

MOOC for Training: A Review of The Variations Of MOOC

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As the Internet of Things (IoT) is paving its way into various industries, the educational field is changing from formal classroom to online education, where learning is not only restricted to face-to-face interaction but also virtually. This paper aimed to review the different models of MOOC, which can be used as guidelines to carry out online training. The discussion revolves around the various models of MOOC, whereby learning theories are used as a foundation. Ranging from cognitivist to connectivity, the models of MOOC keep emerging to suit the current demands of learning and to cater to the needs of each individual. The considerable variation of MOOCs does not make the earlier models to be ineffective, yet the later models complement the earlier ones. These discussions will be able to guide and provide an overview for educators and researchers in designing and developing MOOC, especially for professional training in the working field.

Keywords: *MOOC, education, online learning, technology, variations of MOOC, workplace training.*

Introduction

Internet of Things (IoT) is a collective term used in the Industrial Revolution 4.0 (IR 4.0). As IoT is paving its way into various industries, the educational field is also one of the sectors involved. Education is changing from formal classroom education to formal online education, where learning is not only restricted to face-to-face interaction but also virtually (Hashim, 2018). The virtual school, also known as open learning, is deemed to be essential in providing a new learning era for learners of different backgrounds (McGreal, 2017). One of the accessible free learning resources, which is well-known, is the Massive Open Online Course (MOOC) (Anders, 2015; Godwin-Jones, 2014; McGreal, 2017). MOOC is undeniably beneficial (Hashim, Yunus, & Hashim, 2018; McGreal, 2017; Nordin, Norman, & Embi, 2015; Rafiq, Hashim, Yunus, & Pazilah, 2019) and the usage of MOOC is accepted in Malaysian Education (Malaysian Education Blueprint, 2015).

However, it is difficult to choose the right MOOC with the abundance of MOOCs available in the current day (Shapiro et al., 2017). To create a course in MOOC, it is essential to ensure that learning takes place as well for online education (Hashim et al., 2018; Malaysian Education Blueprint, 2015). Therefore, taking into consideration the learning theories and models to create MOOC is vital to ensure that the aim of education is fulfilled. Hence, this paper aimed to review the different models of MOOC, which can be used as guidelines to carry out online training.

Literature Review

The Different Models of MOOC

Massive Open Online Courses (MOOC) is one of the open learning resources, which aims to provide education accessible anywhere in the world for a diverse range of learners. Initially, in 2008, a free online course entitled "Connectivism and connective knowledge" was published by George Siemens and Stephen Downes, and later in the same year, Dave Cornier introduced the acronym MOOC to represent an accessible, free, online course, which is opened for an enormous number of learners from all over the world (Nobre, Mallmann, Nobre, & Mazzardo, 2018). MOOC offers unlimited access to learners on a global scale (McGreal, 2017; Nobre et al., 2018; Petronzi & Hadi, 2016), although certification in MOOC requires payment (Godwin-Jones, 2014).

Nevertheless, it was stated that MOOCs are less restricted and trying to make it open for all, which means that the courses' contents are free. Moving past the year of MOOC, the emergence of MOOC has caused a variety of MOOC development, which condones to different learning theories and pedagogy (Anders, 2015). This rapid development of courses in MOOC is moving from the traditional content towards a lifelong learning content, which is said to nurture more benefits than the former (Yunus, 2018).

The Connectivist MOOC Model (cMOOC)

The first MOOC was given the theme of Connectivism, proposed by George Siemens and Stephen Downes in 2008. The connective MOOCs or cMOOCs complement the connectivism theory, whereby learners connect with other learners to enhance their learning. George Siemens developed the connectivism method in 2005 (Anderson, 2016). Based on the technique, learners use the available network tools to create their learning environment by making contact with other learners virtually. Connectivism has a goal of ensuring learners are able to develop connections while learning, which means that instead of learning and memorising without questioning, connectivist learners can forge new ways to gain knowledge whenever they are at a dead-end (Anderson, 2016).

The online nature of MOOC, combined with the connectivism theory, will be able to produce web-based benefits for learning (Anders, 2015; Nobre et al., 2018). cMOOC is also said to be able to generate a conducive learning environment, which can cater for a variety of learners from different backgrounds to come together and make connections through instructions and materials used (Anders, 2015). cMOOC offers openness in which learners can facilitate their self-paced learning and collaborate with other learners (Anders, 2015).

However, (Godwin-Jones 2014) stated that cMOOCs are based on the constructivist learning theory, whereby learners construct their desired learning environment according to their own needs. As further claimed by Anderson (2016), constructivism is a theory of learning, which focuses more on real-life problems for learners to solve. It was mentioned that constructivists learn best when the tasks are relatable to the learners' context. About the theory, cMOOCs can foster learning because it combines the elements of problem-solving through independent and collaborative learning.

Due to that, cMOOCs require learners to be equipped with higher digital knowledge, and higher autonomy is granted (Godwin-Jones, 2014). Regardless of the different views on the learning theory of cMOOC, it can be concluded that cMOOC is a type of MOOC which allows collaborative learning, whereby learners use the platform to learn by making connections with the materials and other learners. cMOOC can adhere to the aspiration proposed by the Ministry of Education, which is to promote open learning to produce essential lifelong learning skills such as collaboration and teamwork (Hashim et al., 2018).

The xMOOC model

The xMOOC model, which is commonly used currently, was derived from Udacity, Coursera and EdX of the US MOOC (Godwin-Jones, 2014). xMOOCs employ a pedagogical method of content delivery, where the contents are structured in a high manner (Godwin-Jones, 2014; Nobre et al., 2018). The popularisation of xMOOCs began in 2011 when engineering professors of Stanford offered the three most popular science courses of the school in MOOC (Godwin-Jones, 2014). Due to that, xMOOCs have become viral among educators, and the development of MOOC started to grow. xMOOC is said to employ the basic pedagogy, which relates to the cognitivism and behaviourism theory (Anders, 2015). The methods were introduced back then when technology did not affect learning (Kimmons & Hall, 2016). Relating to xMOOCs, these theories were used in developing content, which includes rewards for completion of MOOC and one-way learning without interaction with other learners or instructors (Anders, 2015).

One of the notable features which differentiates cMOOC and xMOOC is in terms of the communicative content. cMOOCs are developed in such a manner that emphasises collaboration, communication, and connection with other learners, instructors, and tasks. It

means that cMOOCs cater to more socially contextualised learning (Anders, 2015). On the other hand, xMOOC is one-way learning, whereby learners participate in the MOOC to gain knowledge for themselves, without the need to interact or contact other learners or instructors. This feature of xMOOC allows learners to gain maximum input from the content, without the need to communicate with other learners because xMOOCs are designed to provide training focusing on the content through distance education (Anders, 2015). In Malaysian culture, open education is said to be able to provide an opportunity for learners to learn regardless of their background (Louis, Yunus, & Hashim, 2018). xMOOC is also a type of MOOC which is much favoured by learners because it gives extra information to learners, especially those who have no time for formal education. It is also relatable to self-paced learning, whereby learners can learn the contents at their own pace.

Other MOOC Models

As the advancement of MOOC moves at a fast pace, various models of MOOC have been introduced and created by researchers all over the world, either using learning theories as to the foundation or combining two MOOC models, to cater to a diverse range of learners' needs (Petronzi & Hadi, 2016). The term iMOOC is a new model of MOOC, which derives from innovative MOOC (Bidarra & Coelho, 2015). As further mentioned, iMOOC includes the elements of cMOOCs and xMOOCs, whereby the two online platforms of Moodle and Elgg are incorporated in this model (Bidarra & Coelho, 2015; Coelho, Teixeira, Nicolau, Caeiro, & Rocio, 2015). This MOOC model aims at providing the best learning approach from cMOOC and xMOOC (Coelho et al., 2015). By combining the cognitivist and connectivist approach to learning, iMOOC is visualised to be able to bring change in learners' learning experience. However, in a pilot study by Coelho et al. (2015), iMOOC influences the rise of other MOOC models, such as the small model of MOOC (sMOOC). When sMOOC was said to be able to promote self-paced and adaptive learning, the model of adaptive MOOC (aMOOC) was also introduced.

An adaptive model of MOOC, also known as aMOOC, is a model that combined three elements from the other MOOC models, namely methodological, technological, and logistics, as proposed by Sein-Echaluce, Fidalgo-Blanco, García-Peñalvo, & Conde (2016). With the ability to adapt, learners are said to be able to learn better on online learning platforms. There is also the hybrid model of MOOC (hMOOC), which combined the elements from cMOOC and xMOOC as investigated by Fidalgo-Blanco, Sein-Echaluce, & García-Peñalvo (2016). In their study, the hMOOC can reduce dropout rates in MOOC when the nature of MOOC changes to suit learners' needs. It was mentioned that both xMOOC and cMOOC could be designed to promote collaborative learning through hMOOC (Anders, 2015; Fidalgo-Blanco et al., 2016). Plus, the hMOOC can be used as a service, replacement, driver, and an added value (Mar, Hilliger, Alario-Hoyos, Kloos, & Rayyan, 2017). In another study by Sein-Echaluce, Fidalgo-Blanco, & García-Peñalvo (2017), another model of MOOC was proposed,

known as ahMOOC combining the Hybrid MOOC (hMOOC) and adaptive MOOC (aMOOC). ahMOOC is aimed at providing learning for the heterogeneous learners, as this model focuses on the context of learners to develop suitable resources of learning for a better knowledge impartment.

Regardless of the various types of MOOC, the openness of MOOC itself is said to be able to cater to self-paced and lifelong learning for everyone (Hashim et al., 2018; Petronzi & Hadi, 2016). Additionally, MOOC is said to be accepted by learners worldwide as it is beneficial (Nordin et al., 2015). Indeed, there are many models of MOOC with a similar aim, which is to ensure active learning is created for different learners. The models will keep changing according to time, and they can assist educators in designing and developing MOOC for a particular course (Petronzi & Hadi, 2016). Regardless of the many MOOC models introduced in creating a class, it is undeniable that MOOC will be able to cater to an array of learners (Hashim & Yunus, 2019; Rafiq et al., 2019).

MOOC as a potential learning platform

As an open learning platform, MOOC has been regarded as an alternative to face-to-face learning. It is because MOOC is widely accepted by many learners across the globe (Hashim et al., 2018; Nobre et al., 2018). MOOC has a wide range of benefits potential for learning. One of the benefits of MOOC for the future of education is it provides lifelong learning experience (Castaño Muñoz, Kalz, Kreijns, & Punie, 2016; Nobre et al., 2018). This is because MOOC is an informal learning platform, which gives a more comprehensive learning environment, where learners can learn on their own to cater to different skills (Maitland & Obeysekare, 2015; Rubaai & Hashim, 2019). MOOC also allows learners to gain their 21st century skills (Daud, Ali, Daud, Juhary, & Raihanah, 2018; Rafiq & Hashim, 2018), because, with MOOC, many new courses can be accessed for free (Nordin et al., 2015; Rusli, Hashim, Hashim, & Yunus, 2019; Yunus, Hashim, & Hashim, 2019). As MOOC is an online learning platform, it allows learners to learn with ease, which could bring to a better learning environment (Haron, Hussin, Rizal, Yusof, & Yusof, 2019; Hashim, Rusli, Yunus, & Hashim, 2019).

Conclusion

This paper has reviewed the different models of MOOC, which can be used to create a course in MOOC for training. MOOC is changing, and new models of MOOC are emerging to cater to individual needs about the IR4.0. Despite the many models of MOOC, it can be seen that all models emphasised providing the most effective learning environment for learners. The considerable variation of MOOCs does not make the earlier models to be ineffective, yet the later models complement the earlier ones. This paper gives an overview of the available MOOC models to be used by educators and online course designers to design effective online



instruction so that learning will also take place, although the instruction is given online. Future research can focus on using one of the models to design and develop a training module in MOOC. Hence, the usage of MOOC can be the first step in ensuring that everyone can assess education anywhere and anytime.

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