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A Classification of Barriers That Influence Goal Achievement in Massive Open Online Courses

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Abstract

During their MOOC-learning, learners may encounter various barriers, that prevent them from reaching their personal learning goals. The aim of this study was to gain insight into what these barriers are and to classify these barriers empirically. The best fit model of our factor analytical approach resulted in 4 distinctive components: 1. Technical and online learning skills, 2. Social context, 3. Course design/Expectations management, 4. Time, support and motivation. The main conclusion is that most encountered barriers are predominantly non-MOOC related. This knowledge can be of value for MOOC-designers and providers in their search for design solutions and interventions to support learners. Furthermore, it makes a valuable contribution to the expanding empirical MOOC-research.

Introduction

Learning in MOOCs can be challenging. Dropout rates indicate that many learners are not able to reach their personal learning goals (Henderikx, Kreijns, Kalz, 2017b). A reason for this may be that these learners encounter various barriers during the runtime of the MOOC. We define barriers as those situations and events that prevent or hinder learners reaching their individual learning goals.

Literature research showed that there are many studies in the context of online learning or distance education that empirically investigated barriers to student retention (Aragon & Johnson, 2008; Park & Choi, 2009) and limited studies in MOOC-context (Hone & El Said, 2016). However, all these studies merely focused on a number of specifically selected barriers. Apart from an exploratory study on barriers in MOOCs by Henderikx et al. (2017b), there is no other empirically grounded, synthesized overview of MOOC-specific barriers available.

Barriers to MOOC-learning

Often mentioned barriers in literature were technical problems with the computer, lack of time and unclear instructions (Song, Singleton, Hill & Koh, 2004). Lack of (instant) feedback, lack of motivation (Eom, When & Ashill, 2006), family and workplace issues (Park & Choi, 2009) and bad course content (Aragon & Johnson, 2008) were also barriers that were frequently experienced by learners (see Figure 1).

In addition, studies also found that lack of tutor interaction (Hone & El Said, 2016) and lack of digital skills (Onah, Sinclair & Boyatt, 2014) were perceived as barriers by learners. Henderikx et al. (2017b) composed a first overview of potential barriers experienced by MOOC-learners.

MOOC-related		Non-MOOC related	
<i>Design</i>	Lack of support	<i>General</i>	Lack of information literacy
Problems with the site	Content was not appropriate	Workplace issues	Insufficient academic background
Lack of interaction	<i>Expectations management</i>	Lack of time	Lack of motivation
Lack of instant feedback	Course was too easy	Family issues	Lack of personal commitment
Lack of instructor presence	Course did not meet expectations	Lack of workplace support	<i>Technical</i>
Lack of useful feedback	Course was too difficult	Lack of family support	Technological problems pc
		<i>Personal</i>	Bad internet connection
		Lack of technological skills	

Figure 1. Overview of barriers arranged by type

This typology was taken as a starting point for our current study on the empirical classification of barriers to MOOC-learning.

Method

Participants

The participants were individuals who took part in one or more MOOCs in the Spanish language from different MOOC providers in the last 2 years. 1618 Potential respondents received an invitation to participate in the survey of whom 317 actually completed the survey (163 women, 154 men, $M_{age} = 47$, age range: 20-83 years).

Materials

A 'Barriers to MOOC-learning' survey was developed, which contained items drawn from general online learning, distance education and MOOC-specific context literature on barriers and enablers to learning. After answering several general questions on gender, age, educational background, employment status, MOOC-learning experience and preferred learning context, respondents were asked to indicate to what extent they considered the 44 listed items as barriers to learning in a MOOC on a 5-point Likert scale ranging from 'to a very large extent' to 'not at all'.

Procedure

Over the course of several weeks potential respondents were invited via email batches using the open source online survey tool Limesurvey (visit <http://www.limesurvey.org>). Filling out the questionnaire took 5-10 minutes.

The Mahalanobis distance calculation identified 22 outliers which were removed. This resulted in a final sample of 295 cases.

Results

A factor analysis with principal component extraction method and Oblimin rotation with a cut-off point of .4 was applied to analyse the data. The initial 45 items were reduced to 35 items. The analysis indicated four distinct components with the following labels: 1. Technical and online-learning skills, 2. Social context 3. Course design/Expectations management, 4. Time, support and motivation

Conclusion

The main finding of this study is that most encountered barriers are non-MOOC related (see Table 1).

Table 1. Classification of barrier components

Component	Label	Type	Coping level
1	Technical and online related skills	Non-MOOC related	Can be dealt with on a personal level
2	Social context	Partly MOOC and partly non-MOOC related	Can be dealt with on both personal and MOOC-level
3	Course design	MOOC related	Can be dealt with on MOOC level
4	Time, support and motivation	Non-MOOC related	Can be dealt with on a personal level

This knowledge is useful information for MOOC-designers and providers. It may guide them in finding suitable re-design solutions or interventions to support MOOC-learners in their learning, even if it concerns non-MOOC related issues. Furthermore, it makes a valuable contribution to the expanding empirical MOOC-research.

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