Optimization of MOOC Based on Learning Community

Xu Xiaoli[*]

Computer school, Yangtze University, Jingzhou, China
*Corresponding author: 158656163@qq.com

Abstract   With the rapid development of MOOC (Massive Open Online Course) since 2012, it has been a common view that MOOC's sustainable development must rely on learning needs and good learning experience of learners. MOOC online teaching model is analyzed from the teaching side and the learning side, the mismatch between the two sides is sorted out. Based on the bibliographic method, the core idea of learning community theory is that learning is the process of knowledge meaning constructing through learners' interaction and consultation, which is applied to MOOC, four strategies are proposed to optimize MOOC online teaching model. Learners can get good and persistent learning experience on in the condition of reaching match and balance of different kinds of subjects in MOOC learning.

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1. Introduction

MOOC (Massive Open Online Course) is a kind of online courses with the purpose of open access and a large-scale participation, which includes cMOOC based on connectivism and xMOOC based on behaviorism as in [1]. XMOOCs adopt corporate operation mode, have external funding, and collaborate with famous teachers in world-renowned universities. These characteristics meet the people's needs of quality education resources provided by well-known teachers in famous schools. The scale, benefiting range and social impact of xMOOC exceed cMOOC as in [2].In this study, MOOC mainly refers to xMOOC. Coursera, EDX and Udacity are the three main MOOC platforms as in [3]; courses in the three platforms attract tens of thousands of learners' attention and learning. When this MOOC movement is surging in, many scholars' attitudes toward MOOC are sustainable. Whether well-known teachers are equal to high quality courses? Whether famous courses are equal to good learning experience? With these questions, it is necessary to analyze and consider the MOOC teaching model from the teaching side and the learning side to promote the extension and sustainable development of MOOC in the field of education.

2. Analysis of MOOC Online Teaching Model

MOOC online teaching model applicants the successful experience of online education, upholds more familiar teaching ideas such as student-centered, micro-video, interactive forums and question feedback, and use the technical means of streaming media, cloud computing, big data, etc. The model has unique features in the teaching side and the learning side.

2.1. Analysis in the Teaching Side

1) The teaching subjects

In MOOC courses, the teaching subjects include teachers and assistants. Teachers are come from famous universities, generally have high academic prestige in the professional fields, and are mainly responsible for the course content design. There are 1 to 2 assistants in one course, assistants are from a basic academic team of the course, most of them are PhD students or graduate students as in [4], and they are mainly responsible for the interaction of the course and learners. But most of the interactions are very limited, for example, to the learners' questions; assistants just answer ten questions according to the voting number.

2) Design of course resources

Design of MOOC course is mainly based on behaviorism learning theory. The course is divided into pieces in denomination of knowledge points or knowledge units, it is presented in short videos, in which tests are inserted after the content, the evaluation is carried out by computers to help students check and consolidate what they have learned.

3) Organization of the teaching process

MOOC model simulates a more complete teaching process, which includes teaching, participation, feedback, exercise, discussion, evaluation, examination and certificates. Most MOOC courses have specific class time lasting 1 to 3 months; Courses content are provided by teachers; teaching method of the courses is lecture method; Teachers regularly organize discussions and give scores or certificates to students according to students' homework or exams.

2.2. Analysis in the Learning Side

1) Learners analysis

Almost every MOOC course enrollments are far beyond the traditional classroom, some popular courses even have tens of thousands of enrollments. According to the basic information of learners, the learners' career includes students and working people; A majority of learners have received undergraduate education; From the initial capacity, there are two kinds of learners including involved and not involved in curriculums; For learning experience, some learners have video open courses, online course learning experience, others are not accustomed to online learning. There is a big difference among learners.

2) Course content analysis

A survey report shows that the top three coursed are humanities as in [5], computer science, and economic and financial courses which learners are interested in. There are a considerable number of learners who choose course coverage widely. The main motivations for their choice are from their own interests, the impact of classmates and personal prestige of teachers.

3) Learning effect analysis

The most direct way to evaluate the learning is to obtain MOOC course certificates as in [6]. But in fact, the number of learners getting certificates is much less than the number of learners joining the course. But from many MOOC learners' experience, what they learn from MOOC is not only certificates, knowledge and skills, but also enlightenment of teachers' thinking methods and friends in course forums.

2.3. Mismatch between the Teaching Side and the Learning Side

From the above analysis, it is not difficult to find out the mismatch between the teaching side and the learning side in MOOC online teaching model: "singleton" of the teaching subjects and "public" of the learning subjects; "High autonomy" in starting point for learning required and "low autonomy" of learners; "Standardization" of course content and "heterogeneity" of learners; "Objective" of evaluation and "tacit" of learner development. Learning community theory can coordinate the conflicts of the two sides and bring some enlightenment for constructing a coordinated ecological education system.

3. Instructional Idea of Learning Community Theory

In the latest research in learning science, the essences of construction, social consultation and participation are more clearly highlighted as in [7]. Learning community is a group consisting of learners and facilitators (teachers, specialists, counselors, etc). Members frequently exchange their opinions in the learning process, share all kinds of learning resources, accomplish learning tasks and form a mutual influence and interpersonal relationships. The main instructional ideas of the theory are as following:

(1) Learning is the process of knowledge meaning constructing through learners' interaction and consultation

Learning community theory inherits the ideal of constructivism; it is in favor of the idea that learning is the process of learners actively constructing knowledge significance by their existing knowledge and experience. Meanwhile, the theory absorbs the view of distributed cognition. So, learning is the process that learners use a variety of cognitive tools through collaboration with each other, realize the knowledge meaning construction. Knowledge is socially constructed through dialogue and negotiation between each learner.

(2) Knowledge constructing is the process of the interaction of diversified subjects

Learning community studies in the form of a group. Members of the group achieve common progress through mutual supporting and help. With the commencement of learning activity, a learner's identity is developed. A learner becomes a specialist from a beginner or a novice veteran, and he enters the central role of the community. Anyone can communicate with one or several members with the same or different identities. Each member can widely involve in social activities for the universality and infinite of the communication. Members can be formed as a community with the same goals and visions.

(3) The identity and the meaning coexist in group environment

The identity means the ownership; the identity construction requires an individual to find a community belonged to, and to get knowledge, relationship and resource symbolized by the identity as in [8]. In this environment, community members can feel they belong to this group, capable of carrying out learning activities with other members, have their own identities and sense of the identities, get the respect and trust of members of the group, and have emotion dependence and psychological insecure.

4. Optimization of MOOC Online Teaching Model Based on Learning Community Theory

4.1. Focus on the Situation and Dynamic of Curriculum Resource Design

Knowledge in learning community theory pays attention to evolution, application and reuse, and sharing of knowledge, it has characters of high situation and dynamic, which makes it meet the needs of learners with strong heterogeneity. It includes knowledge in specific area and sharing knowledge, which is shown as Figure 1.

Knowledge in specific area is the main content that a learning community studies, and it is the foundation to promote the development of the community. The design is different from the traditional knowledge designed knowledge points as units, the content can be designed in a hierarchical design to achieve dynamic. Hierarchical dimensions can select the appropriate variables based on the characteristics of different courses. Sharing knowledge mainly comes from the sharing of tacit knowledge between learning companions. In MOOC learning, these tacit knowledge can be organized to form a knowledge-base, which includes learning notes, cases and assignments set.
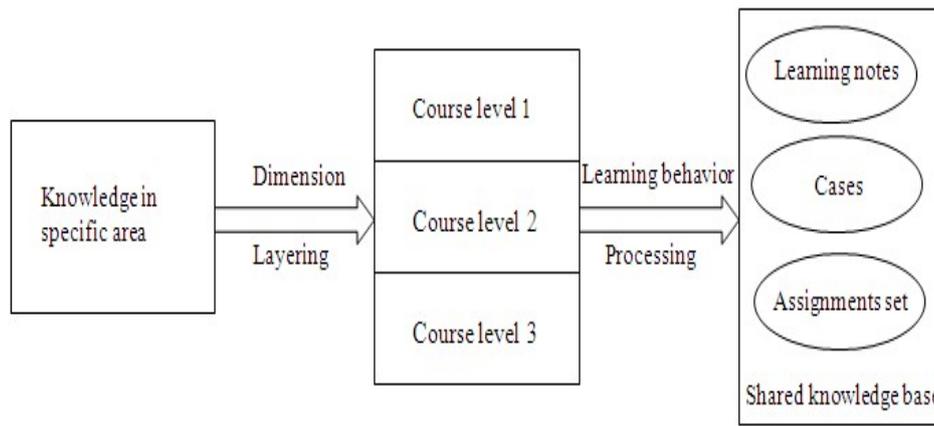
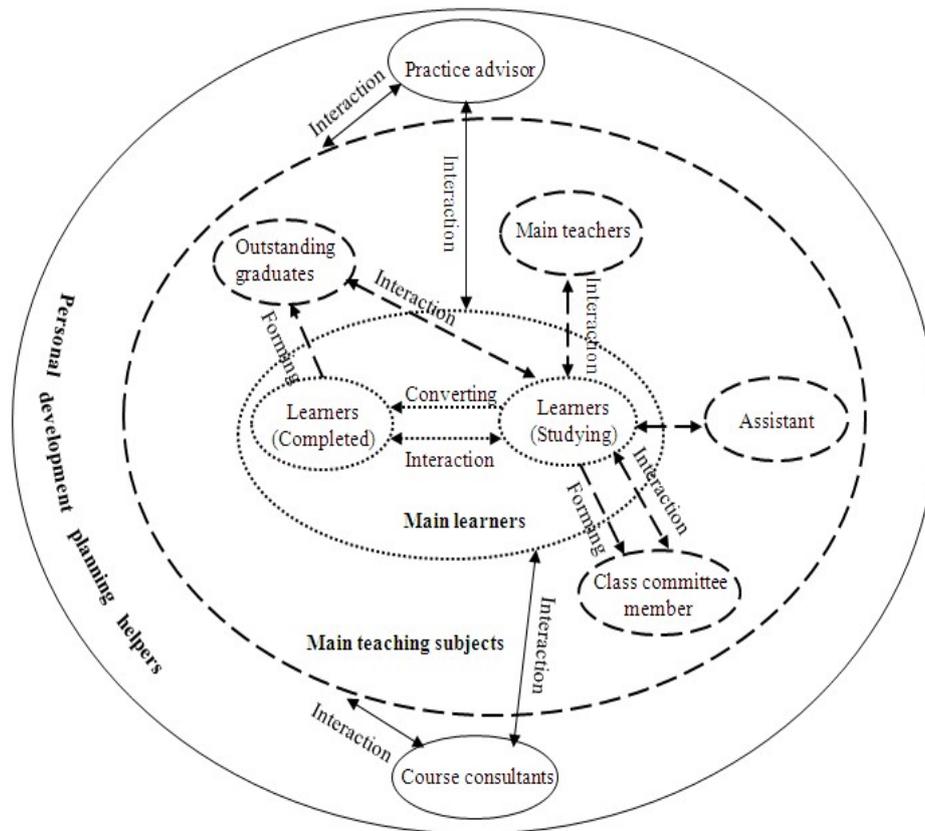**Figure 1.** The design of curriculum resource

Figure 2. The diversified subjects in MOOC learning

4.2. Construction of Diversified Subjects in MOOC Learning

Construction of diversified learning subjects can promote interaction of different subjects, and can form diversified knowledge fields. Subjects in MOOC learning include learning subjects, teaching subjects and personal development planning helpers, which is shown as Figure 2.

In a MOOC curriculum, learning subjects include learners who have completed learning and learners who are ongoing learning. These two types of learners can be correlated, the former can consolidate the knowledge and construct a higher status by providing help and guidance to the latter, the latter can grow into the former with learning supporting from the former. The teaching subjects in MOOC are the main teachers and teaching

assistants, they also can be dynamically constructed from the learning subjects.

4.3. Construction of Learning Community in MOOC

The main goals of construction of learning community is to effectively organize the diversity subjects together, which can achieve the completion of construction of meaning and identity in dialogue and negotiations and form a stable social ties. For homogeneity and heterogeneity between MOOC learners in the aspects of geographic distribution, profession, education and learning needs, the construction methods are combination of construction organized by teaching subjects and a dynamic construction based on personalization recommended idea. The construction process is shown as Figure 3.
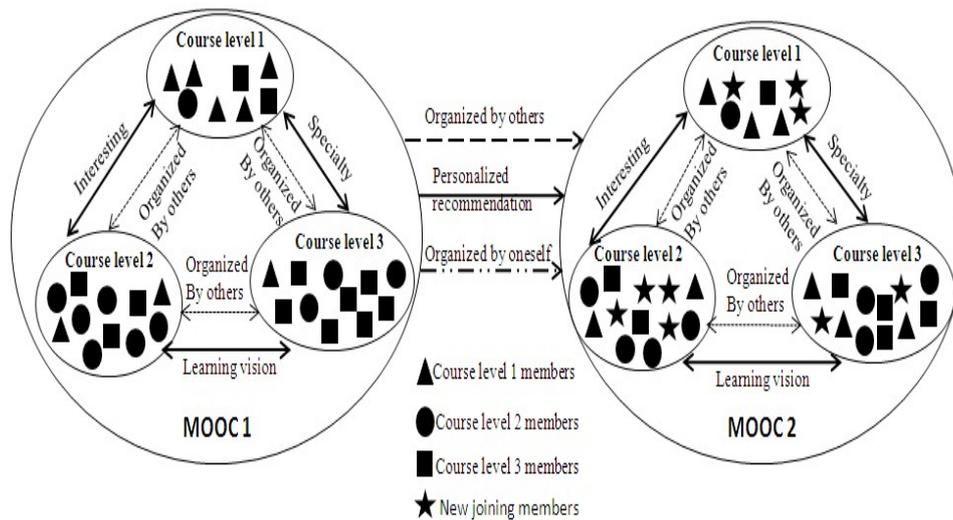
Figure 3. Construction of learning community in MOOC learning

The big data accumulated in the MOOC learning platform provides data foundation to realize personalized recommendation. To all students registered the curriculum, teachers initiatively organize and guide them to join different content levels of learning circles, at the same time, organize interaction activities, for example, teachers carry out learner self-introduction activities to enhance understanding between learners and make learners get specific information of other learners, which can realize the initial construction of the learning community in the organized by others way. Then based on personalized recommendation idea, through collaborative filtering techniques, learners are recommended to join appropriate learning circles from dimensions of professional direction, interests, learning vision and etc. In two ways, construction of learning community is realized.

4.4. Meaning and the Identity are the Two Dimensions of Learning Evaluation

We can evaluate the tacit knowledge formed in the process of learners involved in the learning activities by the identities constructed in the learning process.

First, the teaching subjects need to specify the rules and methods for identity construction; score for learners' activities, make learners construct their own identities in equal atmosphere. For example, when a learner publishes a learning note, he will get certain score if someone reads the note and votes it; a learner will get some incentives if he answers some questions raised by other learners.

Second, learners with different identities can get different privileges or rewards to motivate learners simultaneously constructing their identities as they construct knowledge meaning. For example, learners with some kinds of identity may be set as the teaching subjects (such as outstanding graduates, class leadership members, etc); the identity is marked on the certificate and so on.

5. Conclusion

Compared to online courses and open video classes, MOOC has characteristics of high-quality (famous school and famous course), open, free, and close combination to teaching model in the real environment, which attracts a large number of learners to join MOOC. However, with the advance of the curriculum studying, the majority of learners choose to quit the course. The reason is the mismatch of teaching side and learning side in the MOOC, learning community theory provides some strategies and methods to eliminate mismatch between the two sides. Focusing on situation and dynamic of curriculum resource can meet learning needs of different learners. Organizing instruction in learning community may realize stable relationship construction between different subjects to reduce quit rate. Dual evaluations based on meaning construction and identity construction can lead learners growing from marginal participants to core members in MOOC learning.

Acknowledgments

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