how they might learn “from” classroom teachers, textbooks, or television”. (Kim, B., & Reeves, T.C. 2007, p2)
However, when learning with technology, tools can be utilized in a way to challenge student skills such as critical-thinking, problem-solving etc. Students become more involved in the learning process because the learning activity requires active involvement. In the article ‘Technology and the Constructivist Learning Environment: Implications for teaching information literacy skills’, it says “learning with media and technology means that learners function as designers using media and technology as tools for analyzing the world, accessing and interpreting information, organizing their personal knowledge, and representing what they know to others (Reeves, 1998, Executive Summary, para.10)”. (Woodard, B.S. 2003, p186-187) Also, in an article ‘Reframing research on learning with technology’, indeed technology itself is referred to as a cognitive tool. The article states: “For cognitive tools to actually become an extension of human cognition, learners must strive for Mindful engagement in activities. Mindful engagement requires learners to be fully involved in examining novel, multiple perspectives and categories when problem-solving (Langer and Moldoveanu, 2000)”. (Kim, B., & Reeves, T.C. 2007, p5-6) The writer can relate to the concept of learning with technology based on personal experience in this online graduate program. The learning process is performed via computers that have access to the internet, World Wide Web, and many variations of software applications. When learning with these tools, it enhances the opportunity to learn by seeing and learn by doing. In the article ‘Using Technology Tools to Engage Students with Multiple Learning Styles in a Constructivist Learning Environment’, it states:

“Technology aligned to learning styles has been used to engage students and support learning (Chen, Toh & Ismail, 2005; Larsen, 1992). Technology tools also serve to enable (Pittman, Rutz, & Elkins, 2006) through creation of learning objects and extend learning by providing “learning by doing” or “learning by
seeing” experiences (Bruner & Olson, 1973). They also affect the manner in which students respond to, contribute to, and demonstrate understanding of content (Chen, et al, 2005)” (Solvie, P., & Kloek, M. 2007, p10)

Learning by seeing and learning by doing has been instrumental in my understanding of content. In the course “Managing Technology Integration in Schools”, the requirement was to create a Web Quest. A Web Quest, as defined by Wikipedia, is an inquiry-oriented lesson format in which most or all the information that learners work with comes from the web. As a pre-service teacher with zero years of experience, this lesson activity was foreign. But being able to utilize a computer to access the World Wide Web provided the ability to research and review sample Web Quests. As a result of learning by seeing, comprehension of key elements that comprised a Web Quest became more transparent. The learning by doing, however, stimulated an interest and desire to design and develop a Web Quest for students that encourage higher-order thinking (such as analysis, creativity, or critical-thinking) versus just allowing the student inquire information. The article ‘Reframing research on learning with technology’ states the following:

“The results of the cognitive activities of learners should be the consequences of constructing knowledge “with” computer tools rather than learning “from” computer tutorials in a manner previously structured by someone else. The focus on the use of computer tools for cognitive activities for learners to think “with” is derived from the theory of distributed cognition (Salomon, 1993c). Distributed cognition implies that learners are enabled to think deeply and create certain types of artifacts that represent their thinking by working with cognitive tools”. (Kim, B., & Reeves, T.C. 2007)
Therefore, in my opinion, the integration of technology in a constructivist environment can be a way for students to take advantage of learning *with* technology in lieu of learning *from* technology.

**Conclusion**

This paper has made an attempt to show the feasibility of constructivism as a viable learning theory in connection or cooperation with technology. Three distinct benefits of the constructivist learning theory were raised. That is, we examined and described constructivism from the perspective of active learning; highlighting two of its central features: exploration, and synthesizing. Here the students are not simply passive learning, who merely sits and takes in information without actively questioning, challenging, examining, and exploring that information. The students are indeed involved participants; those who are fully engaged within the learning environment.

This paper also looked at another benefit of the constructivist model. It posited how collaboration is crucial to the learning environment. Students work together and in conjunction with the educators, and along with the technology itself to share information so as to enhance the context of learning. This characteristic of constructivism ensures the students’ involvement as it use fellow students, teachers, and others via technological connections. The student does not simply rely on his or her individual work the dependency is broader as others are involved in the student’s learning and the student in the learning of others.

The third benefit discussed was that of learning with technology rather than learning from technology. The students partner *with* technology to aid in expanding the horizon for learning. These three benefits have shown how practical the constructivist theory in the educational
system is beneficial to students and teachers and how it helps to ground the use of technology in the learning environment.
REFERENCES


