Motivational Factors that Influence the Course Completion Rate of Massive Open Online Courses in South Africa

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Abstract. Massive open online courses (MOOCs) have increased access to higher education by allowing South Africans to access free, online-based, open content created by higher education institutions worldwide. However, most MOOCs report significant student drop-out rates before completing a course. Higher education institutions must understand learner motivation for completing a MOOC. This paper examines the motivational factors influencing the completion rate of MOOCs in South Africa. This study employed a quantitative approach to collect data using an online questionnaire from South African respondents. A total number of 3147 responses were recorded, and the data were analyzed with SPSS V28. Correlation statistics tests were used to denote the association between the four independent variables and the dependent variable. The study's most important findings are that intrinsic and extrinsic motivating factors, motivation to continue, and the availability of resources positively impact a MOOC's completion rate. The study concludes that these factors will improve the throughput rate of MOOCs. It is recommended that all higher education institutions that offer MOOCs create a conducive online learning environment that offers independence and freedom of learning with plenty of communication and collaboration between students and facilitators. Creating such an environment will encourage active participation in the course and improve throughput rates.

Keywords: intrinsic motivational factors; extrinsic motivational factors'; massive open online courses; MOOCs; completion rate; South Africa

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1. Introduction

Massive open online courses (MOOCs) are disrupting higher education as these they provide viable, scalable, and sustainable alternatives to the formal higher education sector (Selwyn et al., 2015). MOOCs allow learners worldwide to advance their education for free without prior entry requirements. MOOCs were first introduced in the United States in 2012, with Europe following in 2013 (Lee et al., 2021). Since 2015, MOOCs have also been established in Latin America (Pérez-Sanagustín et al., 2017). In African countries, the need for digital equipment (for instance, computers and Internet access) and understanding English as the instructional language are barriers to participation in MOOCs (De Waard et al., 2014; Liyanagunawardena, 2013). Despite these barriers, higher education institutions in South Africa are integrating MOOCs into the campus-based curriculum to offer a blended learning format (Milligan & Littlejohn, 2017).

Numerous studies have reported high drop-out rates in MOOCs (Ejreaw & Drus, 2017; Van de Oudeweetering & Agirdag, 2018; Lee, 2018). Course completion in MOOCs relates to the completion of course activities and requirements and is typically classified as either a successful or unsuccessful completion. After completing the MOOC, students receive a certificate (Kizilcec et al., 2013). While the number of students enrolled in MOOCs has increased in recent years, enrolment is no longer used to measure a MOOC's success (Onah, 2014). Since only 10% of participants finish a MOOC, the course completion rate has instead come to be used as a yardstick for success (Jordan, 2014; Rai & Chunrao, 2016). According to Ho et al. (2014), 35% of the students enrolled in their MOOCs did not participate in course-related activities, 56% of the students participated in fewer than half of the course activities, and approximately 5% of the students completed the activities and received a certificate. These factors all contributed to the low completion rate. Another study found that only 7% of the 55,000 students enrolled in the software engineering MOOC offered through Coursera by the University of California Berkeley completed the course (Yuan & Powell, 2013). These findings indicate that MOOCs' completion and success rates are very low.

MOOCs are by definition designed to suit the masses, so tailoring courses to individual learner needs is challenging (Kaur et al., 2019). The lack of motivation, self-stimulation and effective interaction, the low coverage of evidence of achievement, and the differences in the knowledge backgrounds and the learning needs of the learners are also cited as reasons for the high drop-out rate (Li, 2019; Lee, 2019). Although the reasons for drop-out rates in MOOCs have been discussed in several studies (Onah et al., 2014; Ejreaw & Drus, 2017; Li, 2019; Lee, 2019), it is also necessary to acknowledge the role of motivation in understanding the completion of MOOCs by students. This paper examines the motivating factors that influence the completion rate of MOOCs offered by universities in South Africa. The study was specifically guided by the following objectives:

1. To determine if there is a relationship between the personal motivation to continue with a MOOC and the decision to complete such a course.
2. To determine if there is a relationship between intrinsic motivation factors and the decision to complete a MOOC.
3. To determine if there is a relationship between extrinsic motivation factors and the decision to complete a MOOC.

4. To determine if there is a relationship between the availability of resources and the decision to complete a MOOC.

Based on the objectives of the study, Figure 1 below shows the proposed hypotheses model depicting the influence of motivational factors on the completion rate of MOOCs among learners.
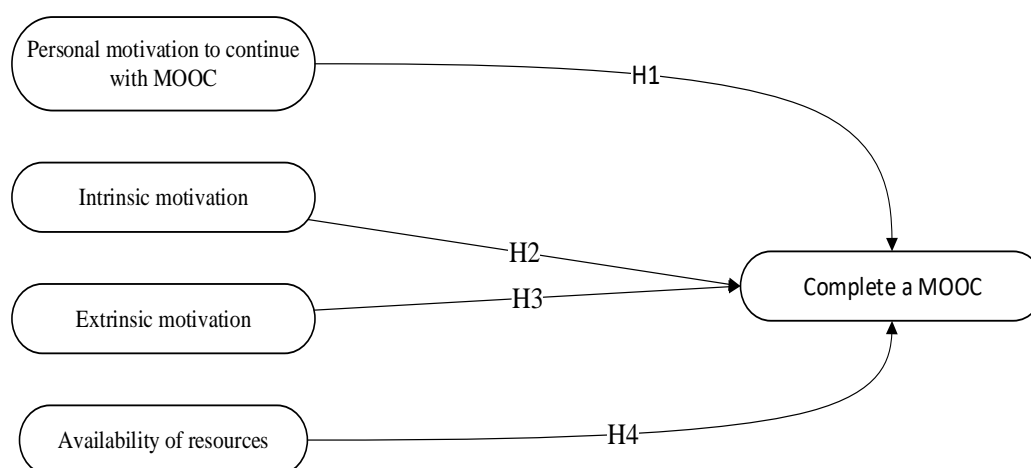
Figure 1: Proposed hypotheses model (Cilliers, Twinomurinzi & Murire, 2023)

The following hypotheses were tested at a 0.001 level of significance:

H1. A positive relationship exists between the personal motivation to continue with a MOOC and the decision to complete such a course.

H2. There is a relationship between intrinsic motivation factors and the decision to complete a MOOC.

H3. There is a relationship between extrinsic motivation factors and the decision to complete a MOOC.

H4. There is a relationship between the availability of resources and the decision to complete a MOOC.

2. Literature review

Numerous reasons for the low completion rate of students in MOOCs have been examined in the literature (Idrissi Jouicha et al., 2020; Lee, 2019; Van de Oudeweetering & Agirdag, 2018). Student motivation was found to be one of the possible reasons for the low graduation rate (Ho et al., 2015; Jordan, 2014; Sinha, 2014; Kizilcec & Schneider, 2015). There is little information on what drives people to take online courses, although the popularity of MOOCs has grown exponentially (Onah et al., 2014; Pérez-Sanagustín et al., 2017). The following section discusses the various reasons that motivate students to complete a MOOC once they have started.

2.1 Personal motivation to continue with a MOOC

Motivation is conceptualized as an internal state that promotes and maintains behavior that is goal-oriented. It is a purpose or rationale for someone to act in a particular way in a given circumstance (Barak et al., 2016). Motivation is viewed as an internal source that supports and fosters cognitive growth when it comes to learning (Semenova, 2020). According to Idrissi Jouicha et al. (2020), some studies believe that motivation is a personality feature, however, this belief ignores the possibility that learners may be driven by time or context. Kizilcec et al. (2013) stated that learners' motivation to use MOOCs varies due to the open nature of MOOCs, which allows everyone to participate.

MOOCs are offered in an open environment that provides each person with the freedom to choose their learning path (Kizilcec et al., 2013). The decision to learn through MOOCs is explained by learners' academic motivation to continue studying when appropriate material is presented in a course (Semenova, 2020). Distance learning through a MOOC allows learners to share knowledge with their peers. Thus, the environment provides an opportunity for learners to share knowledge with fellow students which keeps them focused and engaged leading to graduation. Additionally, students are keen to proceed with a MOOC provided it resembles an accredited qualification. Examining such motivations to proceed with a MOOC offers providers solutions to improve their services to increase learner engagement, satisfaction, and completion rate. Based on this literature, the first hypothesis of the study is stated as follows:

H1. A positive relationship exists between the personal motivation to continue with a MOOC and the decision to complete such a course.

2.2 Intrinsic motivation factors

The inherent delight of believing that learning is interesting and enjoyable is one of the intrinsic motivational aspects of learning (Srikanth, 2022). Prior knowledge, interest, self-efficacy (getting things done and trusting in one's ability), learning, rest, and curiosity are all intrinsic elements. Semenova (2020) noted that prior knowledge affects how well a MOOC is completed. In this approach, prior knowledge can make course-related tasks easier and help a student complete a MOOC. To complete a MOOC, one must invest the necessary time and effort. Successfully completing other MOOCs has a beneficial effect because some people are encouraged by their earlier successes, which helps them maintain focus and finish a MOOC. Having enough time to complete the course is also motivating. Jordan (2014) noted a positive correlation between having sufficient time and students' course completion rates. According to a study by Lukes (2012), time constraints have a significant impact on dropout rates. While time restrictions do have an impact on course completion, they do not prevent students from passing the final exams and receiving a certificate of completion.

According to a study by Zhou (2017), students are more likely to finish a course if they are interested in the subject and ready to enroll. These elements could impact how motivated one is to learn. Wang and Baker (2015) argue that the likelihood of completing a course is correlated with its compelling content. Self-efficacy has also been found to be a contributing factor to course completion. Self-determination is the sense of control that students feel they have over their

learning process, and self-efficacy is the students' belief in their ability to attain high achievements (Mehta, 2020). Based on this literature, the second hypothesis of the study is stated as follows:

H2. There is a relationship between intrinsic motivation factors and the decision to complete a MOOC.

2.3 Extrinsic motivation factors
Extrinsic motivation entails using outside rewards or deterrents as learning incentives (Milligan & Littlejohn, 2017). Extrinsic factors include time, technique, utility, certificate, need, and friendship. Students can complete a MOOC with enough help from their tutors and lecturers, which means that guidance from MOOC providers is crucial and plays an important role. Support from peers and friends also has a positive influence. Students are likely to complete a MOOC if other South African universities recognize it, it is recognized by employers and is internationally recognized.

A further aspect is the active participation of students to complete the tasks in order to fulfil the requirements of the MOOC. It is thus important to motivate students to meet the MOOC requirements as doing so will assist them to finish the course (Deshpande & Chukhlomin, 2017). Based on this literature, the third hypothesis for the study is stated as follows:

H3. There is a relationship between extrinsic motivation factors and the decision to complete a MOOC.

2.4 Availability of resources
One of the critical factors driving learners to complete MOOCs is the availability of resources. The availability of resources includes free airtime for Internet access and suitable end devices (e.g., tablets, computers) and an enabling environment (e.g., a place with all the necessary facilities to study (Lee et al., 2021). In addition, knowing in advance what the MOOC entails influences completion. Thus, the information provided should be clear and accurately describe the course content. A positive online learning experience positively influences the completion of a MOOC and the course instructor plays a significant role in this regard.

Two further factors influencing MOOC completion are the subject matter knowledge and the teaching style of instructors. In terms of the latter, the effectiveness of an instructor's delivery style and attitude is paramount when delivering a MOOC to students. In terms of the former (subject matter knowledge), an instructor should be familiar with the MOOC content and be able to present it clearly and provide timely feedback (Bingol et al., 2020). Thus, a knowledgeable instructor has a positive effect on the completion of a MOOC and this can be improved if they have sufficient specialist knowledge and can convey the knowledge to their students in a transparent way. Based on this literature, the fourth hypothesis of the study is stated as follows:

H4. There is a relationship between the availability of resources and a decision to complete a MOOC.

3. Method

The study used a quantitative approach with a survey design. The quantitative approach is deductive because it tests theories and hypotheses, develops models and hypotheses, and collects empirical data. A survey tool in the form of an online questionnaire was used to collect data from respondents living in urban and rural areas across South Africa. The survey method was deemed appropriate as large amounts of raw data can be collected quickly, facilitating advanced statistical analyses. The questionnaire consisted of two parts: General information (7 items) and Motivation to complete a MOOC (28 items). The questionnaire was piloted with 20 lecturers for suitability, usability, and clarity. Table 1 below shows the reliability and validity analysis of the research instrument.

Table 1: Reliability analysis of the research instrument (Cilliers, Twinomurinzi & Murire, 2023)

Variables of the Scales	Items	Cronbach's Alpha
Personal motivation to continue with MOOC	8	0.695
Motivation (Intrinsic)	5	0.689
Motivation (Extrinsic)	5	0.754
Availability of resources	6	0.788

The confidence reliability of the four variables utilized in the study ranged from 0.689 to 0.788, as shown in Table 1. The motivation variables all had a Cronbach's alpha above the threshold of 0.600 meaning the measurements were consistent and reliable (Babbie, 2015).

Approval to conduct the study was received from the University of South Africa's Research Ethics Committee. The data were collected between January and February 2020. The dataset consists of data points from all the provinces of South Africa at different levels including urban, township, and rural. A convenience sampling technique was used to distribute the web-based questionnaire to respondents via email. A total of 3147 responses were received and cleaned to ensure data accuracy. The original data were examined using SPSS 28—Statistical Package for the Social Sciences and both descriptive statistics and correlation analysis were used to examine the data. The purpose of correlation analysis in social research is to summarize the data by identifying latent relationships. The results are discussed in the following section.

4. Results

4.1 Demographics

Table 2 below provides an overview of the respondents' demographics. Of the 3147 respondents who completed the survey, 1531 (48.6%) were male and 1608 (51.1%) female. Thus, slightly more female than male respondents took part in the study. The majority of respondents (78.5%) were black. The participants in the study were aged between 18 and 51+ years with the majority (2738 or 87.0%) being between 18 and 30 years, followed by 319 (10.1%) aged between 31 and 40 years; 57 (1.8%) were between 41 and 50 years, and the remaining respondents (8 or

0.3%) were 51 years and over. Sixty-two percent of those surveyed stated that they were unemployed.

Table 2: Demographic information of participants (Cilliers, Twinomurinzi & Murire, 2023)

Gender	Male	Female	Missing data			Total
	1531 (48.6%)	1608 (51.1%)	8 (0.3%)			3147 (100%)
Racial group	**Black**	**White**	**Coloured**	**Indian**	**Missing data**	
	2470 (78.5%)	292 (9.3%)	201 (6.4%)	158 (5.0%)	26 (0.8%)	3147 (100%)
Age group	**18-30**	**31-40**	**41-50**	**51+**	**Missing data**	
	2738 (87.0%)	319 (10.1%)	57 (1.8%)	8 (0.3%)	25 (0.8%)	3147 (100%)
Employment status	**Unemployed**	**Part-time employed**	**Full time employed**	**Retired**	**Self-employed**	**Missing data**	
	1955 (62.1%)	453 (14.4%)	489 (15.5%)	11 (0.3%)	221 (7.0%)	18 (0.6%)	3147 (100%)

All nine provinces of South Africa were represented, with most respondents (27.4%) living in the Gauteng Province. The province with the smallest representation was the Northern Cape, with 2% of the respondents. The majority of the respondents (88.6%) indicated that they would enroll in a MOOC accredited by a South African authority. Of the respondents, 1000 (31.8%) indicated that they had previously registered for a MOOC online, while 713 (22.7%) indicated that they had completed an online course.

4.2 Correlations analysis

The association between the variables under inquiry was established using a Pearson correlation analysis. Table 3 illustrates the results of the correlations achieved between the variables. To demonstrate statistical significance, a p-value of less than 0.001 was chosen. Based on this explanation, all the variables were statistically significant when tested against the dependent variable (intention to complete). All the variables, except Availability of resources, had a medium-strength correlation with the dependent variable. Availability of resources had the weakest correlation strength when tested against the dependable variable, while Intrinsic motivation had the strongest correlation.

Since the variables are positively correlated it implies that there is a direct relationship between them. This means that the higher the personal motivation, intrinsic motivation, extrinsic motivation, and the availability of resources the greater the chance or degree of MOOC completion among learners.

Table 3: Correlation of variables of scales (Cilliers, Twinomurinzi & Murire, 2023)

Variables of Scales	Personal motivation to continue with MOOC	Motivation to complete MOOC	Intrinsic motivation	Extrinsic motivation	Availability of resources
Personal motivation to continue with MOOC Correlation	1 3035	.434** .000 3014	.505** .000 3014	.349** .000 3000	.297** .000 2987

Sig. (2-tailed) N					
Motivation to complete MOOC Correlation Sig. (2-tailed) N	.434** .000 3014	1 3114	.489** .000 3087	.408** .000 3075	.294** .000 3059
Intrinsic motivation Correlation Sig. (2-tailed) N	.505** .000 3014	.489** .000 3087	1 3110	.410** .000 3071	.304** .000 3055
Extrinsic motivation Correlation Sig. (2-tailed) N	.349** .000 3000	.408** .000 3075	.410** .000 3071	1 3101	.520** .000 3060
Availability of resources Sig. (2-tailed) N	.297** .000 2987	.294** .000 3059	.304** .000 3055	.520** .000 3060	1 3045

4.3 Hypotheses testing

Table 4: Summary of accepted and rejected hypotheses (Cilliers, Twinomurinzi & Murire, 2023)

Hypotheses	p	Decision
H1. There is a relationship between personal motivation to continue with MOOC and the decision to complete a MOOC.	.000	**Accept**
H2. There is a relationship between intrinsic motivation factors and the decision to complete a MOOC.	.000	**Accept**
H3. There is a relationship between extrinsic motivation factors and the decision to complete a MOOC.	.000	**Accept**
H4. There is a relationship between the availability of resources and the decision to complete a MOOC.	.000	**Accept**

The P-value for the correlation results of all the variables against the decision to complete was .000. The P-value scores confirmed that the overall variables positively influence completing the MOOC. The following section presents a discussion of the results.

5. Discussion of the results

This paper examines the motivating factors that influence the course completion rate of a MOOC offered by universities in South Africa. The study found an association between the motivation to continue studying a MOOC and the decision to pursue such a course. Students would continue studying to earn a MOOC Certificate of Completion if the materials used in a MOOC are at the right level. The reason is that they would feel motivated to continue their studies and

expand their knowledge. Additionally, attending a MOOC for job promotional purposes could count in their favor and improve their job prospects. This makes it clear that South Africans expect a return on investment, in this case, their time and study effort, if they complete MOOCs in the future. This finding is consistent with those from a study by Ossiannilsson et al. (2016) who stated that students complete MOOCs to enhance their employment prospects or to prepare them for future studies. Previous studies have shown that students attend MOOCs because they want to continue their lifelong learning by improving their knowledge in the subjects of their choice, they can see how a MOOC is structured and if it is suitable for their needs (Van de Oudeweetering & Agirdag, 2018; Kaur et al., 2019). MOOCs also provide training for the current job market, as students can continuously update their skills to keep up with the changing work environment (Kaur et al., 2019). Additionally, students are keen to proceed with MOOCs if it resembles an accredited qualification (Kim et al., 2021).

The study found a relationship between intrinsic motivating factors and the decision to complete a MOOC. The literature suggests that prior knowledge is the most important intrinsic motivating factor. The study's results are supported by Zhou (2017), who found that previous knowledge makes learning easier for the participants. According to Gagne's teaching methodology, learning is meaningful when new material builds on previously acquired knowledge (Bayeck, 2016). The existence of prior knowledge can thus affect the success of the MOOC participants. In past studies, prior knowledge was one of the MOOC success determinants (Demirci, 2014). In addition, success in courses already completed has a positive effect as some individuals are motivated by their past accomplishments, which helps them stay focused and complete a MOOC (Douglas et al., 2020).

It was found that willingness is a further intrinsic element impacting course completion. An individual must commit to completing the course. It has been found that willingness to enroll in a course and interest in the subject matter encourages participants to complete it (Wang & Baker, 2015). Willingness may be connected to the motivation to study. According to Wang and Baker (2015), the likelihood of finishing a course is correlated with its engaging content. Self-efficacy has also been mentioned as a factor influencing course completion. Self-efficacy is defined as one's belief that one can accomplish a given task and is associated with learning achievement.

Findings revealed that the participants enrolled in a MOOC to learn something as part of their internal motivation. In a similar vein, Hew and Cheung (2014) claimed that taking MOOCs is a good motivation for learning. Similarly, Vazquez et al. (2018) noted that participants in MOOCs are highly motivated from the beginning of the course. As a result, knowing participants' initial motivations can help instructors prepare for taking corrective action.

Time management has been demonstrated in earlier studies to be an important factor in the completion of a MOOC (Pérez-Sanagustín et al., 2017; Lee, 2018). The advantage of MOOC courses is that students can complete them in their own time. However, courses should have a definite time limit whereby the course needs to be completed to assist students to manage their studies. According to the study's

findings, the decision to finish a MOOC is correlated with extrinsic motivating factors. The most important external factor determining course completion is time. The findings indicated that providing MOOC participants with enough time encouraged them to finish the course. Jordan (2014) had comparable findings, noting that student course completion rates have a positive relationship with time. Additionally, a study by Lukes (2012) asserts that a lack of time is a major reason why many students leave MOOCs before completion.

The results of the study indicate that students would be more likely to complete a MOOC if employers or other learning institutions recognized the qualification. Therefore, MOOCs must be accredited (Freitas et al., 2015). A study by Cross and Whitelock (2017) articulates an ongoing debate about the accreditation of MOOCs and the integration of these courses into mainstream local curricula.

The results indicate that students complete a MOOC when there is enough help and support from peers and friends which provides a positive impact. These results are supported by Deshpande and Chukhlomin (2017) and Lee and Choi (2011), who in their studies found that students were capable of fulfilling the course requirements and that helping them along the way could enable them to finish the course.

The study found a relationship between the availability of resources and the completion of a MOOC. One of the most needed resources for a student to complete a MOOC is the teacher or instructor. The results indicate that the instructor plays an important and demanding role in students completing a MOOC. The success of the MOOC participants can be influenced by the instructor's teaching methodology and subject matter expertise. This conclusion is supported by the findings of the study by Kassabian (2014). Thus, presenting a MOOC taught by well-known lecturers and subject-matter experts can capture participants' attention and ultimately help them succeed in the course. Students are more likely to complete a MOOC if they have resources such as free airtime for Internet access, a suitable device such as a computer, and a conducive environment such as a place of study with all the necessary facilities. Ho et al. (2014) in their study reported that students must have adequate resources to complete their MOOCs. Finally, the information provided on a MOOC should be clear and accurately describe its content as this will positively influence the completion of the course.

6. Conclusion
This paper examined the motivating factors that influence the course completion rate of a MOOC offered by universities in South Africa. Results show a positive relationship between the personal motivation to continue with a MOOC and the decision to complete such a course. There are also positive relationships between intrinsic motivation factors, extrinsic motivation factors, and resource availability on the one hand, and the decision to complete a MOOC on the other. Participants in the study reported completing MOOCs to improve their knowledge, gain a chance for promotion, and improve their job prospects. A MOOC would thus be beneficial mainly for employment or promotional purposes. Respondents indicated that the MOOCs would enable them to take control of their studies as they can learn at their own pace, and when and where it suits them. Future

research may focus on an in-depth understanding of each of the factors that were identified in this study to have a positive impact on the completion rate of MOOCs.

7. Limitations and recommendation of the Study

One of the study's limitations was that it used a survey approach that pre-imposed categories for participants and did not allow the researcher to examine the reasons for the answers given. Future studies could use interviews that allow for a more in-depth understanding of the research topic. The study only focused on why students completed a MOOC but did not investigate why students failed to complete the course. This would be an important topic to understand in order to improve throughput rates. Further studies should also consider samples from different geographic locations (that is, countries) to determine how the results disclosed here relate to those in other countries. Therefore, it is recommended that future research studies not be limited to South Africa but be extended to countries in the Southern African Development Community.

Furthermore, the study recommends that all higher education institutions that have adopted MOOCs create a conducive online learning environment that offers independence and freedom of study. Institutions must include a section in each MOOC where students are made aware of their internal motivation to complete the course. This self-awareness will provide students with a mechanism to motivate themselves to complete the course. External motivation factors and resource factors can be included in marketing campaigns for MOOCs as these will attract students to register and complete the courses. In addition, higher education institutions should ensure more communication and collaboration between students, and well-planned and organized lessons. Instructors must ensure that students are actively involved in classroom learning. Different teaching techniques and natural, concrete, and clear examples can motivate students to continue and complete a MOOC.

8. References

Babbie, E. R. (2020). *The practice of social research*. Cengage Learning.

Barak, M., Watted, A., & Haick, H. (2016). Motivation to learn in massive open online courses: Examining aspects of language and social engagement. *Computers & Education*, *94*, 49-60. https://doi.org/10.1016/j.compedu.2015.11.010

Bingol, I., Kursun, E., & Kayaduman, H. (2020). Factors for success and course completion in massive open online courses through the lens of participant types. *Open Praxis, 12*(2), 223. https://doi.org/10.5944/openpraxis.12.2.1067

Deshpande, A., & Chukhlomin, V. (2017). What makes a good MOOC: A field study of factors impacting student motivation to learn. *American Journal of Distance Education, 31*(4), 275–293. https://doi.org/10.1080/08923647.2017.1377513

Demirci, N. (2014). What are massive open online courses (MOOCs), and what is promising us for learning? A review-evaluative article about MOOCs. *Necatibey Faculty of Education Electronic Journal of Science & Mathematics Education*, *8*(1), 231–256. https://doi.org/10.12973/ nefmed.2014.8.1.a10

De Waard, I., Gallagher, M. S., Zelezny-Green, R., Czerniewicz, L., Downes, S., Kukulska-Hulme, A., & Willems, J. (2014). Challenges for conceptualising EU MOOC for vulnerable learner groups. In M. Ebner, M. Khalil, M. Kopp (Eds), *Proceedings of the*

European MOOC Stakeholder Summit 2014, (pp. 33-42). 4th European MOOC Summit in Graz. http://emoocs2016.eu

Douglas, K. A., Merzdorf, H. E., Hicks, N. M., Sarfraz, M. I., & Bermel, P. (2020). Challenges to assessing motivation in MOOC learners: An application of an argument-based approach. *Computers & Education, 150*, 103829. https://doi.org/10.1016/j.compedu.2020.103829

Ejreaw, A. M., & Drus, S. M. (2017). The challenges of massive open online courses (MOOC) – a preliminary review. In I. Diethelm, R. Mittermeir (Eds), *Proceedings of the 6th International Conference on Computing & Informatics* (pp. 473-479). IEEE. https://doi.org/10.1109/ICIC54025.2021

Idrissi Jouicha, A., Berrada, K., Bendaoud, R., Machwate, S., Miraoui, A., & Burgos, D. (2020). Starting MOOCs in African University: The experience of Cadi Ayyad University, process, review, recommendations, and prospects. *IEEE Access*, *8*, 17477-17488. https://doi.org/10.1109/access.2020.2966762

Ho, A., Reich, J., Nesterko, S., Seaton, D., Mullaney, T., Waldo, J., & Chuang, I. (2014). HarvardX and MITx: The first year of open online courses, Fall 2012 - Summer 2013. (*HarvardX and MITx Working Paper* No. 1). https://doi.org/10.2139/ssrn.2381263

Jordan, K. (2014). Initial trends in enrolment and completion of massive open online courses. *International Review of Research in Open and Distributed Learning, 15*(1), 133-160. https://doi.org/10.19173/irrodl.v15i1.1651

Kaur, P. D., Malhotra, J., & Arora, M. (2019). Role of perseverance and persistence for retaining and stimulating MOOC learners. In A. Luhach et al. (Eds). *Advanced Informatics for Computing Research: Third International Conference* (pp. 249-259). Springer. https://doi.org/10.1145/3339311

Li, Y. (2019). MOOCs in higher education: Opportunities and challenges. In X. Du (Ed). *Proceedings of 5th International Conference on Humanities and Social Science Research* (ICHSSR 2019) (pp. 48-55). Atlantis Press. https://doi.org/10.2991/ichssr-19.2019.10

Kizilcec, R.F., Piech, C. and Schneider, E. (2013). Deconstructing disengagement: Analysing learner subpopulations in massive open online courses. In D. Suthers, K. Verbert (Eds). *Proceedings of the Third International Conference on Learning Analytics and Knowledge*, (pp. 170-179). ACM. https://doi.org/10.1145/2460296.2460330

Kim, D., Jung, E., Yoon, M., Chang, Y., Park, S., Kim, D., & Demir, F. (2021). Exploring the structural relationships between course design factors, learner commitment, self-directed learning, and intentions for further learning in a self-paced MOOC. *Computers & Education, 166*, 104171. https://doi.org/10.1016/j.compedu.2021.104171

Lee, Y., & Choi, J. (2011). A review of online course drop-out research: Implications for practice and future research. *Educational Technology Research and Development*, *59*(5), 593–618. https:// doi.org/10.1007/s11423-010-9177-y

Lee, C., Tzeng, J., Huang, N., & Su, Y. (2021). Prediction of student performance in massive open online courses using deep learning system based on learning behaviors. *Educational Technology & Society, 24*(3), 130–146.

Lee, Y. (2018). Effect of uninterrupted time-on-task on students' success in massive open online courses (MOOCs). *Computers in Human Behavior, 86*, 174-180. https://doi.org/10.1016/j.chb.2018.04.043

Lee, Y. (2019). Using a self-organising map and clustering to investigate problem-solving patterns in the massive open online courses: An exploratory study. *Journal of*

Educational Computing Research, 57(2), 471–490. https://doi.org/10.1177/0735633117753364

Liyanagunawardena, T. R. (2012). Information communication technologies and distance education in Sri Lanka: A case study of two universities (Doctoral dissertation, University of Reading).

Lukes, D. (2012). MOOC motivations and magnitudes: Reflections on the MOOC experience vs. the MOOC drop-out. *Research–Exploring Open Research and Open Education, 18.* http://researchity.net/2012/08/18/mooc-motivations-and-magnitudes

Mehta, N. (2020, December 5). *What is MOOC-based learning?* E-learning Industry. https://elearningindustry.com/mooc-based-learning-advantages-and-disadvantages

Milligan, C., & Littlejohn, A. (2017). Why study on a MOOC? The motives of students and professionals. *International Review of Research in Open and Distributed Learning, 18*(2). https://doi.org/10.19173/irrodl.v18i2.3033

Onah, D. F., Sinclair, J., & Boyatt, R. (2014). Dropout rates of massive open online courses: Behavioural patterns. In *6th International Conference on Education and New Learning Technologies* (pp. 5825-5834). Edulearn. https://library.iated.org/publications/EDULEARN14

Ossiannilsson, E., Altinay, F., & Altinay, Z. (2016). MOOCs as change agents to boost innovation in higher education learning arenas. *Education Sciences, 6*(3), 25. https://doi.org/10.3390/educsci6030025

Pérez-Sanagustín, M., Hilliger, I., & Alario-Hoyos, C. (2017). H-MOOC framework: Reusing MOOCs for hybrid education. *Journal of Computing in Higher Education*, 29, 47–64.

Petronzi, D., & Hadi, M. (2016). Exploring the factors associated with MOOC engagement, retention and the wider benefits for learners. *European Journal of Open, Distance, and E-Learning*, *19*(2), 112–129. https://doi.org/10.1515/eurodl-2016-0011

Rai, L. & Chunrao, D (2016). Influencing factors of success and failure in MOOC and general analysis of learner behavior. *International Journal of Information and Education Technology, 6*(4), 262-268, 2016. https://doi.org/10.7763/ijiet.2016.v6.697

Rawat, S., Kumar, D., Khattri, C., & Kumar, P. (2021). Machine learning classification algorithms for systematic analysis to understand learners drop out of MOOCs. *ResearchSquare*. https://doi.org/10.21203/rs.3.rs-491528/v1

Selwyn, N., Bulfin, S., & Pangrazio, L. (2015). Massive open online change? Exploring the discursive construction of the 'MOOC' in newspapers. *Higher Education Quarterly, 69*(2), 175-192. https://doi.org/10.1111/hequ.12061

Srikanth, M. (2022, February 22). *Advantages & disadvantages of MOOCs for learning*. InfoPro Learning. https://www.infoprolearning.com/blog/advantages-and-disadvantages-of-MOOCs-massive-open-online-courses-for-learning/

Semenova, T. (2022). The role of learners' motivation in MOOC completion. *Journal of Open, Distance and e-Learning*, *37*(3), 273-287. https://doi.org/10.1080/02680513.2020.1766434

Van de Oudeweetering, K., & Agirdag, O. (2018). MOOCS as accelerators of social mobility? A systematic review. *Journal of Educational Technology & Society, 21*(1), 1-11. https://doi.org/10.1016/j.compedu.2018.03.017

Vázquez, J. A. V., Ramirez-Montoya, M. S. & Gónzalez, J. R. V. (2018). Motivation and knowledge: Pre-assessment and post-assessment of MOOC participants from an energy and sustainability project. *International Review of Research in Open and Distributed Learning*, *19*(4), 116–132. https://doi.org/10.19173/irrodl.v19i4.3489

Wang, Y., & Baker, R. (2015). Content or platform: Why do students complete MOOCs. *MERLOT Journal of Online Learning and Teaching*, 11(1), 17-30. https://learninganalytics.upenn.edu/ryanbaker/Wang-Merlot-JOLT.pdf

Yuan, L., & Powell, S. (2013, March). *MOOCs and open education: Implications for higher education: A white paper*. JISC CETIS. https://doi.org/10.18411/a-2017-023

Zhou, J. (2017). Exploring the factors affecting learners' continuance intention of MOOCs for online collaborative learning: An extended ECM perspective. *Australasian Journal of Educational Technology*, 33(5), 123–135. https://doi.org/10.14742/ajet.2914

Dear Sir/Madam

Thank you very much for agreeing to complete this important questionnaire. It will help us provide people living in South African with further options regarding education and training.

There are TWO sections (A and B) and 4 pages in this questionnaire. You will be told by the person assisting you to complete the questionnaire whether you must answer all sections or only Section A.

We really appreciate the time you spend completing this questionnaire.

IMPORTANT: *MOOCs:* Massive Open Online Courses

SECTION A: General information

A.1. What is your gender?

Male	Female
1	2

A.2. Which racial group do you belong to? *[This is only for statistical purposes]*

Black	White	Colored	Indian	Others
1	2	3	4	

A.3. What is your year of birth?

A.4. What is your highest education level (*Only indicate the highest*)?

No formal schooling	Primary school *(Completed Grade 5/ Standard 3)*	Middle School *(Completed Grade 10/ Standard 8)*	High School *(Passed Matric or equivalent)*	College *(technical, FET)* or *(obtained a post matric diploma or certificate)*
1	2	3	4	5
University Bachelors' degree *(graduated)*	Post-graduate diploma or Honours *(graduated)*	Masters	PhD	
6	7	8	9	

A.5. This year, are you studying?

Full time [1]	Part time [2]	Not studying [3]

A.6. Which one of the following best describes your employment status? (You are employed if you are receiving payment for the work you are doing) [Select only one]

Currently unemployed [1]	Employed part time (receive weekly wages or a salary by one or more employer) [2]
Have never been employed [3]	Employed full time (receive weekly wages or a salary from an employer) [4]
Occasionally employed (not regular employment) [5]	Retired [6]
Self-employed part time or full time [7]	

A.7. Where do you access the Internet most frequently? [Select one]

Do not access it at all [1]	Friend's/relative's house [2]	School/University or NEMISA coLab [3]
Home or on my own mobile device [4]	Cybercafe/Internet café [5]	Free wi-fi zones including a public library [6]
Telecentre/ Community centre [7]	Workplace [8]	Other [9]

To what extent do you agree with the following statements	Strongly disagree	Disagree	Neither agree nor agree	Agree	Strongly agree

ACC1	I will take a course if it is accredited by a recognised and authorised South African agency.	1	2	3	4	5

Experience with different forms of learning (registration)		*Yes*	*No*
REG0	I have at some time registered for a course, part of a course or a module presented entirely online	1	0

Experience with different forms of learning (completion)		*Yes*	*No*
CPL1	I have at some time completed a course presented entirely online	1	0
CPL2	I have at some time received a certificate for a course presented entirely online	1	0

SECTION B: Motivation to complete the course

I will continue studying to get the MOOC completed certificate		Strongly disagree	Disagree	Neither agree nor agree	Agree	Strongly agree
CONT1	If the materials used in a MOOC are at the right level for me (not too difficult)	1	2	3	4	5
CONT2	Even if the course is very easy and a bit boring	1	2	3	4	5
CONT3	Even if the course material seems outdated	1	2	3	4	5
CONT4	Even if my family have to do things without me sometimes	1	2	3	4	5
CONT5	Even if I must study late at night or very early in the morning	1	2	3	4	5
CONT6	Provided that the data costs to access the Internet and download material do not turn out to be too high	1	2	3	4	5
CONT7	As sharing of knowledge with my peers is very important	1	2	3	4	5
CONT8	If it is similar to an accredited qualification, I will enrol for later	1	2	3	4	5

By completing a MOOC, I will		Strongly disagree	Disagree	Neither agree nor agree	Agree	Strongly agree
COMP1	Improve my knowledge	1	2	3	4	5
COMP2	Stand a chance for a promotion	1	2	3	4	5
COMP3	Feel motivated to further my studies	1	2	3	4	5
COMP4	Improve my prospects for a job	1	2	3	4	5

MOOCs Project

	To what extent do you agree with the following statements				
I am confident that I can complete the MOOC course I choose because:	Strongly disagree	Disagree	Neither agree nor agree	Agree	Strongly agree
SE1	I have made a commitment to complete the course	1	2	3	4	5
SE2	I am good with time management	1	2	3	4	5
SE3	I do not have to attend classes which might be at inconvenient times	1	2	3	4	5
SE4	I have done well in other classroom-based courses	1	2	3	4	5
SE5	I can overcome the disappointment of failing an assignment					

	To what extent do you agree with the following statements				
I think I would complete a MOOC if:	Strongly disagree	Disagree	Neither agree nor agree	Agree	Strongly agree
SP1	I get enough help from my tutors and lecturers					
SP2	I get support from my peers and friends					
SP3	it is recognised by other South African universities,					
SP4	it is recognised by employers					
SP5	it is recognised internationally					

	To what extent do you agree with the following statements				
I am more likely to complete a MOOC if:	Strongly disagree	Disagree	Neither agree nor agree	Agree	Strongly agree
ISP1	I am provided with free air time for Internet access					
ISP2	I am provided with a suitable device (for example, tablet computer)					
ISP3	I am provided with a study venue with all the necessary facilities					
ISP4	The information provided initially was clear and described the course content accurately					
ISP5	Know in advance what the course entails					
ISP6	Have experience on online learning					

Thank you for your participation