Active Learning Theory towards the Use of e-Learning

Rozita Kadar, Norazah Umar, Jamal Othman and Nurhafizah Ahmad
rozita231@uitm.edu.my, norazah191@uitm.edu.my, jamalothman@uitm.edu.my, nurha9129@uitm.edu.my

Jabatan Sains Komputer & Matematik (JSKM), Universiti Teknologi MARA Cawangan Pulau Pinang, Malaysia

Introduction to e-Learning

Teaching can be based in or out of the classrooms enabled to transfer of skills and knowledge. Now a days, most of universities have implementing e-learning method to enhance the traditional form of teaching and this method gives students much greater flexibility of study (Diana, 2005). The e-learning system based on formalized teaching but with the help of electronic resources which is utilizing the electronic media, and information and communication technologies.

The use of computers and the Internet forms the major component of e-learning. It includes numerous types of media that deliver text, audio, images, animation, and streaming video, and includes technology applications and processes such as audio or video tape, satellite TV, CD-ROM, as well as local intranet/extranet.

There are different approaches in implementing e-learning. Algahtani (2011) discovers three distinct approaches of using e-learning in education which are: *adjunct*, *blended* and *online*. Figure 1 shows the model of approaches using e-learning in education.

The three approaches of e-learning are discussing below:

i. **Adjunct** - The situation which e-learning is employed as an assistant in the traditional classroom providing relative independence to the students.
ii. **Blended** - The delivery of course materials and explanations are shared between traditional learning method and e-learning method in the classroom setting.

iii. **Online** - Devoid of the traditional learning participation or classroom participation. The e-learning is total so that there is maximum independence of the students. Zeitoun (2008) has gone further to explain that the online model is divided into the individual and collaborative learning, where the collaborative learning also consists of the synchronous and asynchronous learning.

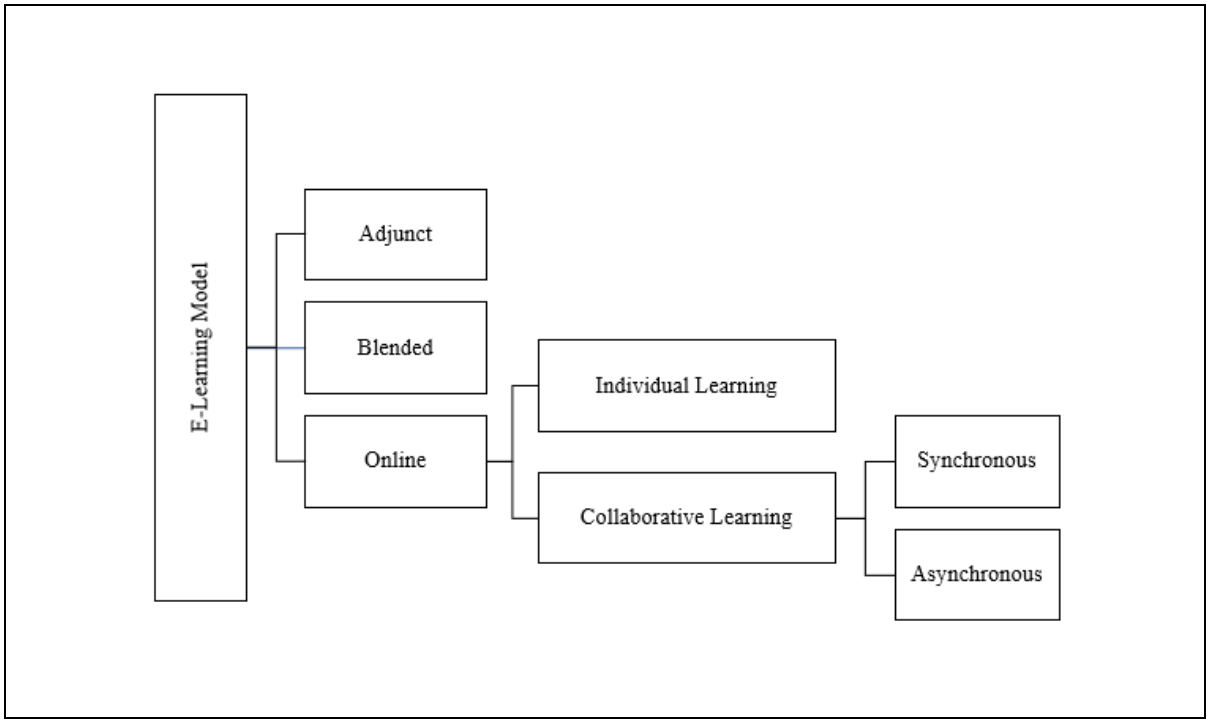

Figure 1 The model of e-Learning in Education

The Advantages and Limitations of e-Learning

Whenever students enrol for e-learning study, there are several benefits of e-learning but besides the benefits, are there also has the limitations of this practice. The next discussion has listed the advantages and limitations of e-learning.

Advantages of e-learning

- The flexible of choosing the place and time that suits to the students.
- Ease of access to the information that enhances the students' knowledge

- Improve communication skill among students using discussion forums and hindering the fear of talking to other students.
- Cost effective by offering opportunities for learning for maximum number of students with no need for many places.

Limitations of e-learning

- Makes the students undergo contemplation, remoteness, as well as lack of interaction or relation. Requires a very strong motivation and time management skills in order to reduce such effects.
- Less effective that traditional methods of learning (with respect to clarifications, explanations, and interpretations). The learning process is much easier face-to-face with instructors or teachers.
- Limit the role of instructors as directors of the educational process.
- Though students might have an excellent academic knowledge, they may not possess the needed skills to deliver their acquired knowledge to others.
- May also be subject to plagiarism, cheating, inadequate selection skills, and inappropriate use of copy and paste.
- Not all disciplines can effectively use e-learning in education

Active Learning Theory

Active learning is a process that has student learning at its centre. Active learning focuses on how students learn, not just on *what* they learn. Students are encouraged to 'think hard', rather than passively receive information from the teacher.

Active learning is based on a theory called constructivism. Constructivism emphasises the fact that learners construct or build their own understanding. Constructivists argue that learning is a process of 'making meaning' (Cambridge Assessment International Education, 2019). According to Brame (2016), active learning is commonly defined as activities that learners do to construct knowledge and understanding. Learners develop their existing knowledge and understanding in order to achieve deeper levels of understanding.

Active learning also links to other theories of learning. This article discusses the nature of Active Learning from the perspectives of four theories: *Dewey's Inquiry-Based Education, Piaget's Constructivism, Vygotsky's Social Constructivism* and *Bruner's Discovery Learning*.

a) Dewey's Inquiry-Based Education

Dewey, J. (2011) was talking about how children learn best when they interacted with their environments and were actively involved with the school curriculum. He rejected much of the prevalent theory of the time – behaviourism – as too simplistic and inadequate to explain complex learning processes. He argued that rather than the child being a passive recipient of knowledge, as was presumed by many educators of the time, children were better served if they took an active part in the process of their own learning. He also placed greater emphasis on the social context of learning. Dewey further argued that for education to be at its most effective, children should be given learning opportunities that enabled them to link present content to previous experiences and knowledge. Another feature in Dewey's theories was the need for learners to engage directly with their environment, in what came to be known as experiential learning, where 'knowledge comes from the impressions made upon us by natural objects'.

b) Piaget's Constructivism

Piaget's theory provides a solid framework for understanding children's ways of doing and thinking at different levels of their development (Ackermann, 2001). It gives us a precious window into what children are generally interested in and capable of at different ages. Their ways of doing and thinking have an integrity, a "logic" of its own, that is mostly well suited to their current needs and possibilities. This is not to say that children's views of the world, as well as of themselves, do not change through contact with others and with things. The views are continually evolving. To Piaget, knowledge is not information to be delivered at one end, and encoded, memorized, retrieved, and applied at the other end. Instead, knowledge is experience that is acquired through interaction with the world, people and things.

c) Vygotsky's Social Constructivism

This theory as known as Developmental theory. Piaget and Vygotsky are no exceptions. Both view the lengthy path towards higher forms of reasoning or 'formal operational thought' ultimately as proceeding from local to general, from context-bound to context-free, from externally supported to internally driven. Accordingly, cognitive achievements are gauged in terms of three major acts of distancing: The ability to emerge from here-and-now contingencies, The ability to extract knowledge from its substrate; and The ability to act mentally on virtual worlds, carrying out operations in the head instead of carrying them out externally.

d) Bruner's Discovery Learning

Discovery Learning was introduced by Jerome Bruner and is a method of Inquiry-Based Instruction (Takaya, 2008). It is considered a constructivist-based approach to education. This theory encourages learners to build on past experiences and knowledge, use their intuition, imagination and creativity, and search for new information to discover facts, correlations and new truths. Learning does not equal absorbing what was said or read, but actively seeking for answers and solutions. Discovery learning takes place in problem solving situations where the learner draws on his own experience and prior knowledge and is a method of instruction through which students interact with their environment by exploring and manipulating objects, playing with questions and controversies, or performing experiments.

Pappas (2015) suggested some tips that may help educators in integrating active learning into e-learning courses which are: Use a variety of learning strategies, Follow a mistake-driven learning approach, Encourage collaboration, Focus on interactivity and Connect your online training course with the real world.

One of the biggest benefits of active learning is that it allows students to apply what they are learning; thus, always remember to create fitting examples, suitable cases, and relevant problems to be addressed and solved. Use reality-based scenarios, demonstration videos that clearly explain work procedures, and e-learning simulations that inspire students to analyse their own problem-solving strategies. This way, it will make sure that students stay focused and engaged, as information is always better retained when it can be used.

Conclusion

How can active learning be applied to an e-learning and how can students benefit from it during their online learning, it all depends on the students. No matter how well designed in online training course is, it will not be of much use if it is irrelevant to students.

References

Ackermann, E. (2001). Piaget's constructivism, Papert's constructionism: What's the difference. Future of learning group publication, 5(3), 438.

Algahtani, A. (2011). Evaluating the E ectiveness of the E-learning Experience in Some Universities in Saudi Arabia from Male Students' Perceptions.

Brame, C. (2016), "Active learning." Vanderbilt University Center for Teaching.

Cambridge Assessment International Education. (2019). Active learning. Available at: https://www.cambridgeinternational.org/Images/271174-active-learning.pdf

Christopher Pappas (2015). Active Learning In Online Training: What eLearning Professionals Should Know. Available at: https://elearningindustry.com/active-learning-in-online-training-what-elearning-professionals-should-know

Dewey, J. (2011) Democracy and Education. Milton Keynes: Simon and Brown.

Laurillard, D. (2005). "E-learning in higher education." In Changing higher education, pp. 87-100. Routledge, 2005.

Takaya, K. (2008). Jerome Bruner's theory of education: From early Bruner to later Bruner. Interchange, 39(1), 1-19.

Zeitoun, H. (2008). E-learning: Concept, Issues, Application. Evaluation.