

## A Study on Learners' Needs to Increase MOOC Participation

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### Abstract

*Recently MOOC is actively used to improve the quality of higher and lifelong education. Although a growing number of studies of MOOC, there are not a lot of studies dealt with issues of learner's needs for effective learning. The purpose of this study is to investigate the learner's needs and factors for predicting MOOC participation. For this study, a total of 228 learners (university students: 125, e-Learning organization students 103) responded to the survey. The overall results indicate that learners' needs for participation of MOOC were proposed as 5 factors including 17 sub-factors: expansion of educational purpose, change of learning environment, securing sustainability of education, contribution to educational innovation, realization of lifelong education. Among the factors, the realization of lifelong education and the securing sustainability of education have been highly predicted in MOOC participation. This study has an implication that those factors might contribute to the development of learner participation design strategy in MOOC.*

**Keywords:** *MOOC, The learners' needs toward MOOC, MOOC participation, The prediction factors for MOOC*

### 1. Introduction

MOOC shows various features which can lead an educational innovation in both quantity and quality perspective. It takes the lead supremacy and universalization of education. MOOC universally provides high level of education with low cost and high quality. MOOC can even go further than the innovation made by existing online education expanding practical range of education and can create educational environment which is optimized and personalized for each of the learners. Also, state-led style of MOOC is now changing environment of higher education with universities and colleges. For example, Korea launched K-MOOC in 2015 and has been running it. K-MOOC is more than existing online education being operated as an assistant of offline education, and it's purpose is to change a system of the college education through inducing advancement of the way of teaching, learning utilization, learning management with applying hybrid ways such as flipped learning, DOCC(Distributes Open Collaborative Course), blended learning.

MOOC provides free online courses opened to everyone who can access online network has started first in 2012, US with the program such as Coursera, Udacity, edX, and now has been marked as one of the latest e-learning trends. Until now, a study on considerations for understanding and introducing MOOC in learners' perspective has not been covered

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sufficiently. Studies on MOOC learners have been covered actively abroad, but in South Korea, studies on learners are insufficient [1]. Due to its openness toward various kinds of learners, all considerations on learning can be included in a study on MOOC [15].

Above all, it is important to provide learning contents for learners to understand purposes and features of MOOC, so it is needed that a process draws and conceptualizes the learners' needs. Along with this, an expectation of a correlation between reflection of learner's needs and a learner's participation on MOOC is needed. Due to this, it is very important to comprehend what kinds of needs make learners to voluntarily take part in learning. Therefore, in this study, a theoretical structural model which can analyze the learner's needs on MOOC has been set-up, and the model was verified through structural factors developed. After that, it is tried to examine whether verified structural factors can expect the willingness to participate in MOOC. To achieve a purpose of this study, research questions like following can be suggested.

First, what are the learners' needs toward MOOC?

Second, what are the learners' needs which can expect willingness to participate in MOOC?

## 2. Issues of MOOC participation

Learning participation is defined as mental effort made by learners to obtain knowledge and skill [17], and is affected by wide range of factors including cognition, effectiveness and behaviorism dimension [5][9]. It also has positive effect on learners' educational self-efficiency and their learning achievement, it provides wide insight to plan whole process of learning [10][12]. Cognition factor is related to learners; using to various strategies to perform their learning assignment [13], and affective factor is connected to mental process composed of concentration, interest, investment and effort.

MOOC includes diversity on all factors related learning such as learning contents, an age, jobs, background, experience, a way of learning, and motivation of learners, since MOOC accommodates learners with a wide range of knowledge, experience and background [15]. Moreover, it explains that MOOC performs function and role to provide equal opportunity of having education, and it reflects learners' expectation and needs. The most of MOOC learners are people highly-educated having bachelors' degree, and their motivation to take courses are mostly 'self-development' or 'developing expertise related to their jobs'. MOOC has been evolving fulfilling social factors as some alternative overcoming limits of online learning [7], [18][19], and expanded through interrelationship with the expectancy effect of learners. This study tries to increase construct validity through considering the fundamental definition and drawing hypothetical constructs. Followings [Table 1] are hypothetical constructs per the fundamental definitions.

Table 1. Explaining on factors according to the definition and features of MOOC

Definitions and features of MOOC	Explanations	Source
Providing capacity enabling learner to apply on their working fields	an outcome expected by learners from MOOC	[2], [4], [8], [15], [19]
Emphasizing learning environment focused on interaction away from traditional online education	a method of MOOC planning and realizing learning environment	[6], [8], [14], [16], [19]
Changing and Evolving Education System focused on learners	factors needed for learning continuity	[2], [3], [6], [8], [11], [14]
A role of destructive innovation for existing education system	a role of MOOC improving existing education system	[7], [18], [19]

Providing high quality courses to anyone in the dimension of lifelong education	a direction of practice in the national and personal dimension	[2], [8], [10], [12], [19]
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### 3. Method

#### 3.1. Samples and procedure

The target of this study is 125 university students who have experienced online learning (73.7%), and 103 adult learners of online lifelong learning platform (45.2%) The survey of this study was held during May and June 2015, an education about MOOC for helping respondents' understanding was held. Also, for expecting learners' willingness to participate in MOOC, the question 'Are you willing to take part in the courses open in MOOC (Yes or No)?' was used as an explanatory question.

#### 3.2. Measures

With SPSS 22, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were conducted for examining system and factors. Through normality test, we examined skewness, kurtosis and distribution, which identified that all factors were concordant with the hypothesis of stationary distribution. For extracting factors, principal axis factoring was implemented, and direct oblimin was applied. Applied criterion of factor loading was .50. Reliability was analyzed using Cronbach's  $\alpha$  coefficient, which was for identifying whether the questions selected showed internal goodness-of-fit as questions constructing each of the scale. Finally, to examine explanatory power of constructs indicating learners' needs as factors expecting learners' willingness to participate (positive to participate: 1, negative to participate: 0) were set up as object variables and 5 factors as explanatory variable, and with these variables, we did examination through Binary Logistic Regression Analysis.

### 4. Results

#### 4.1. Learners' needs toward MOOC participation

To examine whether samples were appropriate for factor analysis, we checked KMO (Kaiser-Meyer-Olkin) measurement of sampling adequacy, and the value of Bartlett's test of Sphericity. KMO value of sample was .81, which was meritorious. The value of Bartlett's test confirming adequacy of correlation matrix was proper with the value of 1549.38(p<.001) Also, Scree test was done to examine the structure of factors, and eventually to confirm it considering a pattern and a structure matrix, which allows 5 factors, and 17 items to be selected as main factors. Factors extracted maintain its theoretical model designed through preliminary study. It is appeared - ① Expansion of educational purpose, ② Change of learning environment, ③ Securing sustainability of education, ④ Contribution to Educational Innovation, ⑤ Realization of lifelong education. Total reliability was .84.

After implementing EFA, CFA was also done through Maximum Likelihood to evaluate the goodness-of-fit of the model and  $\chi^2$  test, relative goodness-of-fit TLI (NNFI), CFI and absolute goodness-of-fit value were all considered (Kang & Kim, 2014) For our factor's model was considered as 'fair fit' ( $\chi^2=177.697$ ,  $\chi^2/df=1.890$ , CMIN/DF=1.890, TLI= .929, CFI=.944, and RMSEA=.063) Finally 5 factors appeared to be appropriate to explain learners' needs for MOOC.

#### 4.2. Learners' needs as predicting factors to participate in MOOC

We made the model that learners' willingness to participate in MOOC were set up as object variables and 5 factors as explanatory variable, and had test for its goodness-of-fit with 95% of significance level. Thus, -2LL(Log Likelihood) including constant and the value including explanatory variable was 134.668 and the  $\chi^2$  value of the model was 27.453, so it appeared to be statistically significant ( $p < .05$ ) In Hornsmer-Lemeshow test,  $\chi^2$  value was 10.474 and the significance probability was .233 ( $p > .05$ ) Therefore, Logistic regression model was appeared to be appropriate. The regression coefficient of 'Expansion of educational purpose' was .258, 'Realization of lifelong education' was .690, and their Wald's statistic appeared significant ( $p < .05$ ).

The willingness to participate in MOOC =  $-5.745 - .128(\text{Expansion of educational purpose}) - .015(\text{Change of learning environment}) + .238(\text{Securing sustainability of education}) + .152(\text{Contribution to Educational Innovation}) + .690(\text{Realization of lifelong education})$

Comparing observed value and predicted value through a classifying table, we evaluated how well are the 'goodness-of-fit' of the model, and followings are the results. Among 202 people who answered to show their willingness to participate, 200 people were classified, which was 99.5% of probability, and among 26 people who answered to show their unwillingness to participate, 22 people were wrongly classified. Therefore, Out of total 228 participants of the study, 89.5% appeared to be classified correctly.

### 5. Discussion

This study aimed to examine what the MOOC learner's needs are and to analyze whether the examined needs of MOOC can predict the MOOC learners' willingness to participate. Through this study, we tried to explain and draw the needs of MOOC learners in 5 factors and 17 items. We also found that 'Securing sustainability of education' and 'realization of lifelong education' are 2 constructs having greater explanatory power. According to the result of the analysis, 'realization of lifelong education' has the highest relevance among the factors predicting learners' willingness to participate. Therefore, in the context of constructing MOOC platforms and developing and planning contents, autonomy of learners should be emphasized and be first considered aiming not only nation-wide and local development but also improvement of individual life quality. In other words, a vision of MOOC should be established focusing on the individual life quality improvement and autonomous participation of learners to increase the willingness of learners to participate in MOOC which would be connected to actual participation.

Besides, 5 factors predicting learners' willingness to participate should be reflected in the development and management of MOOC systematically and comprehensively. We expect that the result of this study can be applied as a method analyzing the learners' needs when MOOC is introduced and planned, and each of items can provide insights when the management strategy of MOOC, which can increase the participation of learners are established. We expect that the result of this study can be applied as a method analyzing the learners' needs when MOOC is introduced and planned, and each of items can provide insights when the management strategy of MOOC, which can increase the participation of learners are established.

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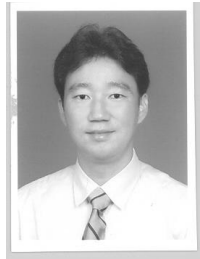
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