



The undervalued variable in Massive Open Online Course (MOOC) research: An analysis and conceptualization of readiness for online learning in MOOCs

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Abstract

Together with the developments in online learning field, Massive Open Online Courses (MOOCs) have attracted significant attention both in developed and developing countries in recent years. Although online learning readiness (OLR) of learners has been investigated comprehensively in online learning contexts, and several instruments have been developed to measure OLR, this variable has been undervalued in MOOC contexts, and little is known about OLR in MOOCs. For this reason, the purpose of this mixed methods study is to investigate and conceptualize OLR in MOOCs. Particularly, this study aims to examine readiness for online learning in a MOOC context, to investigate the effect of OLR on MOOC completion, and to identify factors contributing to learners' OLR for conceptualizing OLR in MOOCs. The number of participants is 8974 for the quantitative stage and 141 for the qualitative stage. The data were collected using the OLR Scale, system logs, and open-ended question. The quantitative data were analyzed using descriptive and inferential statistics, and the qualitative data were analyzed using content analysis. The results showed that Bilgeİş MOOC learners have high levels of OLR, and MOOC completion was significantly associated with only the self-directed learning dimension of OLR. In addition, the qualitative results revealed whether learners felt ready for online learning. The main reason why they were ready for online learning was learners' previous online or distance learning experience, and the main reason why they were not ready for online learning was having a bias against online learning. The qualitative results also revealed ten indicators which can be used for conceptualizing OLR in MOOCs. The results of this study can be very relevant for the field, and the arguments made might be important for enhancing the effectiveness and success of MOOCs. Particularly, the results obtained from this research are expected to provide important information and recommendations to MOOC practitioners and researchers who would like to study OLR in MOOCs or to develop new perspectives regarding OLR in MOOCs. Also, the results provide essential input for practitioners and

researchers studying OLR and could open the way for future studies regarding OLR in MOOCs to support MOOC learners in their online learning journey.

Keywords Massive open online courses · MOOCs · Bilgeleş · Online learning · Readiness

1 Introduction

The rate of developments in Information and Communication Technologies (ICTs) and the widespread use of ICT have led the traditional models of teaching and learning to easily expand to online environments. MOOCs are online courses which “provide a structured curriculum around a given theme or topic, but learners are expected to be autonomous and manage their own learning by making their own social and conceptual connections to suit their own needs” (Tschofen & Mackness, 2012, p. 126). In the past years, there has been a rapid development and expansion of MOOCs. A decade after their launch, more than 220 million learners enrolled in MOOCs, and more than 19 thousand MOOCs were offered by different providers around the globe (Shah, 2021). MOOCs support continuing education, life-long learning as well as self-directed professional development (Li, 2019). One of the problems MOOCs have faced is their low completion rates (Jordan, 2014). Available research revealed similar and contradictory findings regarding the variables affecting MOOC completion (e.g., Breslow et al., 2013; Morris et al., 2015; Pursel et al., 2016). Due to employment of open entry policy, the students enrolled in online courses are likely to have varying characteristics with respect to previous academic achievements, prior experiences, or relevant skills (Lee & Choi, 2011). Hence, in order to better understand what skills and experiences are needed to be successful in a MOOC, more research on the factors impacting MOOC completion should be given attention (Schulze, 2014). In addition, researching MOOC participants’ characteristics can enable the relevant bodies to make courses suit different learners’ needs, and in this way, the impact of MOOCs in providing lifelong learning at scale can be maximized (Kahan et al., 2017). For these reasons, the attempts to explore what variables are associated with MOOC completion should continue.

Online learning readiness (OLR) can be defined as “cognitive awareness and maturity that a student develops for successful learning in a web-based environment” (Liu & Kaye, 2016, p. 242). Measures of readiness aim to measure the dimensions required for a successful online learning experience, and students’ level of readiness presents a concern for learning successfully in MOOCs (T Subramaniam et al., 2019). Online learning and MOOC environments are expanding, and together with the corona pandemic, more people than ever have had to rely on online learning and take online classes. However, this raises a concern whether learners are ready for learning in MOOCs. Understanding readiness helps to determine whether learners are prepared enough to take an online course or program. Assessment of readiness leads to designing better online courses, to guide learners to experience successful and fruitful online learning, and to enhance learners’ online learning experience

(Hung et al., 2010). To benefit from online learning, participants must be ready for online courses. As some facets of e-learning can be found challenging by students (Parkes et al., 2015), and studying via MOOCs can also be a challenging experience for learners (Park et al., 2015), they should possess the necessary characteristics and skills (Hung et al., 2010). Additionally, MOOC learners can experience disorientation in MOOCs as they might be expecting the orderly classroom or lecture hall setting (Knox, 2014). For these reasons, it is essential to understand learners' readiness for online learning in MOOCs.

Although OLR of learners as entry characteristics and its associations with other variables was widely researched in online learning contexts (e.g., Çebi, 2022; Horzum et al., 2015; Joosten & Cusatis, 2020; Pham & Dau, 2022; Yukselturk et al., 2014), OLR has been undervalued in MOOC contexts, and the quality research studies focusing on OLR for MOOCs or the effects of OLR on MOOC outcomes are very scarce. Furthermore, the studies focusing on what the indicators of learners' readiness for learning in MOOCs should be is rare while some studies (e.g., Alshammari, 2022; T Subramaniam et al., 2019) have been conducted on the factors affecting MOOC readiness. Still what dimensions readiness for online learning in MOOCs should incorporate is inconsequential. To achieve successful online learning experiences in MOOCs, learners' readiness towards learning in MOOCs should be examined as the nature and open format of the MOOCs are novel to many of these diverse learners. Therefore, the purpose of this mixed methods study is to examine readiness for online learning in a MOOC context, to investigate the effect of OLR on MOOC completion and to identify factors contributing to learners' OLR for conceptualizing readiness for online learning in MOOCs. This study presents the characteristics of successful MOOC learners with respect to OLR and provides qualitative evidence of OLR. This study also overcomes sample selection bias (Purssel et al., 2016) by collecting background information during registration for the portal which makes it possible to see the background of diverse MOOC learners.

This study answers the following research questions:

- 1- What is learners' OLR in a MOOC context?
- 2- What are the relationships between learners' OLR and MOOC completion?
- 3- What do learners think about their OLR in a MOOC context?

2 Literature review

2.1 Online learner characteristics

Online learners should be aware of the dynamics in an online context, namely how online learning works, how interactions occur, and what the roles of learners and instructors are etc. (Vonderwell & Savery, 2004). For successful online learning experience, some level of ICT competency such as basic computer and internet skills is required, and some level of experience with online learning environments is considered important (Menchaca & Bekele, 2008). Wang et al. (2013) suggested

that students who would like to succeed in online learning environments should have confidence in using online learning platforms in addition to confidence in general computer skills. Moreover, learners can be distressed by technology, instructions, and online interactions in the online learning environment (Essex & Cagiltay, 2001). Learners who are new to MOOCs and not familiar with self-directed learning generally have hard times to find their place within a MOOC. Pursel et al. (2016) found that students who completed the MOOC showed a high degree of self-directed learning. In addition, the level of learners' OLR emerged as one of the critical factors of online learning for achieving better learning quality in the online learning process (Korkmaz, 2022). Martin et al.'s (2020) systematic review study discovered that OLR has been studied as one of the student characteristics under academic characteristics. In brief, readiness of learners might be the first step to consider in e-learning (Şahin et al., 2020), and learners' OLR should be considered in online environments (İliç, 2022).

2.2 Conceptualization of OLR

OLR, also referred as e-learning readiness, has been conceptualized using different dimensions and existing online readiness assessment tools are very diverse regarding the type and number of dimensions they include (Farid, 2014). Several digital learning readiness instruments have been developed, validated, and applied by researchers (Blayone, 2018). To exemplify, Smith et al. (2003) identified factors underlying readiness for online learning in their exploratory study as comfort with e-learning and self-management of learning. Watkins et al. (2004) included technology access, online skills and relationships, motivation, online audio/video, internet discussions, and importance to one's success dimensions in their revised instrument measuring learners' readiness for e-learning. Hung et al.'s (2010) conceptualization included five dimensions as explained in the methodology section. Dray et al. (2011) put forward learner characteristics, digital divide, and information and ICT engagement dimensions. Yu and Richardson (2015) formed the Student Online Learning Readiness (SOLR) measurement instrument with four dimensions: social competencies with the instructor, social competencies with classmates, communication competencies, and technical competencies. Yurdugül and Demir (2017) developed an instrument to measure e-learning readiness of university students including the dimensions of computer self-efficacy, internet self-efficacy, online communication self-efficacy, self-directed learning, learner control, and motivation towards e-learning dimensions. In summary, Farid's (2014) systematic study on student online readiness assessment tools revealed that e-learning readiness refers to the dimensions of computer/internet self-efficacy, self-direction, motivation, interaction, and attitude. Online readiness construct has varied from one study to another as the composition of this construct has been questioned greatly. The common argument behind the different conceptualizations of OLR was that researchers supported the notion that the measures assessing OLR are not comprehensive enough to cover other dimensions which are essential for online learning (Hung et al., 2010).

2.3 Related studies on OLR

OLR has been shown to be related with variables influencing the effectiveness, efficacy, and satisfaction of online learning. Online readiness has been found to affect successful course performance and e-learning satisfaction (Holsapple & Lee-Post, 2006). Demir-Kaymak and Horzum (2013) showed that students' OLR was positively associated with their interactions in the learning environments. In their study on predicting student dropout using data mining methods in an online education program, Yukselturk et al. (2014) found that readiness for online learning was a predictive factor related to student dropouts. Horzum et al. (2015) revealed that students' OLR levels directly predicted academic motivations and indirectly predicted perceived learning. It was also revealed that student academic motivations directly predicted perceived learning. The model they obtained from their research suggested that academic motivation is useful in increasing perceived learning in online learning environments, and increasing readiness is useful in increasing academic motivation. Joosten and Cusatis (2020) investigated OLR and student outcomes and found out that OLR significantly impacts student outcomes. Regarding the course preference, Bayrak (2022) found that learners preferring online learning had higher levels of OLR with respect to learner control and motivation for learning. Şahin et al. (2020) investigated online learning behaviors considering e-learning readiness using a sequential analysis. They explored that the learners with high levels of OLR with respect to self-directed learning, learning control, and learning motivation are more likely to have a consistent interaction and engage in deep learning in the e-learning environment. In other words, learners having low levels of OLR browsed through content and discussion where learners having high levels of OLR made consistent visits through the content, discussion, and evaluation. In another study, Çebi (2022) examined the effect of readiness on learner interactions in distance learning. It was reported that e-learning readiness and motivation significantly predict learner interactions, and this relationship is mediated by motivation. Lastly, Pham and Dau (2022) examined the influence of OLR on learners' satisfaction and their online learning system use and found out that online learning system utilization and learner satisfaction are both positively influenced by OLR.

2.3.1 Related studies on OLR in MOOCs

Although OLR has been given significant importance in online learning contexts, the research studies are very limited regarding OLR for MOOCs. For example, the studies on ICTs readiness among MOOC learners based on a cross-national analysis (Gameel, 2016) and self-determined learning readiness of language MOOC learners (Agonács et al., 2020) were carried out; however, they did not focus on the overall OLR of MOOC learners. T Subramaniam et al. (2019) investigated the MOOC readiness levels of adult students from Malaysian higher education institutions. The results showed that survey respondents were moderately ready for MOOCs. The respondents believed that they have the necessary competencies, and they are self-directed. MOOC readiness was found to be significantly correlated with self-efficacy, followed by socio-communication competency, self-directedness,

and technical competencies. In addition, MOOC readiness was significantly higher for students who took fully online and face-to-face courses than the ones who took blended courses. Recently, Alshammari (2022) examined learners' readiness in MOOCs using structural equation modeling based on the Student Online Learning Readiness (SOLR) model. The measurement included technical competency, social competency, communication competency, and learner readiness. The results indicated the significant positive effects of technical competency and communication competency on learners' readiness in MOOCs.

As a result, research studies in the literature provide significant evidence that OLR is related to several outcomes and can support learners' behaviors and performance in online learning contexts. Because of this importance of readiness, OLR is worthy of attention in MOOC contexts. Therefore, MOOC practitioners and researchers should comprehend and identify OLR-related factors in MOOCs because MOOC earners need to possess essential characteristics to be successful as well. This study fills the gap in the relevant literature from these aspects. Particularly, this study fills the gap in the literature by researching OLR readiness in a MOOC context using an available OLR instrument and adds to the literature what components can be included to measure OLR in MOOC contexts effectively.

3 Methodology

3.1 Research context

Bilgeİş MOOC Portal is a learning environment which is free of charge, and open for any individual. The portal hosts more than 100 MOOCs. All MOOCs on bilgeis.net focus on development of ICT-related skills or soft skills of the learners. The language of the courses is in Turkish. In this way, the language barrier for the learners is removed to provide access to the courses. In Bilgeİş MOOCs, the course environment is heavily based on learner-content interaction, learner-learner interaction, and assessments. Also, there are online course assistants assigned to the courses, and learners can ask any relevant questions. All the courses are provided free of charge including the certificates and, in this way, they are completely open. The courses are self-paced, meaning that learners can take the courses anytime and anywhere they want. Since adults have limited time for participating in training, the course durations and requirements such as workload, assignments etc. were designed with microlearning strategies covering short course length.

3.2 Research method

The purpose of the study is to provide overall understanding of OLR using a variety of data sources from four courses of Bilgeİş MOOC Portal (bilgeis.net) as well as building on quantitative results following qualitative research to provide a detailed view of OLR in MOOC contexts. Majority of the OLR studies are quantitative studies which specifically focus on measurement instrument development and validation

or examination of OLR (Martin et al., 2020). For this reason, in order to provide a comprehensive understanding, explanation and answer for the research questions of the study, the explanatory sequential mixed methods design (Creswell & Clark, 2007) was implemented. The value of mixed methods is maintained by combining quantitative and qualitative methods in a way that complement one another since the strengths of both methods cancel out the weaknesses of the other (Fraenkel et al., 2012). The data obtained by quantitative and qualitative stages were integrated and mixed in the discussion section.

3.3 Participants

The participants of this study were learners enrolled in four MOOCs, namely Dealing with Problematic People, Python Programming, Visual Design Principles, and Database Management, provided by the Bilgeİş MOOC Portal. The selection of four MOOCs was done purposefully to represent the population of learners on the Bilgeİş MOOC Portal as these MOOCs were the most preferred ones among others. Volunteer participants were selected as the participants of the qualitative stage since it was not possible to apply purposive sampling in the qualitative stage due to the nature of MOOCs. In other words, it was hard to reach the MOOC learners as they were not within the reach of the researcher.

The number of participants is 8974 for the quantitative stage. Of these, 4927 (54.9%) were male and 4047 (45.1%) were female. The mean age was 26.42 ($SD=8.99$). More than half of the participants did not have previous online learning experience. The qualitative stage participants were the subsample of the participants in the quantitative stage, and the number of participants is 141 for the qualitative stage. Of these, 82 (58.2%) were male and 59 (41.8%) were female. The mean age was 33.35 ($SD=12.14$).

3.4 Measurement instruments

The Scale of OLR developed for measuring readiness for online learning by Hung et al. (2010) was used in this study. The scale has 18 items in the 5-point Likert scale format. It consists of 5 dimensions: Computer/internet self-efficacy, Self-directed learning, Learner control, Motivation for learning, and Online communication self-efficacy. Computer/internet self-efficacy is individuals' perceptions of using computer/internet technology (Hung et al., 2010). Self-directed learning is "to be able to plan, carry out, and evaluate learning" (Merriam & Caffarella, 2007, p. 107). Learner control refers to a learner's ability to direct his or her own learning experience and process (Shyu & Brown, 1992). Motivation for learning is learners' desires to enhance their learning, retention, and retrieval (Hung et al., 2010), and online communication self-efficacy is individuals' perceptions of using computer-mediated communication (Hung et al., 2010).

The scale was adopted into Turkish language by Yurdugül and Sirakaya (2013). This scale was used because there was no OLR scale developed particularly for MOOCs. Moreover, this scale was more current at the time and relatively short

for assessing OLR (Demir-Kaymak & Horzum, 2013). Long measurement instruments could damage the nature of MOOCs as they could create entry barriers for MOOCs. The confirmatory factor analysis (CFA) was done with 8974 learners to assess the model fit and factor structure of OLR Scale. Before conducting CFA, its assumptions were checked. For not meeting the multivariate normality assumption, CFA was conducted using two estimation methods which are ML (Maximum Likelihood) and MLR (Robust Maximum Likelihood). Both estimations produced a significant Chi-square result ($\chi^2(125) = 4574.86, p < .001$ and $\chi^2(125) = 3526.03, p < .001$). Chi-square values are sensitive to sample size as they are often significant in models with large samples (Bergh, 2015). In addition to Chi-square, other model fit indices were checked. With ML estimation, the item factor loadings, which are also standardized regression weights, were found between 0.421 and 0.815, and all of them were significant. With MLR estimation, the item factor loadings were found between .421 and .815, and all of them were significant. Overall, the model fit indices obtained from ML and MLR estimations indicated acceptable model fits. Table 1 presents the model fit indices.

In order to provide more validity evidence, an Independent Samples t-Test was conducted to compare OLR scores of learners with and without previous online learning experience. The results of the analysis showed that there was a significant mean difference between computer/internet self-efficacy ($t(8972) = -26.35, p < .05$, Cohen's $d = .58$), self-directed learning ($t(6485.35) = -9.99, p < .05$, Cohen's $d = .22$), learner control ($t(8972) = -11.96, p < .05$, Cohen's $d = .26$), motivation for learning ($t(5951.45) = -14.99, p < .05$, Cohen's $d = .33$), and online communication self-efficacy ($t(6372.03) = -13.25, p < .05$, Cohen's $d = .29$) scores of the learners who have previous online learning experience and who do not. Regarding reliability, Cronbach's alpha values were found between .589 and .786, which shows enough evidence of internal consistency except for the learner control dimension. The dimension learner control has the lowest value (.589). This can be because of the number of items the learner control dimension includes. The system logs were obtained from Bilgeİş's Moodle system and its database, and they were used to list the learners who completed the MOOCs. The qualitative data were collected after quantitative data using an open-ended question developed by the researchers based on the dimensions of OLR scale to explore OLR in more depth and to reveal the perspectives of learners regarding OLR. The scope of the question was checked by two experts in instructional technology.

Table 1 Model fit indices of OLR scale

Indices	Original Study	Adaptation	Current Study	
			ML	MLR
RMSEA	.05	.07	.06	.05
CFI	.99	.94	.92	.92
GFI	.95	.94	.94	–
TLI	–	–	.91	.91
SRMR	.04	–	.04	.04

3.5 Data collection

Before applying the measurement instruments, a small pilot study was conducted with possible MOOC learners to ensure that the measurement items are easy to grasp. This study covered the dates between August 2017 and January 2019. The data collection process started with quantitative data and then finished with qualitative data collection. The data were gathered from multiple sources at different times. Specifically, during registration for the portal, demographics and OLR data were collected. Also, the consent for the use of user data was taken. The system logs were obtained from the portal's database to calculate course completion. The qualitative data on OLR were collected using a web-based survey service provided by the researchers' university.

3.6 Data analysis

The data were merged by using learners' usernames and e-mail addresses on the portal. As volunteer participation was required to fill in the instruments, the data of learners who did not give consent were removed. Before the analyses, all personal identifiers, such as name, email, and username, were removed from the datasets for anonymizing the data for the confidentiality of learners. Overall, 8974 valid responses for OLR were obtained. In order to analyze quantitative data, descriptive statistics of mean and standard deviation and inferential statistics of binary logistic regression were used. The relationships between OLR and MOOC completion were analyzed using Binary Logistic Regression. Logistic regression requires linearity in the logit assumption (Field, 2009). The interaction of OLR dimensions, which are the continuous variables, with their logarithmic transformations was checked for the linearity in the logit assumption. There was no significant interaction between OLR dimensions and their logarithmic transformations ($p > .05$). The analyses were conducted using IBM SPSS 20. Moreover, CFA was conducted using AMOS 21 (for ML estimation) and Mplus 7.3 (for MLR estimation). The level of significance was taken as .05 in the statistical analyses.

The qualitative data obtained from the open-ended question were downloaded from the survey service. The content analysis was done manually. To analyze the data, the steps recommended by Creswell (2014) were followed. Firstly, the data were read thoroughly. Then the researcher created the codes based on participant responses. The codes were created using both deductive and inductive approaches. After the coding process, sufficient inter-coder agreement was achieved. Next, the codes were combined under two themes as (1) Not feeling ready for online learning and (2) Feeling ready for online learning. Themes and codes were reported in the form of qualitative narrative, and finally, they were interpreted. The quality, trustworthiness and credibility of the qualitative results were ensured through the following ways. In order to triangulate the data, diverse data sources were used, and it was ensured that these data confirm or explain each other (Creswell, 2014). During the coding process, the codes were cross checked all the time, and it was ensured that

the meaning and definition of the themes and codes mean the same thing throughout the study. The detailed context of the study was reported for enhancing the validity. A peer debriefing was requested from a colleague to increase the credibility and prevent the bias of the researcher. While analyzing the data, sufficient inter-coder agreement was achieved (90.6%). Finally, the results of this study can always be confirmed by the raw data.

4 Results

4.1 RQ1: What is learners' OLR in a MOOC context?

Learners reported the highest level of readiness in the Motivation for Learning dimension, and they reported the lowest level in the Learner Control dimension. The descriptive statistics of OLR dimensions are shown in Table 2.

4.2 RQ2: What are the relationships between learners' OLR and MOOC completion?

A binary logistic regression was performed to examine whether there is a relationship between OLR and MOOC completion. The logistic regression model was found to be significant ($\chi^2(5)=31.36, p<.05$). Among the dimensions of OLR, only self-directed learning was found to be a significant predictor of course completion (Wald's $\chi^2(1)=25.22, p<.05$). Computer/internet self-efficacy (Wald's $\chi^2(1)=3.79, p>.05$), learner control (Wald's $\chi^2(1)=.01, p>.05$), motivation for learning (Wald's $\chi^2(1)=.53, p>.05$), and online communication self-efficacy (Wald's $\chi^2(1)=.21, p>.05$) dimensions of OLR were found to be non-significant predictors of course completion. Self-directed learning scores were associated with an increased likelihood of course completion. Learners with higher self-directed learning scores are 1.05 times more likely to complete the MOOCs.

4.3 RQ3: What do learners think about their OLR in a MOOC context?

Learners were asked how ready they felt themselves for online learning. Learner responses were grouped under two main themes: (1) Not feeling ready for online

Table 2 Descriptive statistics of OLR dimensions

OLR Dimensions	M	SD
Computer/internet self-efficacy	4.04	.73
Self-directed learning	3.98	.57
Learner control	3.81	.63
Motivation for learning	4.12	.56
Online communication self-efficacy	3.97	.69

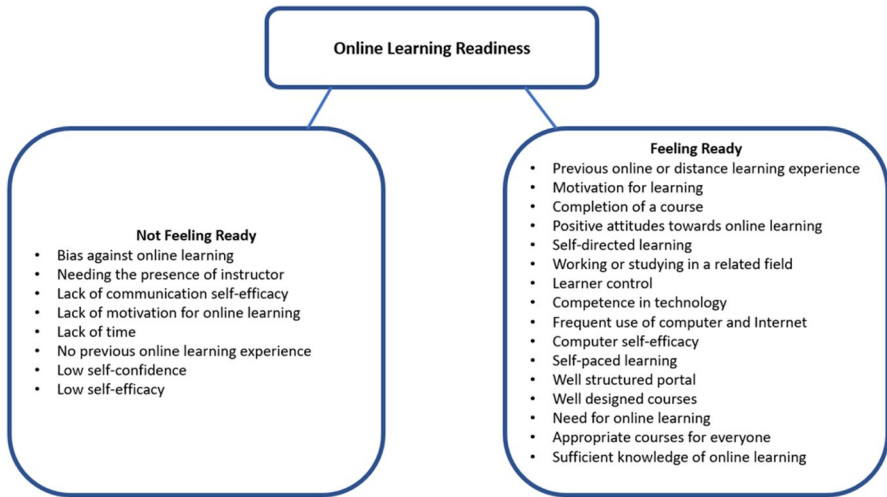


Fig. 1 Codes for online learning readiness

learning and (2) Feeling ready for online learning. Figure 1 shows the codes for online learning readiness.

4.3.1 Not feeling ready for online learning (f=22)

Learners mainly did not feel themselves ready for online learning due to having a bias against online learning (f=13), and they needed the presence of a course instructor (f=3). The other reasons included that learners lack communication self-efficacy (f=1); they lack motivation for online learning (f=1); they lack time (f=1); they do not have previous online learning experience (f=1); they have low self-confidence (f=1); and they have low self- efficacy (f=1).

Bias against online learning (f=13) Learners frequently hold biased views against online learning, and they thought that online learning was ineffective, difficult, and unsuccessful. Therefore, they did not feel ready for online learning. These were expressed by learners as:

“I took online courses for the first time thanks to you. I previously had some biases against the success of online education in general ...” [L 33].

“Before taking this course, I believed that it was difficult to take courses online...” [L 75].

“Obviously, I had very heavy biases against learning on portals where content is learned individually...” [L 92].

Needing the presence of instructor (f=3) Some learners needed the presence of the instructor in online courses, and for this reason, they did not feel themselves ready for online learning. This was mentioned as:

“... we are able to learn not only the theoretical knowledge but also the experiences of the instructors and their thoughts on a subject. However, this is not like that in online or distance learning. Since we are not in direct contact with the instructor in these environments, some information may not be understood well enough no matter how well it is explained...” [L 34].

“Frankly, I thought I would be distracted because there was no instructor teaching me and no physical classroom, and I did not feel ready...” [L 61].

4.3.2 Feeling ready for online learning (f=107)

Learners mostly felt themselves ready for online learning due to their previous online or distance learning experience (f=34), their motivation for learning (f=18), completing a course (f=11), their positive attitudes towards online learning (f=10), self-directed learning (f=8), working or studying in a related field (f=7), and having learner control in the courses (f=4). In addition to these, learners felt ready for online learning due to the fact that learners were competent in technology (f=3); learners had enough computer self-efficacy (f=3); courses were based on self-paced learning (f=2); and courses were on a well-structured portal (f=2) and they were well designed (f=2).

Previous online or distance learning experience (f=34) Learners frequently stated that they were feeling ready for online learning due to their previous online learning experiences. This was stated by learners as:

“As someone who learned everything about software and web design over the internet ... I was more than ready.” [L 94]

“I have previous experience as I took online education from ... University.” [L 106]

“I felt quite ready as I took courses from online platforms before.” [L 108]

Motivation for learning (f=18) Learners were already motivated to learn, and this contributed to their readiness and learning positively. This issue was expressed as:

“...I complete most of my personal development on the computer. The reason for this is that I cannot spare time for formal education due to the workload. I recommend these courses to people as I see the positive results of the courses I took.” [L 25]

“...I am open and willing to learn. Therefore, I decided to take your courses without thinking...” [L 26]

Feeling ready after completing a course (f=11) After completing a course on the portal, learners developed positive attitudes towards the course, and they felt ready for online learning. Learners explained:

“I was not quite ready; I did not know much about online courses. Completing the course also helped me in that regard.” [L 41]

“I knew that we had the chance to access a wide range of information on the internet... After taking this course, I stopped spending unnecessary time on the internet, especially on social media, and I feel myself more ready for online courses.” [L 45]

Positive attitudes towards online learning (f=10) Learners stated that they have positive attitudes towards online learning, and they felt themselves ready for online learning because of that. Learners put forward:

“I have always had positive attitudes toward education over the internet, and I am thinking of continuing to take online courses on subjects that I think it will be necessary for myself.” [L 27]

“I find such educational programs useful in my own free time, and I manage my time myself.” [L 44]

“I have always liked online learning more. It is nice not to be tied to a certain physical space and time.” [L 114]

Self-directed learning (f=8) Learners felt ready as they can self-direct their learning. Learners clarified this as:

“...I felt very ready to take the courses as I thought most of the courses on the internet would not need an instructor.” [L 119]

“I have taken courses over the internet before. Planning the time and learning according to yourself provides convenience for employees like us.” [L 121]

Working or studying in a related field (f=7) Learners felt themselves ready for online learning because they are either working or studying in a related field with online learning. This was explained by learners as:

“I was feeling ready for online learning as I study in the computer field.” [L 69]

“Since I worked in the distance education center for many years and used the Moodle learning management system before, I always felt myself technologically ready for online learning...” [L 91]

Learner control (f=4) Learners' control over the course lecture affected their readiness in a positive way. Learners expressed:

“First of all, because the course was online, I could stop and take a break whenever I wanted...” [L 36]

“I usually study my lessons by watching videos on the internet. I can rewind the subjects I missed, or I did not understand. I was ready for such experience...” [L 116]

In brief, MOOC learners mainly did not feel themselves ready for online learning due to their bias against online learning. Furthermore, they mainly felt themselves ready for online learning due to previous online or distance learning experience, motivation for learning, and positive attitudes towards online learning. What is more important, they felt themselves ready for online learning after completing a MOOC.

5 Discussion

This study examined readiness for online learning in a MOOC context. The quantitative stage aimed to investigate OLR and to examine the relationship between OLR and MOOC completion. The qualitative stage aimed to broaden the results obtained in the quantitative stage and to explore OLR in a MOOC context. Bilgeleş learners had moderate to high readiness levels towards online learning, and this was also confirmed by the qualitative results as learners were mostly feeling themselves ready for online learning in MOOCs.

5.1 OLR and MOOC completion

Among OLR dimensions, only self-directed learning was a significant predictor of MOOC completion. This was confirmed in earlier research that found a significant relationship between MOOC completion and self-directed learning. The adults who were stronger in self-directed learning were likely to complete more percentage of the MOOC (Schulze, 2014). The flexibility of MOOC resources such as availability of learning materials without the limitations of time and place strongly supported learners' perception of autonomy as learners can watch or read the several learning resources at the most suitable time for them, and they can decide what to learn according to their needs (Lan & Hew, 2020). This can support self-directed learning in MOOCs. Moreover, computer/internet self-efficacy, learner control, motivation for learning, and online communication self-efficacy dimensions were found to be non-significant predictors of course completion. There could be two reasons behind this. One of which is that learners might have felt themselves highly ready for online learning in Bilgeleş courses as it provided a unique opportunity for learners to learn anytime and anywhere free of charge. Therefore, their responses to the readiness measurement instrument could be high. The second of which is that these dimensions might not be working in MOOC environments as the structure and functioning of MOOCs are quite

different than the traditional online courses. MOOC environments might be requiring other dimensions for OLR. This issue is clarified in the following sections.

5.2 OLR perceptions

Among OLR dimensions, the mean of motivation for learning was the highest which was then followed by computer/internet self-efficacy, self-directed learning, online communication self-efficacy, and self-directed learning, and learner control. It is not wrong to infer that bilgeis.net has met the learning needs of the learners who took courses from this portal. For this reason, OLR levels of these learners could be high as one of their main motivations was to learn a new topic (Celikr, 2020) as reported comprehensively in another study. In addition to quantitative findings, qualitative findings provided detailed information of OLR of MOOC learners. The qualitative findings confirmed the motivation for learning, self-directed learning, computer self-efficacy, and learner control dimensions of the OLR scale used in this study, yet there is more to explore regarding OLR in MOOC contexts. Feeling ready due to previous online learning experience and after completing a course is consistent with the literature. Liu (2019) reported that students' OLR (social, technical, and communication domains) improved after taking a self-paced asynchronous orientation course. Firat and Bozkurt (2020) found a significant association between the time spent online and OLR. Also, İliç (2022) found that after the learners took the online course, their OLR levels were higher. These can partially explain that when learners spend time in online classes, they tend to feel themselves more ready for online learning. Learners did not mainly feel themselves ready for online learning due to having a bias against online learning and needing the presence of a course instructor. OLR is positively affected by online learning perceptions as positive online learning perception helps students feel more confident and ready to participate in online courses (Wei & Chou, 2020). Thereby, learners' bias against online learning may be preventing MOOC learners' readiness for online learning. Although the frequency of needing the presence of a course instructor is low, this signals the transactional distance (Moore, 1997) MOOC learners experienced. However, learners seemed to cope with this issue and complete the MOOCs without the presence of a course instructor although they needed the existence of a course instructor.

5.3 Conceptualization of OLR in MOOC contexts

Online readiness self-assessment tools come with the advantages to predict whether students are ready to take online classes, and to provide instant feedback regarding the potential student success in online learning environments (Farid, 2014). However, the question remained what dimensions OLR instruments should include and which dimensions of OLR work in MOOC contexts is yet to be discovered. OLR for MOOCs, the level of learner preparedness to learn in the MOOCs, can be conceptualized combining the quantitative and qualitative results of this study. Based on the effect of OLR on MOOC completion, self-directed learning can be considered a success factor. Qualitative findings revealed the reasons why learners were ready and not ready for

online learning. Based on the results of this study, learners' readiness for learning in MOOCs can include 10 components: self-directed learning, bias against online learning, need for a course instructor's presence, previous online or distance learning experience, motivation for learning, online courses completed before, attitudes towards online learning, experience in an online learning related field, learner control, and technology competency considering their significance and prevalence confirmed by the results of this study. These dimensions tend to become prominent for readiness for learning in MOOCs, and these indicators can be used to construct a specific scale for readiness for MOOCs. These dimensions have been partially confirmed by the previous research studies. Farid's (2014) systematic review revealed that e-learning readiness is a multi-dimensional construct, and it generally refers to the dimensions of computer/internet self-efficacy, self-direction, motivation, interaction, and attitude. Similarly, Demir and Yurdugül (2015, p. 186) found the most used dimensions in e-learning models as "competency of technology usage, self-directed learning, access to technology, confidence in prerequisite skills, motivation, and time management" dimensions.

6 Conclusion

The findings of this study enriched and extended the OLR literature on MOOCs and showed what indicators can be used for conceptualizing readiness for online learning in MOOCs. These indicators can be applied and used to construct related measurement instruments for especially OLR for MOOCs by researchers and practitioners. In this way, the effects of online learning readiness in MOOC contexts can be explored beyond the MOOC case presented in this study. Also, the results might be useful for instructional designers, content providers, and learners interested in MOOCs as well. The results provide essential input for practitioners and researchers studying OLR and could open the way for future studies regarding OLR in MOOCs to support MOOC learners in their online learning journey. The results of this study can be generalizable to the similar contexts. Also, they can be transferred to other MOOC contexts and can be studied in these contexts because they are broadly applicable to other MOOC contexts.

6.1 Limitations

This study has a set of limitations. Firstly, the scope is limited to Bilgeİş MOOCs. Secondly, the data of the participants who gave consent were used in this study. Thirdly, the data of learners who replied to measurement instruments were analyzed. There is always a possibility that learners who replied to measurement instruments might be different than the non-respondents. As this study is mostly based on self-report, there is always a risk that the participants provided socially desirable responses. Lastly, the qualitative data were gathered using an open-ended question, and it may not have provided the rich data as the qualitative research aims for. Future research can also focus on exploring OLR in MOOCs with sound qualitative methodology to obtain more detailed information about OLR.

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Data availability The anonymized datasets analysed during the current study are available from the corresponding author on a reasonable request.

Declarations

Ethics approval Necessary ethical approval was obtained from the Applied Ethics Research Center of the researchers’ university.

Conflicts of interest/Competing interests There is no conflict of interest among authors.

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