経済格差と大規模公開オンライン講義(MOOC)の学習動機づけ

“The Chemistry of Life”学習者の調査研究

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Economic Inequality and the Motivation for Learning in MOOC

A study of “The Chemistry of Life” course learners

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Introduction

Over the past few years, many educational courses, being referred to as MOOC, are available on the Internet, and attracting millions of learners to freely enroll in the course. MOOC is expected to minimize the social inequality by providing educational opportunities to those who could not have access to higher education before (Friedman, 2012). However, given that the previous research on MOOC reported that most learners possess advantageous socioeconomic backgrounds (Hansen & Reich, 2015; Ho et al., 2014; Perna et al., 2014), some researchers doubt whether MOOC can realize these ideals, that is, to minimize the social inequality (Emanuel, 2013).

The present research addresses this issue by exploring the relationship between learners' motivation and economic inequality. If learners from disadvantaged socioeconomic circumstances are motivated to improve their own career prospects via enrollment in MOOC, we can attribute this to the potential of MOOC to minimize social inequality. Therefore, we investigated the relationship between several types of motivation for learning in MOOC and socioeconomic indices.

Method

Respondents From April 9th (the start of the course) to May 8th (the day after the first self- and peer-assessment deadline for homework assignment 1), 1278 learners (471 females, 566 males, and 241 with unspecified or other genders) from 101 countries took part in the course entrance survey. The age of these learners ranged from 11 to 89 (mean = 33.8, *SD* = 14.6).

Instruments (1) Learning motivation: Based on some of the previously developed motivation scales (Asano, 2001; Goto et al., 2014) and prior research on MOOC (e.g., Zheng et al., 2015), we developed 10 items focusing some of the goals that learners are most likely to pursue throughout the course (e.g., “to satisfy my curiosity”, “to enhance my employability skills”, “to connect with people who I share interest with”). Learners responded to each item on a 7-point scale, ranging from 1 (“Strongly disagree”) to 7 (“Strongly agree”). (2) Prior knowledge: With the course instructor's help, we selected 10 subject-related keywords to tap learners' prior knowledge; three keywords that most learners were expected to be familiar with, four keywords that half of the learners were expected to know, and three keywords that most learners were expected not to be familiar with. Learners were asked to select between one of the two possible choices, “Know/ don't know”, to demonstrate their level of familiarity with these keywords.

Socioeconomic indices We obtained the Gini coefficients, which is widely known as the index of economic inequality (Gini, 1936) and

gross domestic product per capita (GDP per capita) from the most recent statistics reported by The World Bank (2014).

Results and Discussion

Factor structure of the learning motivation According to the results of the parallel analysis, we extracted 3 factors for learning motivation by using factorial analysis (maximum likelihood / oblimin rotation); extrinsic motivation (EM), intrinsic motivation (IM), and positive attitude toward the learning situation (PA).

Latent variable of the prior knowledge Focusing on five keywords (“know” rate < 90%), we estimated the latent prior knowledge score by two parameter logistic model. As this score positively predicted the probability of correct answers on the short test conducted in the first week ($B = 0.28$, $SE = 0.08$, $p < .01$; logistic regression), we assumed that this latent score represented the learners' prior knowledge (PK).

Relationship between learners' motivation, prior knowledge, and socioeconomic indices Results of multilevel regression analysis revealed that EM was positively predicted by Gini coefficient and negatively predicted by GDP per capita (Table 1). These results indicated that learners living in a country with larger social inequality and socioeconomic disadvantage circumstances are extrinsically motivated to learn in MOOC. Although the other variables were negatively predicted by GDP per capita, these effects were weaker than ones on EM. The findings support the view that MOOC has a potential for minimizing social inequality.

Table 1. Prediction by country-level socioeconomic indices

	Dependent variables			
	EM	IM	PA	PK
Intercept	-0.01 (0.17)	0.01 (0.21)	0.21 (0.21)	0.09 (0.21)
Gini coefficient	0.89* (0.40)	0.14 (0.50)	0.05 (0.05)	0.04 (0.48)
GDP per capita	-0.11* (0.01)	-0.03+ (0.02)	-0.07* (0.02)	-0.03+ (0.02)

Note: * $p < .05$, + $p < .10$, values in parentheses were standard errors. GDP per capita was rescaled to 10,000 USD per unit.

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