CHALLENGE QUALITY DEVELOPMENT OF MOOCS: STRENGTHENING COLLABORATIVE NETWORK TO EMPOWER LEARNER

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Abstract

Due to popularity and the demand, number of MOOCs (*Massive Open Online Courses)* increases at a higher rate. However not all of MOOCs programs meets the expectation of participants. The high rate of dropouts reaching almost 90% indicates that MOOCs have not been effectively organized by many institutions. The debate among experts indicates the question do MOOCs follow a sound pedagogy and organizational approach to online learning that will lead to quality outcomes and experiences for students?. Since technology as an essential tool for learning, beyond expectation of participant on MOOCs is to acquire learning experience affected by several aspects, such as collaboration, interaction, social community, peer engagement and networking. Redesigning new platform is essential to facilitate collaborative network learning experiences and empower learners. A sound quality development framework should be integrated into course offering. Empirical studies assessing quality MOOCs in Universitas Terbuka/UT (Indonesia Open University) can be used as an input to acquire the facts on the field on participants' satisfaction. This study utilized three essential constructs as determinants that can affect the satisfaction of MOOCs UT's participants, namely system quality, information quality and service quality. The finding on the field showed that all of these three factors significantly affect perceived satisfaction, where information quality (usefulness, accurate and relevance) provides the most powerful influence. This finding can be utilized as an input for the development of MOOCs platform in the future to initiate the culture where participants can form relationship and facilitate learning journey through collaborative network.

Keywords: learning experience, collaborative network, quality development, satisfaction.

INTRODUCTION

Since been delivered in 2008, the original aim of MOOCs was to open up education and provide free access to university level education for as many students as possible. MOOCs as phenomenon placing it in the wider context of open education, online learning and the change currently taking place in higher education at a time of globalization of education and constrained budget. The development of MOOCs is rooted within the ideals of openness in education, that knowledge should be shared freely, and desire to learn should be met without demographic, economic and geographical constraint. The benefit of MOOCs is that it can create a community for students, lecturers and people. Learning in MOOCs tends to allow freedom in expressing idea, concept, notion, that it allows information sharing in the community created. Cheong (2014) states that the boundary between conventional and open universities will be blurred, and they will meet in the area of flexible education. MOOCs are able to provide unlimited opportunities for people to participate and open access through website. Anyone in anywhere can follow MOOCs as long as they can access the internet. MOOCs bring more affordable and accessible education. MOOCs would lead to radical change shape future model of higher education and maintain university sustainability (Cooper,2013). Therefore, MOOCs have been sensationalized as the vehicle to forever change and even save higher education.

In the last few years, MOOCs have gained tremendous attention from many educational institutions. The number of higher education that offers MOOCs shows a rapid development. Public response to MOOCs offered by various institutions is high enough, including in University of Stanford reached 160,000 participants (Osvaldo in Amo,D.& Maria, J. 2013). Universitas Terbuka which launched

MOOCs on March 20, 2014 was managed to attract 3,027 participants. Since has been introduced 2008, today we can say that online distance learning in the era Post-MOOCs world. It appears that the number of MOOCs is still increasing but the market will be gradually saturated. Some institutions started questioning learning effectiveness that the student may gain. Effectiveness of MOOCs is often doubted for the completion rate (Onah et al.,2014). The high level of dropout is a challenge to ensure that MOOCs have sustainability in the future. Study from Bartolome and Steffens (2015) found that there was a high level of drop out in Spain, where there was only 4% of MOOCs participants who completed their courses. This situation also occurred to the MOOCs participants of Universitas Terbuka, where there was a decrease of the number of participants in 2015 in semester 1 to semester 2 up to 86% (412 partipants). Jordan (2014) reported that less than 7% of MOOCs participants completed their program, and from 58 % of students who actually planned to complete course, only 22% earned certificate Furthermore, Onah (2014) also stated that although many thousands of participants enroll this course, the completion rate for moocs courses is below 13%.

The high level of dropout of MOOCs indicates that improvements need to be made in pedagogical and quality level. Low completion rate of MOOCs indicates that educational process that is only up to a level of exposure to content (broadband internet) cannot reach the stage of learning content and verify that the content has been learned (Stracke,2014). Based on an empirical research, Walker and Loch (2014) found that "...a common complaint was dissatisfied with material was just transferred directly from an on campus course, with no thought to the online medium....". Furthermore, Conole (2014) stated that there are different opinions which generate heated debate. The opinions are divided between the value and the importance of MOOCs, some said that MOOCs provide opened access to education and hence foster social inclusion, some others cynically suggest that MOOCs are only for area marketing exercise, more about learning income not on learning outcomes. MOOCs start-up does not appear to have clear business models. Many institutions participating in MOOCs consider the courses they offer as branding and marketing activities at present (Stracke, 2016). The important point is the phenomenally high drop rates (typically 95-98%) for several experts is not seen as a problem, it depends on the initial goal set by MOOCs. Rosewel & Jansen (2014) stated "if the aim is to give the opportunity of access to free and high-quality courses from elite universities and professor, then high dropout rate may not be primary concern." However, it is widely agreed that it would be useful to improve retention rate of MOOCs by finding out why and at what stage students drop out courses.

The importance of considering the quality aspect on MOOCs has been proposed by several experts, such as Riviou et al., (2016) who suggests that "there is need to assess quality indicators and evaluate their significance and usability...". Quality and delivery of MOOCs that takes into account motivation, interactivity and strategy parties involve (course manager, participants, and providers). Gamage and Fernando (2015a) stated that the critical success factors or factors affecting effectiveness of MOOCs required to research within the MOOCs participants. However, there are some experts state that regarding the quality of MOOCs, the quality measurement cannot be treated like quality assurance as in conventional universities that needs to refer to certain rigid standards (Conole et al.,2014). Quality development becomes an important issue in developing MOOCs, although many people doubt how to develop quality for open learning culture that is "fortile" (disruptive, autonomous and non-planable). However, Creelman et al., (2014) states that quality can also be understood in a development oriented way, which means enabling learners to develop themselves in their own learning processes and consequently produce better result as far as quality concerned".

The challenge of quality development of MOOCs is to answer the gap research of some research result (Conole et al., 2014; Creelman et al., 2014; Gamage & Fernando, 2015b), in brief they show that there many MOOCs providers do not pay attention to the level of collaboration, even if there is, they only optimize interactivity. In revolution era of education, participants of MOOCs can learn with the others using network built, rather than just learning from standardizes program or guided curriculum. Result research shows that participants of MOOCs felt glad dan received additional language through discussion and sharing knowledge in the community within MOOCs. Furthermore, Gamage and Fernando (2015a) propose that there are several dimensions affecting indicators that can be used as reference to identify the effectiveness of MOOCs namely: interactivity, collaboration, pedagogy, network of opportunities and assessment.

Based on the explanation above, regarding the issue of quality in MOOCs, an important question to propose is that quality development approach can be implemented more precisely on MOOCs. In connetion with that matter, this paper will discuss 3 topics namely: 1) Conceptual and theorethical consideration of quality development/management for MOOCs emphasizing on creating collaborative network; 2) empirical study assessing quality of Universitas Terbuka's MOOCs provision, 3) Further consideration of future MOOCs

CONCEPTUAL AND THEORIETICAL CONSIDERATION OF QUALITY DEVELOPMENT FOR MOOCS EMPHASIZING ON CREATING COLLABORATIVE NETWORK.

The phenomenon where the provision of MOOCs regarding the increasing quality of MOOCs should become the main concern. Learning experience is an important issue to evaluate the provision of MOOCs. Quality development seems to be the best approach in order to be able reinforce learning experience to support lifelong learning. According to Conole (2014), there are some emphasizes on the development approach in order to improve teaching and learning and dissemination of good practice such as: focus on learning, learning as a social practice; focus on professional development, focus to increase collaboration between teachers and across disciplines, emphasis on discussion and active engagement among teacher, participant and course manager. The key point is to create more pedagogically effective MOOCs, which will enhance the learning experience and lead to quality (Conole,2014). Delivering quality of MOOCs from learner experience perspective can be identified from their motivation. Based on empirical study by Davis et al., (2014), there are 4 important findings of the motivation: 1) to support lifelong learning or gain an understanding of the subject matter, with no particular expectations for completion or achievement, 2) for fun, entertainment, social experience and intellectual simulation, 3) for convenience, often in conjunction with barriers to traditional options, and 4) to experience or explore online education.

Approaching the question of quality MOOCs (Creelman & Ehlers,2014) stated that " sometimes it might seem paradoxical to talk about quality development for open learning culture, because culture frequentley dominated by disruptive, autonomous and seemingly non-planable processess". But, quality can also be understood in development oriented way, which means enabling learners to develop themselves in their own learning process and consequently produce better results as far as quality concerned which aim to improve the quality of the learning processess. Some expert (Matos & Afsarmanesh, 2005; Piller et al., 2011) offers a quality framework for MOOCs based on several principles: digital openness, learner-centered approach, independent learning, media-supported interaction, recognition options, quality focus and specturm diversity.

Low completion rate of MOOCs should be couse of concern by providing good quality learning experience. Learning experience intended to empower learner is a crucial issue in order for MOOCs provision to be provided optimally. There are two important issues growing currently, the power of network and collaboration. As stated by Gamage and Fernando (2015b), in their empirical study, identified factors affecting effective MOOCs, namely: 1) the importance of network opportunity: network can trigger the value of relationship built during their online courses, 2) Interactivity, level of engagement with course and participants is important for successful learning outcome, 3) Assessment factors: participants found that careful attention to pedagogy and the assessment are effective to their learning in MOOC. They often claimed some courses had only quizzes to asses and they found it as less encouraging to an active learner, they preferred learning by doing, where the best way to assess is the overall view in the course.

Learning experience intended to empower learner is an important issue to see the provision of MOOCs from the aspect of interactivity. This interaction can encourage collaboration and interation to study which was being effective in learning from MOOCs. Several research results (Gamage and Fernando, 2015a; Conole, 2015) succeeded in revealing the fact that: 1) student stated that many MOOCs providers do not pay attention to the level collaboration, whereas most of them tried to cover the interactivity part. in the revolutionizing of education it very essential that participants learn from each other rather than just learning from guided curricula and student presented much interest from each othe, 2) the importance on interactivity. The study found that initially students valued level of engagement with course

and participants were important for successful learning outcome.The engagement varied with different levels mainly the student seek interactions between other students, content and also the instructor.

Based on these findings, this paper tries to see the provision of MOOCs from network collaboration perspective so that it can support the optimum learning experience. Collaborative network constituted by a variety of entities (organization and people) that are largely autonomous, geographically distributed and heterogenic in terms of their operating environment, culture and social (Matos & Afsarmanesh, 2005). Collaborative network representing a promising paradigm in knowledge driven society and the participation in collaborative network has potential of bringing benefits to entities involved especially in terms of: 1) access to new knowledge, 2) sharing risk and resources, 3) joining of complementary skills and capacities which allow each entity to focus on its competencies, 4) obtaining resources when facing competition for limited resources; 5) gaining better recognition and improving competitiveness of individual organization (Bititci et al., 2005; Matos & Afsarmanesh, 2006). Furthermore, the new concept of collaborative network (Xiaomi et al., 2014; Mircea, 2015) emphasizes tremendous potential of collaborative network to develop various collaborative and innovative capacity building and generate inter-organization tacit knowledge. So, through collaboration, there will be innovation acceleration driven through sharing and contribution in individual and collective developments. This paradigm shift needs to be further explored in how personal freedom and social welfare can be intensified (Hossain,2013). Piller et al., (2011) also stated that the concept of collaboration by utilizing community as a form of network resources. In sum, importance determinant of collaborative network: access to new knowledge, generate inter-organization tacit knowledge, sharing, utilizing community and network resources.

The concept of network colaborative has attracted several educational experts, among other is Texiera et al., (2016) who proposes **iMOOCs** as an approach for a new framework for personalizing and adapting MOOCs designed in a collaborative networked pedagogical approach by identifying each participants competence profile and prior knowledge as well as the respective mobile communication device used and to generate matching personalized learning. iMOOCs different compare to **xMOOCs** and **cMOOCs** (Stacey, 2014;Texiera et al., 2016): 1) cMOOCs are connectivist in nature and can be said to be "open" as it has been defined in the Open Education Resources (OER), 2) xMOOCs follow a very traditional approach to learning and use "open" mostly as a synonym for "free of charge". This is are focused on content assumption and reproduction, exhibit the traditional roles of teacher and student, take lecture as the primary teaching strategy. Furthermore, iMOOCs model from Siemens (2012) emphasizes creation, creativity, autonomy, and social network learning. He stated that cMOOCs focus on knowledge creation and generation, whereas xMOOCs focus on knowledge duplication. Proposed iMOOCs model by Texiera et al., (2016) provide new framework for personalizing and adapting MOOCs designed in collaborative, network pedagogical approach by identifying each participant competence profile and prior knowledge, as well as respective mobile device used, in order to generate matching personalized learning sequences, recommending an adequate sequence for participants to organize learning path (see Figure 1).

Based on the explanation above, it can be highlighted that to maintain sustainability of MOOCs, a platform that can acommodate the needs of participants for quality should be developed. The benchmark of quality standard for MOOCs is not easy, at least it can provide the need of learning experience to participants by utilizing network opportunities called collaborative network.

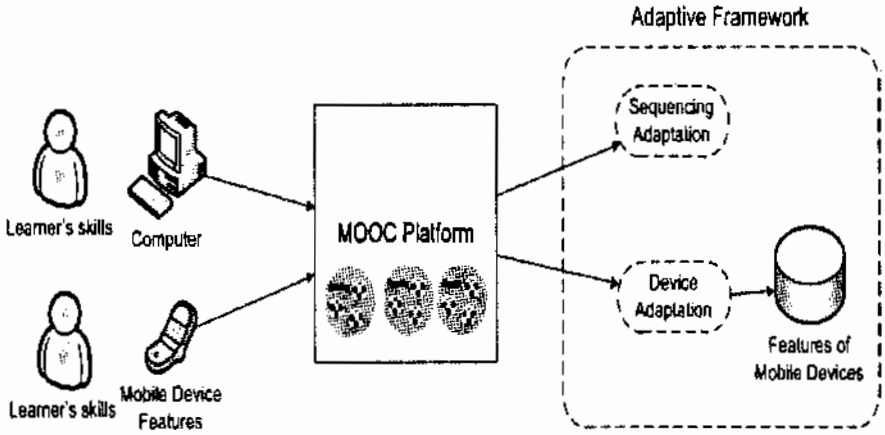

Figure 1: Network Pedagogical Approach

Source: Texiera et al., (2016:150)

LESSON LEARNT: AN EMPIRICAL STUDY ASSESSING QUALITY OF UNIVERSITAS TERBUKA'S MOOCS PROVISION.

In order to understand level of satisfaction toward quality UT's MOOCs provision, this paper include an empirical study to determine the extent of the perceived satisfaction level of participants MOOCs on the quality offered by UT (quality information, quality system and service quality) in learner perspective. This study proposes modeling as follows:

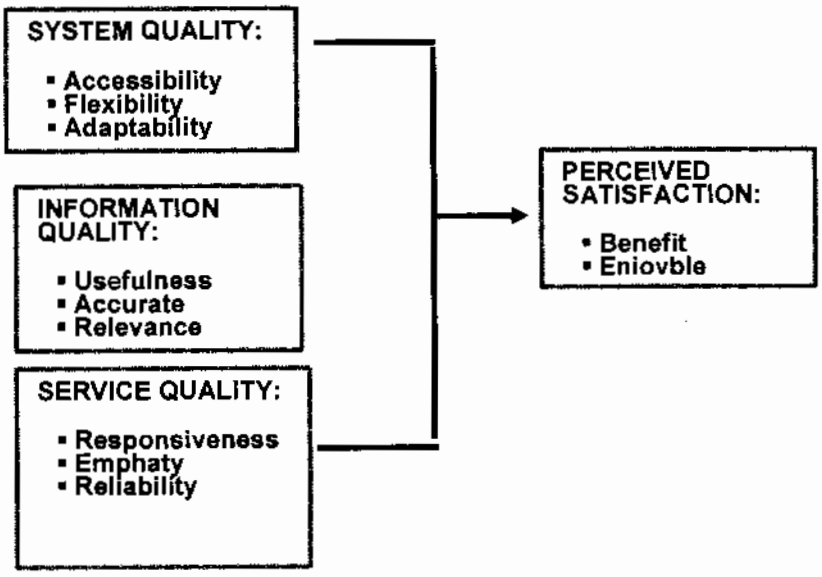

Figure 2: Proposed Model

Source: Author

To examine the effect between variables, this study successfully collected data from 135 MOOCs participants in first semester in year 2015. By using Structural Equation Model/Partial Least Square- PLS, the following results was obtained (see Figure 3)

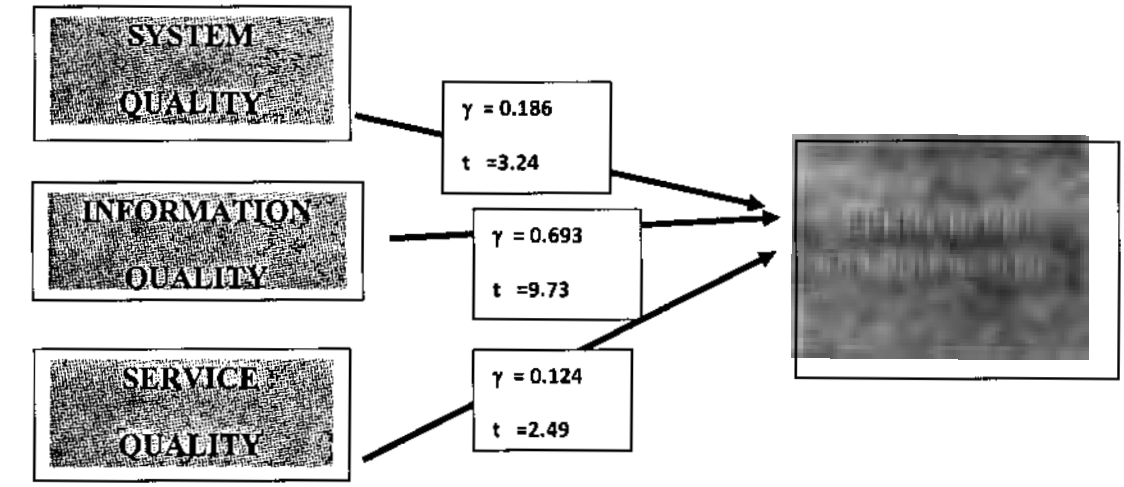

Figure 3: Recapitulation of Hypothesis Test Result

Source: Author

Table 1: Hypotheses Testing Result

Path Coefficient	Path Coefficient	R Square	t	t table	Conclusion
System quality → perceived satisfaction	0.186	0.034%	3.238	1,96	Accept (Significant)
Information quality → perceived satisfaction	0.693	0.480%	9.732	1,96	Accept (Significant)
Service quality → perceived satisfaction	0.124	0,015%	2.490	1,96	Accept (Significant)

Source: Author

This research was able to prove that the system quality, information quality and service quality affected significantly on perceived satisfaction. Where all three factors: system quality, information quality and service quality were assessed by students as satisfactory indicated by evidences of three hypotheses. Perceived satisfaction of MOOCs UT is represented by the improving knowledge, providing online learning experiences and instructor-responsive support at the time of interaction. Information quality poses a very strong effect towards satisfaction, if compared to system and service quality. This finding shows that the need of information quality by participants of MOOCs UT is very crucial. The quality of information on MOOCs-UT, namely in terms of substance, ease of discussion, the presentation of the material, aspects of interest in the process of online learning, the structured schedule. System quality (choosing the topic they want to learn, accessing anytime and anywhere as well as the simple usage) and service quality (feedback, respond and solutions to the problems student), both do not give a strong influence towards the satisfaction of participants of MOOCs UT.

Facts on the ground indicate that UT MOOCs' quality should be able to comply with the needs of participants to maintain its sustainability. It means that it has to make a positive impact in supporting the learning process of MOOCs-UT participants namely: 1) facilitating collaboration between participants of

MOOCs UT, course instructor and other expert, 2) the discussion forum is expected to have tutor/course manager to be active to present and communicate, real time interactive may be scheduled, 3) encouraging instructors to actively interact with participants. Instructors must have a high commitment in serving participants of MOOCs-UT. There needs to be a mechanism for evaluating and monitoring the performance of the instructor whether they have carried out their duties properly.

This research result provides an empirical support that strengthen the research gap, as a recommendation of previous research (Gamage & Fernando, 2015b; Conole, 2014), the point is that there are many MOOCs providers that do not pay attention to the level collaboration, whereas most of them tried to cover the interactivity part. In the revolutionizing of education it is very essential that participants learn from each other rather than just learning from guided curricula. It means that participants show a great interest in MOOCs programs, which can provide an opportunity among participants, course manager, administration, other expert (professional) to obtain learning quality through learning experience process.

FURTHER CONSIDERATION OF FUTURE MOOCS USING MODEL OF COLLABORATIVE NETWORK

Based on various experts ideas and empirical studies support, this paper proposes the concept of collaborative network in the era of post MOOCs based on the notion that successful MOOCs is the collaborative through participants as a way of enhancing the learning experience. As stated by Gamage and Fernando (2105b) who argue that the platform of MOOCs should fully optimize network opportunity, where students can know each other in lifelong learning and expand possibilities for future collaboration. It is crucial that the participants should establish some connections in the network to share experiences and learn from them and at the same time it is very important for any student to connect, collaborate with peers, students form other network and industrial/business expert. This model should be developed considering that all this time there is limitation in the platform of MOOCs, whereas since firstly introduced in 2008 the connectivity and sharing knowledge aspects have not been developed optimally.

To be able to offer high quality of MOOCs, in the future the concept of network collaborative of MOOCs needs to be developed, which can present as a new perspective other than xMoocs, cMOOCs and iMOOCs. In this paper, **cnMOOCs (cn means collaborative network)** is suggested. This model suggestion is in line with Bonila and Bonilla (2013) who states that there is need to move the focus of MOOCs from technology to the value of the interaction between people to accelerate the construction of knowledge and the creation of collaborative network. By building a platform that can facilitate the creation of network collaborative, participants can engage in deep learning experience.

The following model can be used as a reference in developing cnMOOCs, which is adapted from Matos and Afsarmanesh (2006), who state the challenges that should be faced by both business and scientific worlds to allow them to participate in competitive environment. Both experts emphasize on joint activities among parties, such as: highly integrated supply chains, virtual enterprises, virtual organization, professional virtual communities and collaborative virtual laboratories. Other experts, Shuman and Twombly (2008) emphasize on the importance of building collaborative network with various parties (internal/external stakeholder, partner, supplier, NGO, buyer and competitor), which is not only relationships to satisfy customers, but also become of the part of alliances network.

Proposed model (see Figure 4) called platform Collaborative Network on MOOCs **(cnMOOCs)** can show that learning experience as quality reference can provide a maximum benefit. MOOCs participants can collaborate (sharing knowledge and information) not only with tutor and course manager, but also with other participants (community of MOOCs). In addition, learning experience may also be strengthened by facilitating MOOCs participants to collaborate with other academician, experts and practitioners in the industrial world.

REMARKS

The challenges of developing quality in the era of post MOOCs is becoming more prominent. The problem of high dropout rate must be input for MOOCs providers to optimize learning experience which is perceived by MOOCs participants has not been delivered optimally. The proposed model of **cnMOOCs** can

be used as a reference to develop platform that can acommodate the needs of MOOCs participants. The essence of collaborative network in the platform of MOOCs are: interaction, social community, peer engagement and networking. Of course, without forgeting the aspect of pedagogy and assessment as the heart of learning process.

To make this model into a reference of new platform of MOOCs, management, technical and operational implementations still need to be considered. In brief, if MOOCs is not a part of a course of educational institution, learning experience can be delivered optimally without being limited in one semester period as in higher educations. The point is that MOOCs prioritizes more on lifelong learning aspect.

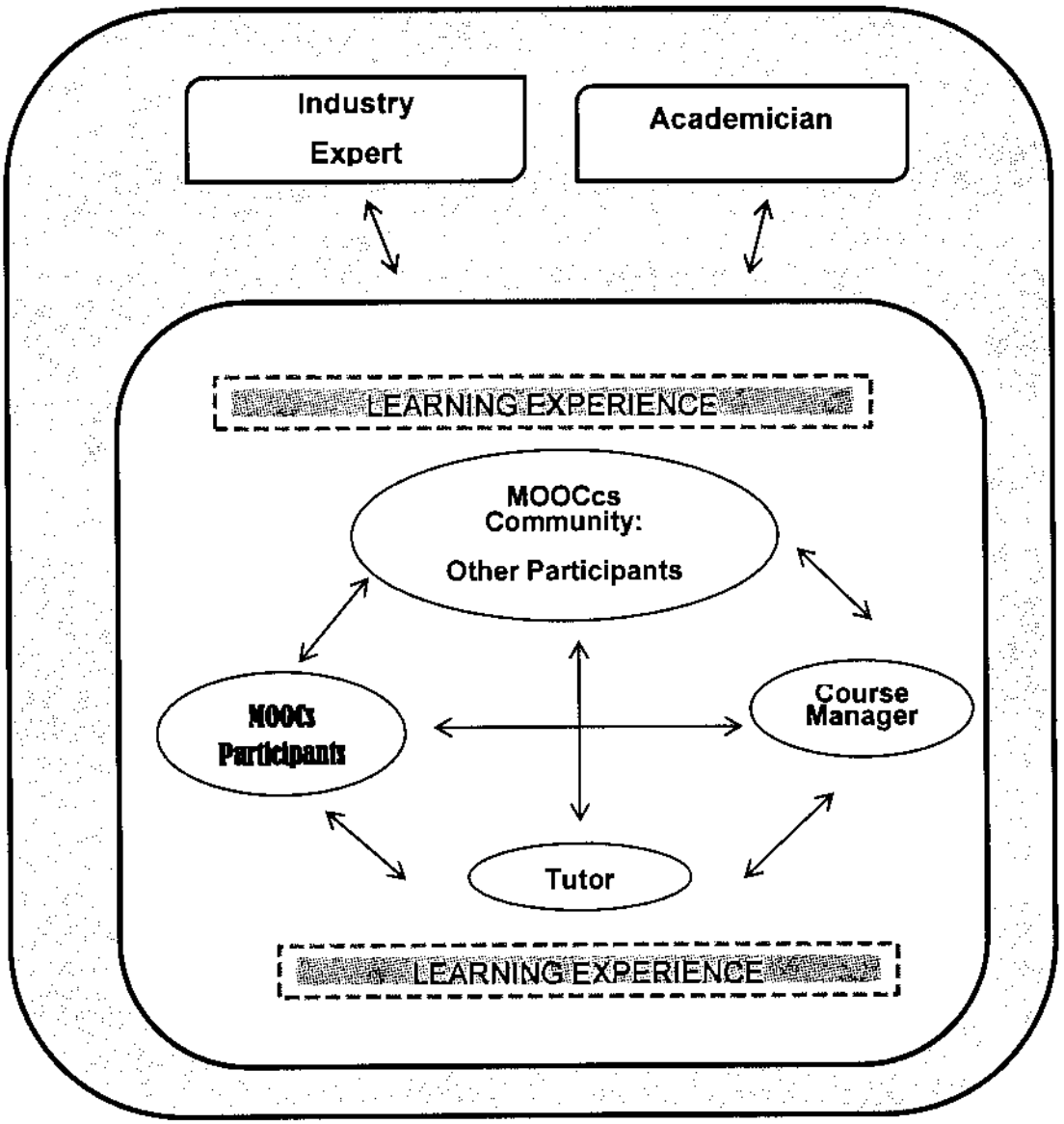

Figure 4 : Proposed Model Colaborative Network of MOOCs (cnMOOCs)

Sources: Author

REFERENCES

Amo, Daniel.,& Maria, Jose.C. (2013). Approaches for Quality in Pedagogical and Design Fundamental in MOOCs.*Teoria de la EducacionSociedad de la Informacion.* 15 (1), pp 70-89.

Bartolome, A and K. Steffens. (2015). Are MOOCs Promising Learning Environment?.*Communica Media Education ResearchJournal*, 44, XXII.

Bititci, U.S., Martinez. V, Albores, P. & Parung,J, (2004). Creating and managing value in collaborative networks. *International Journal of Physical Distribution and Logistic Management, 34* (3), 251-256.

Bonila, J.M., & Bonila, L.M. (2013). Exploring the relationship between social networks and collaborative learning. British Journal of Educational Technology, 44,5,

Cheong Li. K, Billy T.M.W and Esther W.S. 2014. Profiling the characteristics of MOOC platforms. Association of Open Universities Annual Conference Asian Association of Open Universities Annual Conference 28-31 October 2014, Hongkong-China.

Conole, Grainne. (2014). A new classification schema for MOOCs. *The International Journal for Innovation and Quality and learning.*64-77.

Cooper Simon. (2013). MOOCs: Disrupting the University or Business as Usual. *Arena Journal*, 39,40, 2012/2013.

Creelman, Alastair., Ehlers, U.D., and Ossianniisson,Ebba. (2014). Perspectives on MOOCs quality- an account of the EFQUEL MOOC quality project. *The international Journal for Innovation and Quality Learning*, 78-87.

Davis,H., Dickens,K., Leon,M. & Sanches,M. (2014). MOOCs for universities and learners: an analysis of motivating factors. *International Journal for Innovation and Quality and learning.*

Gamage, D., & Fernando, S. (2015a). *Factors leading to an effective MOOC from participants perpective.* IEEE UBI-Media Conference, Colombi, 15 August 2105.

Gamage, D., & Fernando, S. (2015b).*Quality of MOOCs: a review literature on effectiveness and quality aspects.* IEEE UBI-Media Conference, Colombi, 15 August 2105.

Hossain, M. (2013). Open innovation: so far and a way forward, *World Journal of Science, Technology and Sustainable Development. 10.*(1), 30-41.

Matos, Luis M.C., & Afsarmanesh, H. (2005). Collaborative networks: a new scientific dicipline. *Journal of Intelligent Manufacturing, 16*, 439-452.

Matos, Luis. M.C., & Afsarmanesh, H. (2006). Collaborative Networks Value Creation in Knowledge Society. *Prociding of Prolamat 2006*- Shanghai China, 14-16 Juni 2006.

Mircea, Marinela. (2015). Collaborative networks: premise for exploitation of inter-organizational knowledge management. *Journal of Informatica 19* (2),34-45.

Onah, D., Sinclair, J., & Boyatt, R. (2014). Dropout rates of massive open online courses: behaviroal patterns. *www2.warwick.ac.uk/fac/sci/dcs/people/research/csrmaj/daniel_onah*

Piiler,F., C,Ihl., & Vossen, A. (2011). *A Typology of customer co-creation in the innovation process.* Studies For innovation In a Modern Work Environment,4, Germany.

Riviou, K., Christian,M., & Specht, M. (2016). *Towards defining a quality reference framwork for MOOCs.* ProceedingOpen Education Global Conference Krakow, Poland, April 12-14. 2016.

Rosewel, J, & Jansen, D. (2014). The openuped quality label:benchmarks for MOOCs. *The International Journal for Innovation and Quality and learning* 88-100

Shuman, Jeffrey.,& Twombly, Janice. (2008). *Collaborative network management : an emerging role for alliance management.* The Rhythm of Business, Vol. 6.

Siemens, G. (2012). MOOCs are really platform, elearnspace. Retrived from www.elearnspace.org/blog/2012/07/2

Stacey, Paul. (2014). Pedagogy MOOCs. *International Journal for Innovation and Quality and learning.*111-115.

Stracke, C.M. (2014). How innovation and competence development support quality in lifelong learning. *The International Journal for Innovation and Quality and learning.*

Stracke, C.M. (2014). How innovation and competence support quality in lifelong learning. *The International Journal for Innovation and Quality and learning*

Teixeira, A., Cabot, A.G., Garcia, E, & Marcos, Luis. (2016). A new competence-based approach for personalizing MOOCs in a mobile collaborative and networked environment, *RIED 19*(1), 143-160.

Walker, Lyndon., & Loch, Birgit. (2014). Academic's perception on the quality of MOOCs: an empirical study. *The International Journal for Innovation and Quality and learning.*53-64.

Xiaomi, An., Deng,H., Chao,L., & Bai,W. (2014). Knowledge management in supporting collaborative innovation community capacity building. *Journal of Knowledge Management.18,*(3), 574-590.