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The role of learners' motivation in MOOC completion

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ABSTRACT

Studies have shown that learners' motivation is a significant predictor of the level of engagement in a MOOC. However, the role of motivation in a MOOC's completion remains questionable. In our study, we estimated the role of motivation in a MOOC's completion, controlling for the characteristics of participants and their level of engagement with the course materials. The research database includes the survey and trace data on participants of nine MOOCs related to the economic field, launched on Coursera in 2014–2015. Two research models were created: the first model for all MOOCs' participants; the second model for university-affiliated participants. The results of the logistic regression showed that learners' motivation has a significant relationship with a MOOC's completion. However, not all motives for participation in MOOCs are significantly related to the chances of earning a certificate of completion. Intrinsic motivation, a motive for getting skills that could be useful for changing the workplace, and a motive for earning a certificate significantly increase the chances of a MOOC's completion. In turn, amotivation has a negative relationship with a MOOC's completion.

KEYWORDS

MOOC; motivation; self-determination theory; engagement; completion; students

Introduction

Modern higher education is becoming more accessible because of the spread of massive open online courses (MOOCs). This is a relatively new format of distance education, whose characteristics arise from its definition: it is open to everyone, free, massive and offered by universities via online platforms such as Coursera, edX, Udacity, etc. MOOCs have become not only a means to personal development but also the equivalent of full-time courses. Some universities offer students the opportunity to replace some offline courses with online ones, taught by professors of other institutions (Barak et al., 2016; Milligan & Littlejohn, 2017). MOOCs are also integrated into the educational process of universities in a blended format, in which online and offline activities are combined, or faculty uses another type of online course – SPOC, a small private online course, which is taught for a limited group of students (Dong et al., 2019).

The MOOC format is an open environment that gives each participant freedom of action, and the freedom to choose their learning path (Kizilcec et al., 2013). The choice of learning path on the MOOC and the level of engagement are explained by learners'

academic motivation (Barak et al., 2016; De Barba et al., 2016; Halasek et al., 2014; Xiong et al., 2015; Yang, 2014). Academic motivation is the reason for initiation and regulation of activity (Ryan & Deci, 2000).

Recent studies have identified three motivational factors for participation in MOOCs: (1) for professional benefit, (2) for educational benefit, (3) for personal benefit (Chang et al., 2015; Christensen et al., 2013; Macleod et al., 2015; Radford et al., 2015; Watted & Barak, 2018). Motives for professional and educational benefit may reflect the extrinsic motivation of learners, which, is the action for obtaining a specific result. A motive for personal benefit may be assigned to intrinsic motivation, which refers to actions where action is an end in itself. One meta-analysis showed that participation in MOOCs for personal benefit was the most common motivation among MOOC learners (Hew & Cheung, 2014).

The motivation to participate in a MOOC is related to learners' characteristics (Milligan & Littlejohn, 2017; Watted & Barak, 2018). For instance, university affiliated learners are guided more by educational motives when studying in a MOOC (Milligan & Littlejohn, 2017). The same motives may be pursued by learners with lower socioeconomic status (Stich & Reeves, 2017; Zhenghao et al., 2015).

The effect of motivation can be significantly higher in the online learning environment, than in the traditional learning environment (Yang, 2014). This may be due to the peculiarities of the MOOC format, which does not impose requirements for participation in the course on learners. The teacher does not insist on compulsory participation in his course, on the completion of tests or communication with other learners. At the same time, participants do not know how other learners pass the course, or whether their chosen learning path is effective. In this situation, motivation plays a significant role in learners' retention in a MOOC (Khalil & Ebner, 2017). Studies have shown, that the motivation of completers in MOOCs differs from the motivation of dropouts (Watted & Barak, 2018), and different motives predict a different level of engagement with course materials (Kizilcec & Schneider, 2015).

Previous studies on the role of motivation in a MOOC did not take into account learners' characteristics, which showed a significant relationship with MOOC completion (for example, the level of education, level of knowledge on the course subject, and experience in online learning) (Engle et al., 2015; Goldberg et al., 2015; Hansen & Reich, 2015; Semenova & Rudakova, 2016), as well as with the level of engagement with the course materials. However, these characteristics and level of engagement may affect the role of motivation in performance in a MOOC. In addition, since universities have started to integrate MOOCs into the campus-based curricula, using them in a blended learning format and/or as a substitute of offline courses, it is necessary to estimate the role of motivation in MOOC completion among university-affiliated participants (Barak et al., 2016; Milligan & Littlejohn, 2017; Sandeen, 2013; Swinnerton et al., 2017).

In our research, we identify the role of learners' motivation in MOOCs completion controlling for their characteristics, which showed a significant relationship with a MOOC's completion, and with the level of engagement with course materials. We estimate which motives for participation are significantly related to a MOOC's completion. In addition, we create two models for assessing the role of motivation: (1) for all participants, (2) for university-affiliated participants. We do this to identify whether there are differences in the role of motivation among these two groups of participants, as well as to

determine which motives are significant for students. The research database consists of the survey and trace data for participants of nine MOOCs of the National Research University Higher School of Economics (HSE), Russia, launched on Coursera in 2014–2015.

Since 2014, Russian universities have started to create MOOCs, launching them on both international and national platforms (Semenova et al., 2018). By 2019, the number of MOOCs created by Russian universities had reached 383 courses on Coursera and edX, and 1419 courses on national platforms that launched courses taught in the Russian language. In addition, a national site aggregator was created, the main purpose of which was to gather MOOCs from various online platforms on the one portal. These online courses must pass quality control and comply with the federal state educational standards that set the framework for educational programmes at Russian universities.¹ It is expected that MOOCs launched on the aggregator can be used in the educational processes of Russian universities without making major changes in their curricula. By 2019, 1137 online courses from 125 Russian universities from 39 national platforms could be found on this portal. It is expected that by 2025 the number of students from Russian universities, who will take MOOCs, should reach 11 million students.²

Theoretical model

One of the most common theoretical frameworks for academic motivation is Self-Determination Theory (SDT) (Pintrich & Schunk, 2002). This theory connects the learning context, basic psychological needs for competence, autonomy and relatedness, academic motivation and learning outcomes (Deci & Ryan, 2004). Studies have shown that if basic psychological needs are satisfied, this leads to the formation of self-determined motivation and positive learning outcomes (Grolnick et al., 1991; Jang et al., 2012; Reeve, 2002; Vallerand & Bissonnette, 1992; Williams & Deci, 1996). SDT has been successfully used to study academic motivation not only in a traditional face-to-face learning environment but also in an online learning environment (Chen & Jang, 2010; Hsu et al., 2019). Researchers have especially emphasised the importance of using the SDT framework in online learning, pointing out their related characteristics (Chen & Jang, 2010; Nikou & Economides, 2017). Similar to SDT, which lays down the importance of addressing needs for autonomy, competence and relatedness, the online learning environment aims to provide autonomy to students, develop skills and knowledge, as well as to ensure communication between all learners.

Chen and Jang (2010) confirmed the structural relationship between the learning context, psychological needs, and motivation, hypothesized in the SDT, for online learning. However, the model that researchers tested using structural equation modelling (SEM) did not confirm the predictive power of motivation for learning outcomes. In another work, Hsu et al. (2019) not only confirmed the structural relationships between context, needs and motivation but also found a significant relationship between students' motivation and learning outcomes in the online learning environment.

The main feature of SDT is the identification of several types of motivation based on level of autonomy: intrinsic, extrinsic, and amotivation (Ryan & Deci, 2000). Studies have shown that these types of motivation form distinctive constructs (Chen & Jang, 2010). Intrinsic motivation means the initiation and regulation of an activity based on general interest in the action. Extrinsic motivation means the initiation and regulation of an

activity based on the pursuit of external goals, which can be values (integrated subtype of extrinsic motivation), useful properties of an activity (identified subtype of extrinsic motivation), social norms (introjected subtype of extrinsic motivation), as well as scores, a certificate (external subtype of extrinsic motivation). Amotivation means the absence of any motive in performing an action. The typology of motives allows us not only to escape the dichotomy of motivation but also to arrange all types of motivation on the same scale according to the level of autonomy provided to the participant. According to self-determination theory, learners with intrinsic motivation have maximum autonomy in their actions; minimal autonomy is provided by external motivation and amotivation.

Studies have shown that in a traditional environment, students with extrinsic motivation get lower grades, compared to students with intrinsic motivation, who use meaningful learning strategies, demonstrate more insistence in their studying, and try to solve more difficult tasks (Goldberg & Cornell, 1998; Mitchell, 1992; Vallerand & Bissonnette, 1992). In an online environment, both internal and external motives have a significant relationship with course completion (Khalil & Ebner, 2017; Yuan & Powell, 2013).

In our study, we used the typology of motivation proposed in SDT to evaluate which types of motivation play a significant role in MOOCs, controlling for level of engagement and characteristics of participants, which showed a significant relationship with MOOC completion. The research model is indicated in Figure 1.

Methodology

Description of the sample

The research database consists of the survey and trace data on the participants registered for courses of the National Research University Higher School of Economics, launched on Coursera in 2014–2015. The research sample consists of the participants of nine MOOCs related to the economic field: Economy for Non-Economists, Institutional Economy, Econometrics, Financial Markets and Institutions, Fundamentals of Microeconomics, History of Economic Thought, Fundamentals of Corporate Finance, and Macroeconomics. These online courses were session-based MOOCs recorded in Russian. In total, 209,959

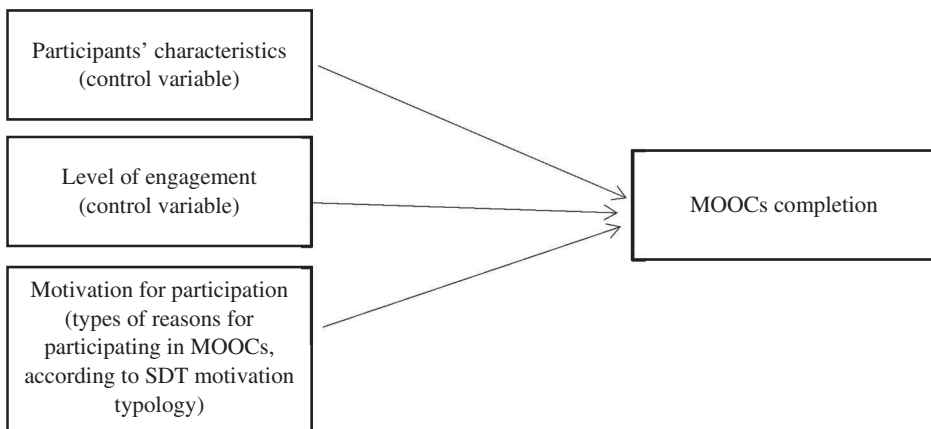


Figure 1. Theoretical model of the research.

participants registered for these courses. Most participants showed minor activity on the course: 85% received zero scores at the end of the course; 3% participated in the forum, and 5% got a certificate of course completion.

The research sample includes only those learners who took a survey. The survey was conducted before the start of the MOOCs in an online format with all registered participants, who received a link to an online application form by email. The questionnaire included questions on socio-demographic characteristics, level of education, experience in online learning, level of knowledge on the course subject, and motives for participation in the MOOC. The final sample consists of 10,187 participants of nine MOOCs related to the economic field, representing 5% of the population. Less than half of the participants in the sample did not show significant activity on the course: 44% received zero scores at the end of the course; 13% participated in the forum, and 23% got a certificate of course completion. These data show that our research sample is skewed towards more engaged learners.

The majority of participants in the sample (85%) are learners with a higher education. More than half of the participants (56%) are male learners. The average age of participants is 29 years old ($SD = 0.08$). More than half of the participants (61%) are professional workers with a full-time job. Every fourth participant is a student studying on a bachelor's, master's degree programme, or a PhD student. More than half of the participants (56%) have online learning experience, while 68% have a low level of knowledge on the course subject (zero or elementary levels).

Level of engagement in MOOCs

The level of learners' engagement in MOOCs includes three indicators: (1) watching video lectures, (2) completing tasks, (3) participating in the forum. In our study, we use the last two indicators to measure the level of engagement in the course. We use the indicator completing tasks since it was found to be the strongest predictor of MOOC completion (De Barba et al., 2016). In addition, studies have shown that participation in the MOOC forum has a positive relationship with completion of the course (Barak et al., 2016; Ferguson & Clow, 2015).

If we split the course into three parts (beginning, middle and end), then in the first weeks more than half of the participants (62%) completed the tests. In the middle of the course, activity declined by half: 30% of participants completed the tests. At the end of the course, only 18% of the participants did the tests. Since there is a strong significant correlation between the indicators of test completion (the coefficient is higher 0.8), to avoid the multicollinearity effect, we included only one indicator of test completion in our model. This indicator is completing the test of the first course week. In the first week, 61% of learners completed the test.

Motivation scale

To measure motivation in MOOCs, the motivation scale was created based on the idea of a typology of motivation (Ryan & Deci, 2000). For each type of motivation, marked in the self-determination theory (except for the integrated type), a set of statements reflecting a specific reason for participating in the course was compiled (examples of the statements for each type of motivation are presented in Table 1).

Table 1. An example of the statements for each type of motivation.

Intrinsic motivation	Identified motivation	Introjected motivation	External motivation	Amotivation
I am taking the course out of general interest or curiosity	I am taking the course because it supports my current or prospective academic program	I am taking the course because I have friends who also participate	I am taking the course because I am interested in earning a Certificate	I'm not going to participate on a regular basis; I just want to have access to the course materials

The statements of intrinsic motivation contain reasons for participating in the MOOC out of curiosity and interest in the course subject. The statements of identified motivation reflect such reasons for participating in the MOOC as value for studying at a university and for current/future work. The statements of introjected motivation contain reasons for participating in the MOOC for pursuing social norms arising in participants' environments. The statements of external motivation contain the reasons for participating in the MOOC of getting a certificate of completion and the prestige of the university/teacher who recorded the course. The statement of amotivation reflects the lack of interest in the MOOC. Each statement was rated on a Likert scale (from 1 'Strongly disagree' to 4 'Strongly agree').

This scale is similar to the Online Learning Enrolment Intentions (OLEI) scale, proposed for measuring the motivation of MOOC participants (Kizilcec & Schneider, 2015). However, there are some differences. Firstly, there are no statements in our scale that contain reasons for participating in MOOCs such as improving English language proficiency, and relevance to academic research. Secondly, we included a statement reflecting such type of motivation as amotivation in our scale.

To determine how the statements of the motivation scale fit into the types of motivation, a hierarchical cluster analysis was carried out, according to the methodology proposed in Sheldon et al. (2017). The result of the analysis showed that these statements are not combined into types of motivation, thereby not forming aggregated factors of motivation. In addition, the reliability analysis showed that Cronbach's Alpha does not exceed 0.6 for each type of motivation. Therefore, it was decided not to form motivation factors from the statements, but to use them separately in the model. The correlation matrix of the statements shows that most of the motives for participation in the MOOC are statistically significantly related to each other (at the level of 0.01) (see Table 2). However, the correlation coefficient is weak and does not exceed 0.4. Therefore, all motives for participation in the MOOC could be included in the model, which does not lead to the multicollinearity effect.

The majority of the participants (96%) registered for the MOOC because of their interest in the course subject, i.e. they had intrinsic motivation (see Figure 2). Half of the participants (56%) took the MOOC because it supports their current work, and 40% were motivated to get skills that could be useful for changing the workplace. A minority of learners (6%) took the MOOC because their friends/colleagues also participated in the course. Every sixth learner just wanted to have access to the course materials. Every third participant took the course because it supports their current or prospective academic program. Only 30% of participants were motivated to get a certificate of completion of the MOOC.

Table 2. Correlation matrix for the motives for participation in MOOCs.

The motives for participation	1	2	3	4	5	6	7	8	9
1. I am taking the course out of general interest or curiosity	1,00								
2. I am taking the course because it supports my current or prospective academic program	-0,05	1,00							
3. I am taking the course because it supports my current job responsibilities	-0,07	0,17	1,00						
4. I am taking the course because the skills it provides may be useful for obtaining a new job	-0,02	0,16	0,15	1,00					
5. I am taking the course because I am interested in connecting with other students interested in this topic	-0,03	0,24	0,17	0,19	1,00				
6. I am taking the course because I have friends who also participate	-0,19	0,19	0,11	0,13	0,27	1,00			
7. I am taking the course because I am interested in earning a Certificate	-0,08	0,23	0,20	0,19	0,39	0,23	1,00		
8. I am taking the course because it is taught by particular professor/offered by particular university	0,01	0,22	0,15	0,12	0,27	0,20	0,28	1,00	
9. I'm not going to participate on a regular basis, I just want to have access to the course materials	-0,08	0,06	-0,02	0,04	0,02	0,21	-0,02	0,01	1,00

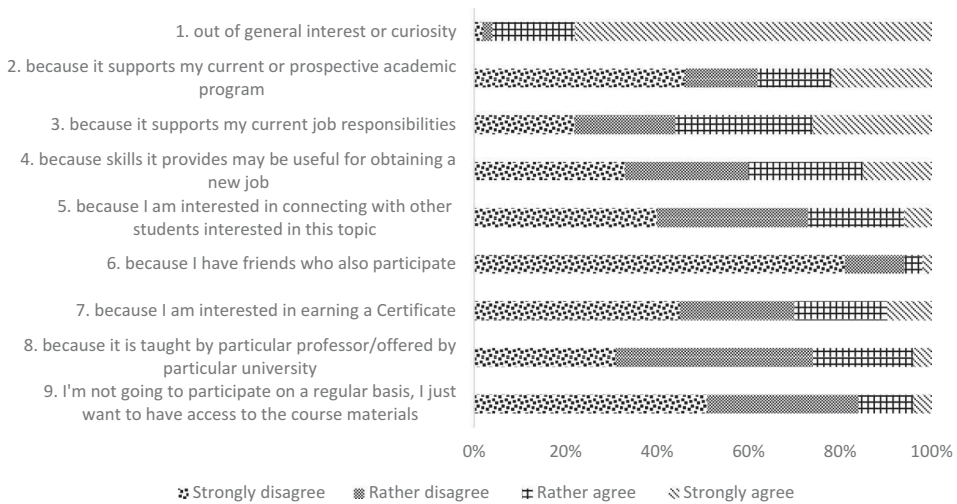


Figure 2. Distribution of the motives for participation in the MOOCs.

Results

Study models

Three models were created to estimate the role of learners' motivation in a MOOC's completion. The first model includes just the participants' characteristics, which showed their significant relationship with a MOOC's completion. These characteristics are gender, age, level of education, experience in online learning, and level of knowledge on the course subject. The indicators of the level of engagement in the course materials (participation in the course forum and completing the tests of the first course week) were added to the learners' characteristics in the second model. The motives for participation in a MOOC were added in the third model to estimate the role of motivation in a MOOC's

completion, controlling for learners' characteristics and their level of engagement. In addition, in our study, we created a separate model for university-affiliated participants to estimate the role of motivation in a MOOC's completion for this cohort of learners. In the models, the dependent variable is getting a certificate of MOOC completion (0 – participant did not get a certificate, 1 – participant got a certificate). This variable is a dichotomous one; therefore, logistic regressions were used for conducting the analysis.

Models for all MOOC participants

In the first model with only control variables, all characteristics of participants, except for experience in online learning, have a statistically significant relationship with a MOOC's completion (see [Table 3](#)). Higher education and knowledge on the course subject increase chances to get a MOOC certificate. In addition, male and older participants are more likely to get a certificate.

In the second model, indicators of the level of engagement in the course subject showed a statistically significant relationship with a MOOC's completion. Participation in the course forum and completing the tests of the first course week increase the chances of getting a certificate. In this model the characteristics of MOOCs' participants kept their significant relationship with a MOOC's completion except for the level of knowledge in the course subject.

In the third model, the motives for participation in MOOCs showed a significant relationship with a MOOC's completion, controlling for the characteristics of participants and their level of engagement. The following motives for participation in MOOCs significantly increase the chances of getting a certificate: intrinsic motivation (taking the course out of general interest or curiosity), the intention of getting skills that could be useful for changing the workplace, and external motivation (the intention of getting a certificate). At the same time, the chances of getting a certificate are significantly lower for a learner with amotivation (who just wants to have access to the course materials). In this model indicators of the level of engagement in the course subject and the participants' characteristics (gender, age, level of education) kept their significant relationship with the dependent variable. Moreover, experience in online learning has a statistically significant relationship with the dependent variable at 0.05 level. The chances of earning a MOOC certificate are significantly higher for participants with online learning experience.

In the third model, the most significant predictor of a MOOC's completion is activity in the first week of the course. Despite the significance of these indicators, learners' motivation shows its relationship with a MOOC's completion. Thus, participants with intrinsic and external motivation and the intention of getting skills that could be useful for changing the workplace are more likely to earn a certificate of MOOC completion, controlling for their level of engagement and characteristics.

Model for university-affiliated participants

We created a separate model for university-affiliated participants to estimate the role of motivation in a MOOC's completion for students (see [Table 3](#)). In the fourth model, only one characteristic of students, their gender, is statistically related to a MOOC's completion

Table 3. Results of logistic regression models for all participants and the cohort of students.

	Model 1	Model 2	Model 3	Model 4 for students
<i>Control variables</i>				
Gender (0 = Female)	1.45*** (0.072)	1.28*** (0.072)	1.28*** (0.074)	1.34** (0.170)
Age	1.03*** (0.003)	1.02*** (0.004)	1.02*** (0.004)	1.03* (0.015)
Education (0 = does not have a higher education)	1.35*** (0.107)	1.41*** (0.124)	1.35*** (0.123)	0.96 (0.129)
Experience in online learning (0 = does not have an experience)	1.08 (0.053)	1.09 (0.060)	1.12** (0.064)	1.08 (0.137)
Level of knowledge on MOOC subject	1.10*** (0.029)	1.05 (0.032)	1.05 (0.034)	0.87* (0.065)
<i>Engagement</i>				
Completing the test of the first week (0 = did not complete)		79.81*** (16.864)	75.15*** (15.897)	74.34*** (37.619)
Participation in MOOC forum (0 = did not participate)		3.45*** (0.231)	3.39*** (0.229)	2.96*** (0.436)
<i>Motivation</i>				
Out of general interest or curiosity			1.13** (0.056)	1.38*** (0.165)
Because it supports my current or prospective academic program			0.95* (0.026)	0.99 (0.059)
Because it supports my current job responsibilities			1.00 (0.027)	1.09 (0.066)
Because the skills it provides may be useful for obtaining a new job			1.06** (0.029)	0.99 (0.057)
Because I am interested in connecting with other students interested in this topic			0.94* (0.033)	0.93 (0.067)
Because I have friends who also participate			1.08 (0.054)	1.17 (0.119)
Because I am interested in earning a Certificate			1.18*** (0.035)	1.20*** (0.074)
Because it is taught by a particular professor/offered by a particular university			1.06* (0.037)	1.05 (0.077)
I'm not going to participate on a regular basis; I just want to have access to the course materials			0.79*** (0.031)	0.75*** (0.066)
<i>Model's quality</i>				
LR chi2	214.96	2927.52	3017.16	567.24
Pseudo R2	0.02	0.27	0.28	0.25
AIC	10,657.06	7948.50	7876.86	1698.82
BIC	10,700.44	8006.34	7999.75	1797.08

Note. Italic typeface denotes statistical significance at $p < 0.05$.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

There are odds ratio for each variable. seEform in parentheses

(at the 0.05 level). The chances of getting a certificate are higher for male students. In addition, only three motives for participation in a MOOC showed a significant relationship with a MOOC's completion. The chances of getting a certificate are higher for students taking the course because of general interest or curiosity (intrinsic motivation), and the intention of getting a document of MOOC completion (external motivation). At the same time, students with amotivation (who registered just to have access to the course materials) are less likely to earn a certificate. Moreover, a motive for participation in MOOCs such as to support a current or prospective academic program does not play a significant role in a MOOC's completion for students.

Discussion

In our study, we used the survey and trace data on the participants of nine MOOCs of HSE, related to the economic field, launched on Coursera in 2014–2015, to estimate the role of motivation in a MOOC's completion, controlling for the characteristics of participants and their activity on the course. The research sample included more than 10,000 learners who participated in an online survey, conducted before the start of the courses and which marked their motives for participating in a MOOC. Motivation is the reason for choosing and participating in a specific MOOC, which initiates and regulates learners' further activity on the course. To measure learners' motivation, we created a motivation scale based on the idea of the typology of motivation, marked in self-determination theory (Deci & Ryan, 2004).

The results of logistic regression showed that learners' motivation has a significant relationship with a MOOC's completion while controlling for their characteristics (gender, age, level of education, level of knowledge on the course subject, experience in online learning), and level of engagement with the course materials (completing the tests of the first week, participating in the forum). Therefore, motivation is not only significantly related to participants' course engagement (Barak et al., 2016; Xiong et al., 2015; Yang, 2014), but also to their intention to complete the course to its end and earn a certificate. This may indicate that learners have different plans for participation in MOOCs, that are not necessarily related to earning a certificate.

Our study showed that not all motives for participation in a MOOC have a significant relationship with a MOOC's completion. Firstly, participants with intrinsic motivation (taking the course out of interest or curiosity) are more likely to complete a MOOC and earn a certificate. This could be because participants with intrinsic motivation demonstrate better ability to choose successful learning strategies, deal with difficulties and demonstrate positive self-perceptions, which are necessary for taking MOOCs (Littlejohn et al., 2016; Magen-Nagar & Cohen, 2017; Yang, 2014). For example, it was shown that participants with intrinsic motivation and mastery goal orientation have higher self-regulation skills (Littlejohn et al., 2016).

Secondly, participants with the intention of getting skills that could be useful for obtaining a new job are more likely to complete a MOOC and earn a certificate. At the same time, the motive of course relevance to current job responsibilities does not have a significant relationship with a MOOC's completion. Therefore, in examining the role of motivation in a MOOC's completion, it is worth looking at the motives for participation without creating one motivation index (for example, the relative autonomy index (RAI), which is used to measure the role of motivation in face-to-face learning conditions) (Chen & Jang, 2010).

Thirdly, participants with external motivation (the intention to get a certificate of MOOC completion) have more chances to complete a MOOC. This result differs from findings of Kizilcec and Schneider (2015), who showed that the intention of earning a certificate was not significantly related to the probability of obtaining it at the end of the course. In the traditional environment, external motivation is negatively related to students' academic outcomes (Goldberg & Cornell, 1998; Mitchell, 1992; Vallerand & Bissonnette, 1992). Students with external motivation use passive learning practices, and choice of learning path is made for them. However, in MOOCs, because of their open nature, the participant has to choose the learning strategies, make a plan for studying and actively engage in the course (because there is no one who will push the

participant to keep up with the learning process in a MOOC). Therefore, in the case of MOOCs, external motivation may be an additional external incentive, forcing the participant to stay active in the course.

Fourth, participants with amotivation (taking the course to have access to its materials) are less likely to complete a MOOC. The same result was found in Khalil and Ebner (2017), where it was shown that the lack of motivation was a key predictor of dropping out of a MOOC. Amotivation may cause a lack of persistence in the online environment, which can adversely impact MOOC performance (Hart, 2012; Vanthournout et al., 2012). The presence of participants with amotivation indicates that not all MOOC learners are oriented towards systematic learning on MOOCs. This unsystematic learning path can be seen from an analysis of the behaviour of participants on the course (see studies where participants were classified into several groups based on their level of activity (Ferguson & Clow, 2015; Kizilcec et al., 2013)).

Since universities have started to integrate MOOCs in the campus-based curricula (Barak et al., 2016; Milligan & Littlejohn, 2017; Swinnerton et al., 2017), the question has arisen as to the role of motivation in a MOOC's completion among university-affiliated participants. Studies have shown that students participate in MOOCs to enhance their knowledge, obtain a certificate, and to use it as a complement to offline courses (Milligan & Littlejohn, 2017; Schmid et al., 2015; Zheng et al., 2015). In our research, we show the significant relationship between students' motivation and a MOOC's completion. The chances of getting a certificate are higher for students with intrinsic motivation (taking the course out of interest or curiosity) and external motivation (for earning a certificate). Students with amotivation are less likely to earn a certificate. In addition, we did not find a significant relationship between a MOOC's completion and the motive for participation in MOOCs of supporting a current or prospective academic program for students.

Thus, there is a relationship between motivation and course completion in the MOOC environment. The chances of getting a certificate are higher for participants with both intrinsic and external motivation. Therefore, in the case of MOOC integration in the campus-based curricula, it becomes important not only to oblige students to get a certificate of MOOC completion but also to provide the correct choice of a course that attracts the interest of students. In further research, it would be worthwhile to consider in more detail the case of using MOOCs in the learning process of universities, to identify the most effective strategies for their integration and for avoiding negative consequences from this practice. Some researchers consider the SPOC format to be more effective for students (Liao, 2019). However, there are no experimental studies showing its effectiveness. Therefore, future research should also evaluate the potential of SPOC and other forms of MOOC for students.

Conclusion

The study showed that the MOOC population is a heterogeneous body of learners with different motives for participation in the course. Their motivation has a significant relationship with MOOC completion. The MOOC platform may be adapted to different groups of learners based on their motivation nudging them to participate in the course following their plans. Experimental research is needed to test different scalable interventions with the structure of the MOOC interface to implement the most effective of them into the platform.

Study limitation

This study has several limitations. Firstly, the research sample may differ from the general population due to the self-selection effect, caused by using the survey method to collect data. All registered learners were invited to participate in the survey, and only those learners, who replied to the questionnaire, formed the research sample. Studies have shown that the most active respondents with high academic outcomes and intrinsic motivation respond to a survey (Alario-Hoyos et al., 2017; Porter & Whitcomb, 2005). In our research, we have the same pattern: the most active learners responded to the survey (for instance, five times more participants earned a certificate in the sample than in the population).

Secondly, we used the database of participants of MOOCs related to the economic field of study. The role of motivation in a MOOC's completion might be different among participants of courses on another topic. For example, Christensen et al. (2013) indicated that the typology of motives for participating in MOOCs depends on the course subject.

Thirdly, we made several assumptions in our study for measuring learners' motivation. The first assumption is that using the scale, we may measure learners' motivation regarding their reasons for participating in the course. This approach has been used in most work on the role of motivation in a MOOC's completion (Kizilcec & Schneider, 2015; Xiong et al., 2015). The second assumption is that motivation remains unchanged during the course. However, motivation of MOOC learners may change significantly throughout the course. Therefore, a possible option for measuring learners' motivation is to conduct a survey after the end of the course. However, in this case, there may be a problem of a low response rate to the post-survey, as studies have shown that the response rate to a post-survey does not exceed 5% (Belanger et al., 2013; Maloshonok & Terentev, 2016).

Fourthly, in the research model, we used two indicators of engagement with the course materials: participation in the forum and completing tests of the first course week. However, this construct is not limited only to these indicators (for example, such indicators as the number of attempts in tests made by participants, or the number of video lectures watched by participants, could be added to the model). However, studies have indicated that the most significant predictor of a MOOC's performance is completion of the course's tests (De Barba et al., 2016).

Notes

1. The official site of the portal of 'one window': <https://online.edu.ru/ru/>.
2. According to the project 'Modern Digital Educational Environment in the Russian Federation' (<http://static.government.ru/media/files/8SiLmMBgjAN89vZbUUtmuF5IZYftvOAG.pdf>).

Disclosure statement

No potential conflict of interest was reported by the author.

Notes on contributor

Tatiana Semanova is a research fellow in the Centre for Sociology of Higher Education in the Institute of Education at National Research University Higher School of Economics, Russia. Her research interests

include, but are not limited to, the effectiveness of online learning, interventions to improve the quality of online learning, assessing the effect of different elements of the course on its completion

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