

MOOCs and access to higher education by South African underprivileged learners

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The journey continues!

Dedication

I dedicate this work to my two daughters, Khanyisa and Hlumisa. May they be inspired to take full advantage of their amazing talents and become their best selves.

List of Published Papers

Mabhele, M., & Van Belle, J.P. (2019). A Conceptual Model for Institutional Adoption of Learning Technologies in Higher Education. *Proceedings of 4th International Conference on the Internet, Cyber Security and Information Systems 2019, Vol. 12*, 123-131. <https://doi.org/10.29007/9bks>

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Abstract

Background: Underprivileged South Africans struggle to access higher education for various reasons. Higher education potentially increases opportunities for the underprivileged to improve their socio-economic conditions. Higher education MOOCs have been revolutionary in providing quality higher education courses to the masses, providing low barriers to entry and low cost. MOOCs could provide an alternative for underprivileged South Africans to access higher education.

The purpose of the research: The main objective of this study is to identify and generate new and alternative perspectives on access to higher education by the underprivileged when assisted by the inclusion of MOOCs. To this end, this study discusses the role of MOOCs in reducing the barriers to access of higher education by underprivileged learners.

Design/methodology/approach: This study employed mixed method approach (qualitative and quantitative methods). Initially, 25 one-on-one interviews with South Africa based participants were conducted online to gain insights and views on the topic. The results were analysed using thematic analysis. Subsequently, 116 South Africa based participants responded to a survey informed by the results from the initial interviews. The results were statistically analysed using regression analysis.

Findings: The findings demonstrate that the underprivileged face many challenges in accessing higher education, including affordability, limited spaces within institutions and high entry requirements. The study further demonstrates that MOOCs can be used to address these challenges. However, challenges such as access to ICT, lack of role models and career guidance, low standard of basic education and not being academically prepared may need to be addressed through other means.

Research contribution: This study adds to perspectives on the use of MOOCs to increase access to higher education by the underprivileged learners. Additionally, this study has the potential in creating new knowledge for underprivileged individuals to better leverage MOOCs in improving their chance to better life prospects. Lastly, this study can influence policy makers and higher education leadership in better using MOOCs in the quest for creating a more educated workforce.

Keywords: MOOCs, massive open online course, access to higher education, underprivileged learner

List of Abbreviations and Acronyms

cMOOC	connective Massive Open Online Course
DBE	Department of Basic Education
DHET	Department of Higher Education and Training
HE	Higher Education
HEI	Higher Education Institutions
MOOCs	Massive Open Online Courses
NSFAS	National Student Financial Aid Scheme
ODeL	Open Distance e-Learning
ODL	Open Distance Learning
OEM	Open Education Movement
OEP	Open Educational Practices
OER	Open Educational Resources
SWAYAM	Study Webs of Active-Learning for Young Aspiring Minds
TVET	Technical and Vocational Education and Training College
xMOOC	extended Massive Open Online Course
Coursera	One of the most popular MOOCs platforms.
EdX	One of the most popular MOOCs platforms.

Chapter 1. Introduction

Massive Open Online Courses (MOOCs) are increasingly becoming more popular, attracting larger audiences compared to traditional online learning platforms (Alyoussef, 2021). While popular in academic circles, the research suggests that the ordinary South African is not familiar with the term MOOCs. Unlike other online learning platforms, MOOCs are offered on a flexible time schedule, attract large cohorts of learners, require minimal or no academic entry prerequisites and usually no enrolment fees (Corrado et al., 2021). Moreover, Covid-19 induced lockdowns have also made online learning more socially acceptable and it has become a standard mode of education (Hasudungan & Ningsih, 2022). These characteristics make MOOCs an attractive alternative for many South Africans who struggle with entry requirements, finances and competing priorities for time. Furthermore, MOOCs have a potential to reduce unemployment and increase the chances of participating in job opportunities currently demanded by industry (Twinomurinzi & Msweli, 2020).

This study investigates the extent to which MOOCs affect access to higher education by underprivileged learners. In the context of this study, underprivileged learners are learners with limited life opportunities due to socio-economic reasons. As a distinct group in society, underprivileged learners are the most likely not to access higher education, resulting in the repeat of the poverty cycle for subsequent generations (Hasudungan & Ningsih, 2022). Higher education in this study refers to formal post-matric education that is traditionally offered by Higher Education Institutions (HEI). These institutions include universities, TVET, CET and private colleges.

The study's findings should assist in promoting the use of MOOCs in addressing the challenges of access to higher education by South African public and private institutions. Furthermore, individuals may benefit from using this low-cost alternative to the traditionally expensive HEIs.

This introductory chapter is structured as follows. Section 1.1 discusses this study's background and context. This section is followed by an outline of the problem statement (Section 1.2), research objectives and questions (Section 1.3), the research approach (Section 1.4) and the significance of this study (Section 1.5). Finally, Section 1.6 concludes with an overview of the thesis chapters.

1.1 Research Background and Context of the Study

Education, particularly in South Africa, was previously used to systemically isolate certain members of society from the mainstream economy resulting in deeply entrenched socio-economic disadvantage for those communities (Nkabinde, 2016). This isolation system created a parallel education system that was significantly inferior for a majority of the citizens of South Africa (Adam, 2020a). More than twenty years after the establishment of democracy, this legacy continues to play a role in poor access to educational opportunities for underprivileged communities (Gray & Czerniewicz, 2018). In response to this injustice, the South African government has adopted policies of inclusion that aim to create opportunities for all citizens irrespective of race, colour, gender or creed (Nkabinde, 2016). Whilst the government has made inroads in increasing educational spend, the student demands for free higher education, characterised by increasing protests, has intensified (Gray & Czerniewicz, 2018).

Against this local backdrop, there is a global trend in the increased mainstream availability of online education, particularly Massive Online Open Courses (MOOCs) (Kleyweg et al., 2018). Online learning has the potential of reducing costs and increasing access to higher education for underprivileged students (Goodman et al., 2016; Protopsaltis & Baumi, 2019). This proposed study adopts the definition of online learning as an approach of innovatively transforming the traditional course delivery model of the classroom by using the internet as a medium (Murders, 2017). Online learning is now fully recognised as part of the higher education mainstream system (Stone, 2017).

1.2 Problem Statement

In some parts of the world, there seems to be a consistent challenge of underprivileged learners being excluded from participating in quality, formal higher education, due to high costs, high entry requirements, etc. (Evans & McIntyre, 2016a; Hasudungan & Ningsih, 2022). This results in the learners not having the same opportunities as people who can afford higher education. Due to these challenges, the underprivileged may struggle in getting themselves and their families out of the poverty cycle in the long run.

Due to its apartheid past that separated people based on their skin colour, South Africa has systematically created a high number of underprivileged people who have no access to higher education (Gray & Czerniewicz, 2018). NSFAS, the government institution mandated with being the “provider of financial aid to students from poor and working-class families” (NSFAS,

2018) has been instrumental in providing support towards tuition, accommodation, food, digital learning devices, etc. While such programmes are helpful in addressing the challenges, the demand for access is still very high.

While some studies have concluded that MOOCs are mostly used by people who already have access to higher education and relatively advantaged (Rohs & Ganz, 2015), MOOCs may be a viable alternative for the underprivileged (Hodgkinson-Williams & Czerniewicz, 2014; Pollack Ichou, 2018). Some of the recommendations include intentionally designing MOOCs to be location/audience contextualised and be more collaboration focused for underprivileged learners (Lambert, 2020) and to promote self-directed learning (Zhu et al., 2020).

1.3 Research Objectives and Research Questions

The main research objective of this study is *to identify and generate new and alternative perspectives on access to higher education by the underprivileged when assisted by the availability of MOOCs*. The second objective is to identify how these perspectives can be used in the development of policies and/or strategies for access to higher education.

The sub-objectives of this research are concerned with gaining more insights into MOOCs and their application in higher education, within the context of the underprivileged learners. Therefore, the research sub-objectives are:

- To gain insights into the influence of MOOC use on access to higher education.
- To gain insights into the factors that influence underprivileged learners to enrol in MOOCs.

This research focuses on the relationships between MOOCs and access to higher education for underprivileged learners. Using qualitative and quantitative means, the specific purpose of this study is to comprehensively understand how MOOCs influence access to higher education for underprivileged learners. Therefore, the primary research question is “How does the use of MOOCs affect access to higher education for underprivileged learners?”

The following secondary questions support the main question:

- To what extent does perceived usefulness of MOOCs affect use of MOOCs?
- To what extent does self-motivation, aptitude, attitude and awareness affect perceived usefulness?

- To what extent does self-motivation, aptitude, attitude and awareness affect MOOCs use?
- To what extent do MOOCs features affect perceived usefulness?
- To what extent do MOOCs features affect MOOCs use?
- To what extent does access to ICT affect MOOCs use?
- To what extent does the socio-cultural environment affect self-motivation, aptitude, attitude, and awareness?

1.4 Research Approach

This study employed a mixed method approach (qualitative and quantitative methods). The motivation behind using a mixed method approach was to firstly gain deeper insights and underlying perceptions of the participants from a South African perspective, thereby making the subsequent survey more relevant to the targeted population. The quantitative approach assisted in understanding and testing the construct relationships from a statistical perspective.

The researcher conducted interviews with 25 South Africa based participants who have access to the internet. The interview script was based on a conceptual model derived from the literature review. The interviews were conducted through Microsoft Teams and Zoom. The audio-based files were transcribed as is and shared with the respective participants. Thematic analysis was used to analyse the collected data.

After the analysis, the original research instrument (survey) was improved to incorporate the insights gained from the initial interviews. Qualtrics, a widely used and robust survey platform was used to design and disseminate the survey. The survey link was shared on Facebook and LinkedIn for voluntary participation. A total of 120 participants completed the survey. From the total, four responses were mostly blank and thus eliminated from the final analysed sample.

For convenience's sake, South Africa was chosen as the sample country since the researcher is based here. As a country with a dominant underprivileged population and few MOOCs related studies, South Africa was an ideal setting.

1.5 Significance of the Study

Limited access to higher education opportunities has negative consequences for individuals, organisations, and nation states (Adam, 2020a). Individuals miss out on life opportunities

(Pollack Ichou, 2018), while organisation and countries end up not having the necessary workforce to be efficient and more competitive (Gray & Czerniewicz, 2018).

On one hand, this study has the potential in creating new knowledge for underprivileged individuals to better leverage MOOCs to improve their life opportunities. On the other hand, this study can influence policy makers and higher education leadership in better using MOOCs in the quest for creating more jobs and increase competitiveness. Lastly, this research contributes to theory on social inclusion of underprivileged communities in the mainstream economy.

1.6 Overview of the Thesis

This thesis has been organised into the following six chapters:

Chapter 1: **Introduction**. This chapter sets the tone for the thesis by providing the background of the study and introducing the topics to be covered. The introduction chapter further articulates the problem statement, research objectives and questions, the research approach and finally the significance of the study.

Chapter 2: **Literature Review**. This chapter outlines a comprehensive, critical and contextualised review of existing literature on the research topic. This review forms the foundation of addressing the research questions and proves the significance of this study. This chapter further highlights the gaps identified in the existing literature.

Chapter 3: **Theoretical Underpinnings of the Study**. This chapter examines the various theoretical frameworks considered during the study. A conceptual model adopted to investigate the research questions is then presented.

Chapter 4: **Research Methodology**. This chapter introduces the research design by describing the research philosophy, approach, strategy, sampling techniques, data analysis and ethical procedures.

Chapter 5: **Research Findings (Interviews)**. This chapter presents the findings gathered from the interviews. The key themes emerging from the data analysis are presented.

Chapter 5: **Research Findings (Survey)**. This chapter presents the findings gathered from the survey. Frequency tables from the data are presented as well as hypothesis testing and correlation testing. Finally, regression analysis between the constructs is presented.

Chapter 6: **Discussion and Conclusions**. This chapter discusses the research findings to address the research objective and answer the research questions. The findings are summarised, and limitations and contributions of this research are discussed. Finally, suggestions for future research are also presented.

1.7 Chapter Summary

This chapter provides a comprehensive introduction to the dissertation's core focus: examining the impact of Massive Open Online Courses (MOOCs) on access to higher education for underprivileged learners in South Africa. The chapter begins by establishing the context for this study, highlighting the ongoing challenges of access to higher education for underprivileged communities in South Africa, stemming from historical inequalities and persisting socioeconomic disadvantages. It then introduces MOOCs as a potential solution, emphasizing their flexible structure, accessibility, and affordability, making them an attractive alternative to traditional higher education pathways for underprivileged learners.

The chapter further delves into the research problem, objectives, and questions that guide this investigation. It outlines the research approach employed, combining qualitative and quantitative methods to gain a comprehensive understanding of the complex relationship between MOOCs, access to higher education, and the experiences of underprivileged learners. Finally, the chapter discusses the significance of this study, highlighting its potential contributions to knowledge, policy development, and the promotion of social inclusion within the South African context. The chapter concludes by providing an overview of the remaining chapters, outlining the structure of the dissertation and its journey towards answering the central research question.

Chapter 2. Literature Review

The objective of this chapter is to review existing literature on the impact of MOOCs on access to higher education in general and more specifically on how MOOCs affect access by underprivileged learners in South Africa. To establish the credibility of this study, it is crucial to outline previous work that has been carried out around MOOCs and their impact in access to higher education. Whilst MOOCs continue to enjoy high media attention, their impact in underprivileged communities is not well understood. The literature reviewed act as a scaffold to better understand what has already been researched in this area of study.

This study does not differentiate between the various forms of MOOCs, i.e. xMOOCs, cMOOCs and hybrid MOOCs. The scope is limited only to the impact of MOOCs in terms of access to higher education. To that end, pedagogical and quality issues are not covered, since numerous other studies sufficiently cover those topics.

The review starts out by an overview of MOOCs and their role in higher education outlining the general impact of MOOCs on society today. This covers literature from their appearance in the mainstream around 2012 (Ferreira, 2016; Gamage et al., 2016), up to today. This is followed by a review of the impact, challenges and opportunities experienced by MOOCs in addressing issues of access to higher education. A South African focused view of access to higher education issues is then explored. Finally, the conclusion summarises the key points gathered from the literature review.

2.1 An Overview of MOOCs and their Role in Higher Education

Higher education positively increases an individual's chance to job and earning opportunities (Bhorat et al., 2016). Despite this fact, underprivileged South Africans continue to face challenges in accessing higher education of any form (Njoko, 2018). Compared to other developing countries, South Africa has a relatively low rate of participation in higher education (Lewin & Mawoyo, 2014).

On the other hand, Massive Open Online Courses (MOOCs) have generated interest for their potential to increase access to education for a broad range of learners at low costs (Castillo et al., 2015; Laurillard & Kennedy, 2017). Moreover, MOOCs use is increasing becoming popular in the African higher education sector (Rienties et al., 2022). They have a distinct advantage of easily scaling across large geographies, providing quality education to millions

of learners (Castillo et al., 2015). On the other hand, access to higher education still remains one of the leading challenges in education (Laurillard, 2016). Whilst the demand for higher education continues to grow globally, it largely remains limited and expensive in the Global South (Laurillard & Kennedy, 2017).

Learners in the developing world have a different experience of the MOOC phenomenon compared to those in the West (Kleyweg et al., 2018). Westerners dominate the number of enrolments, whilst the Global South stand the most to benefit given limited availability of traditional higher education (Laurillard & Kennedy, 2017; Longstaff, 2016). While the cost barrier is reduced by MOOCs, underprivileged learners are not taking this to their advantage (Kleyweg et al., 2018).

This study is about the impact of MOOCs in increasing access to higher education for underprivileged South African learners. Most existing research is derived from Western contexts (Castillo et al., 2015; Li et al., 2018). Moreover, various studies have identified that MOOCs only benefit the already advantaged learners who have obtained degrees and/or other higher education (Laurillard, 2016; Li et al., 2018). This study will focus on learners who do not have access to higher education due to socio-economic reasons. These learners also have low overall exposure to quality basic education (Longstaff, 2016). In the case of South Africa, it is difficult to separate disadvantage from racial lines, hence most of the research done currently is along these lines. The National Student Financial Aid Scheme (NSFAS), whose purpose is to grant loans and bursaries to eligible South African students at public higher education institutions, identifies students impacted by socio-economic situations as those coming from families with a gross family income that is less than R350 000 per annum and/or who would otherwise not be able to afford to study (NSFAS, 2018). This study will also adopt this a general definition of a underprivileged student.

2.2 South African context

While MOOC research has expanded globally, encompassing studies in India, Indonesia, South America, and other regions, the South African context presents a unique set of challenges and opportunities for the adoption of MOOCs, particularly for underprivileged learners (Adam, 2020b).

Firstly, South Africa's history of apartheid has left a deep legacy of inequality, resulting in a wide disparity in access to education and resources (Nkabinde, 2016). This historical context

makes the challenge of bridging the digital divide and ensuring equitable access to MOOCs particularly significant. While other developing countries may face similar challenges, the specific historical context of South Africa adds a layer of complexity to the issue of educational access (Mendez, 2019).

Secondly, South Africa's higher education system faces unique pressures, including high demand for scarce spaces and a growing student debt crisis (Council on Higher Education, 2007). These factors highlight the potential of MOOCs to offer a more affordable and flexible alternative to traditional higher education pathways. However, the need for local accreditation and recognition of MOOC credentials within the South African system, as well as the broader concerns around the quality and credibility of online learning, pose challenges that require careful consideration.

This unique blend of historical context, social inequalities, and systemic pressures makes the South African landscape for MOOC adoption distinct from other developing countries, demanding a tailored approach that addresses the specific needs and challenges of underprivileged learners within this context.

2.3 Impact, Challenges and Opportunities of MOOCs

The term MOOC was first introduced in Canada in 2008 by Stephen Downes and George Siemens and referred to a distributed peer learning model (Baturay, 2015; Longstaff, 2016). Stanford's Sebastian Thrun and Peter Norvig, in 2011, streamed their robotics lectures online, resulting in 160,000 enrollments (Ubell, 2017). By 2018, over 100 million online learners took 11,400 MOOCs, offered by 900 universities (Shah, 2018). Popular MOOC platforms include Coursera, edX, Udacity and Futurelearn (Shah, 2018). SWAYAM is India's government-sponsored MOOC platform launched in 2017. An example of MOOC adoption in the developing world, it currently has a catalogue of 2,000 courses from 130 institutions and aims to increase national enrolments, reduce the impact of faculty shortages and widen geographic reach (Mendez, 2019).

2.3.1 The general impact of MOOCs

MOOCs leverage open education and online technologies to create global-wide learning platforms (Li et al., 2018). The democratisation affordance of MOOCs will impact today's education crisis that is characterised by large scale exclusion from post-secondary education and rising tuition costs (Loeckx, 2016). In Western countries, particularly the United States,

MOOCs have changed learner cognition and provide increased opportunities of learning (Li et al., 2018). Moreover, the rise of MOOCs is in line with the learning styles and preferences of “digital natives” (Loeckx, 2016). As a result of this, MOOCs are set to challenge the status quo and increase the theoretical reform of education (Li et al., 2018).

However, on the other hand, sceptics of MOOCs view them as promoting educational elitism (Evans & McIntyre, 2016a; Loeckx, 2016). Also, the fact that MOOCs are open and often free doesn't translate to access equity (Loeckx, 2016). Other sceptics highlight MOOCs' pedagogy as doubtful in achieving active learning (Gamage et al., 2016). (Longstaff, 2016) further argues that whilst MOOCs attract significant numbers of learners, few participate in discussion forums, making MOOCs relatively small and exclusive in impact.

2.3.2 Challenges faced by MOOCs in underprivileged communities

Whilst quality, credibility and completion rates are the most common challenges attributed to MOOCs (Atiaja & Guerrero, 2016; Gamage et al., 2016), these are not the most impactful for the underprivileged. One of the major challenges faced by MOOCs in developing communities is the availability of requisite telecommunications infrastructure (Castillo et al., 2015; Evans & McIntyre, 2016a). MOOCs as they currently exist, in video and rich text formats, require high bandwidth that is usually lacking in developing communities. To counter act this challenge, some content providers such as Khan Academy and biNu are providing lightweight versions of their video content (Evans & McIntyre, 2016a). Malaysia and South Africa are some of the developing countries that are driving the availability of broadband infrastructure at government level, whilst Zambia is spearheading digital literacy for teachers (Castillo et al., 2015).

Content localisation is another challenge identified by various studies (Castillo et al., 2015; Laurillard, 2016; Laurillard & Kennedy, 2017). Localisation enables content generated elsewhere to be adapted and made relevant in another context. Whilst leading MOOCs such as Coursera and Udacity have reached hyperscale in numbers, they fall short of providing localised content to various populations (Castillo et al., 2015).

2.3.3 MOOC opportunities

MOOCs are proving useful in areas such as agriculture (Makerere University, Uganda), global health (Botswana's Health Informatics and Telemedicine Capacity Building Program) and scientific literacy (Johns Hopkins University, USA) (Castillo et al., 2015). Makerere's Dairy

Multi-stakeholder Platform brings together all actors in Uganda's dairy value chain for training and to address issues that affect their industry (Marie Kortleve, 2019). The Botswana-UPenn Partnership (BUP Health Informatics Capacity Building Program) works with local stakeholders in developing a locally-contextualised Health Informatics curriculum that covers sensitization and capacity building workshops, mHealth research initiatives, telemedicine and mLearning projects (Ndlovu, 2014). John Hopkins University uses its platform to increase public health awareness and prioritise immunisation programmes (Castillo et al., 2015).

A distinct area that MOOCs can play a cascading role in education advancement, particularly in underprivileged communities, is teacher professional development (Laurillard, 2016). The UNESCO Institute for Statistics (UIS) estimates that 69 million teachers will be required by 2030, from a current estimated low base of only 3.6 million (UNESCO, 2019). Developing countries have the most acute need for professionally qualified teachers (UNESCO, 2019). The rise of the internet and online learning has opened an opportunity for teachers to explore professional development online (Hodges et al., 2016; Laurillard, 2016; Misra, 2018). One of the key challenges teachers face is finding the time to attend professional development workshops (Hodges et al., 2016). The online co-learning and peer discussion affordances provided by MOOCs, provide contextualised learning experiences for teachers, which increase adoption success rates (Laurillard, 2016).

2.4 Defining "Underprivileged Learners" in the South African Context

This dissertation focuses on "underprivileged learners" as a distinct category within the broader spectrum of learners facing educational barriers. To clarify this terminology, this section provides a concise definition and differentiation from related concepts.

Underprivileged Learner: For this study, an underprivileged learner is defined as an individual with limited life opportunities due to socio-economic reasons, resulting in restricted access to quality education and overall social mobility. This definition encompasses learners facing various challenges, including poverty, lack of access to resources, limited exposure to educational opportunities, and a disadvantaged social environment. While "disadvantaged" and "poor" learners might overlap with this category, the term "underprivileged" captures the multifaceted nature of these limitations, emphasizing the systemic barriers and restricted life prospects that contribute to a limited future trajectory.

2.5 Access Issues for South African Underprivileged Learners

Factors that influence lack of access to higher education in South Africa include schooling background, insufficient funding, inadequate academic support, legacy of past inequalities and student under preparedness (Lewin & Mawoyo, 2014; Manik, 2015; Sosibo & Katiya, 2015). (Njoko, 2018) argues that students from rural backgrounds have a further limitation of exposure to adequate post-secondary educational material, which makes them even more underprivileged than those from urban settings.

The schooling background of poor students contributes to the shortage of university entrants with the required pass marks in science and mathematics (Lewin & Mawoyo, 2014). As these subjects are a gateway to scarce skill areas such as business, management, engineering and science, this is a missed opportunity. Furthermore, students whose parents never completed secondary education, are more likely to have challenges accessing higher education (Njoko, 2018).

Mass action movements such as *#FeesMustFall* illustrate the fact that South African higher education is unaffordable for many of the citizens (Bhorat et al., 2016). The subsequent presidential task team that looked at the funding challenges reported that tertiary students' debt accumulated between 2013 and 2015 was R2,5 billion (NSFAS, 2018).

Past inequalities in South Africa are largely as a result of the apartheid system (Njoko, 2018). The system legislated the exclusion of black people from the mainstream economy, through amongst other things, separated education. One of the results of this separated education system is a large number of learners whose writing, reading and mathematical skills are inferior and fall short of what higher education expects (Walton et al., 2015).

Despite an increase in the rate of South African matriculation exemptions over the past two decades, a number of students are still underprepared for higher education (Sosibo & Katiya, 2015). Under preparedness includes academic unreadiness, particularly in comprehending the medium of instruction, reading, writing and numeric skills. This can further extend to psycho-emotional readiness. Various tertiary institutions provide mechanisms to assist underprepared students, however this often comes after the fact and as such doesn't address the issue of access to higher education (Walton et al., 2015).

Using pro-poor government policies, South Africa has made strides in transforming its segregation past and achieving education massification (MacGregor, 2014; Njoko, 2018; Sosibo & Katiya, 2015). Massification refers to the rapid increase in student enrolments (Council on Higher Education, 2016).

2.6 Related Research

While the existing literature on MOOCs often focuses on their potential for educational democratisation, there is a growing body of research investigating the specific use of MOOCs by underprivileged learners in diverse contexts. This section highlights some key studies that shed light on the challenges and opportunities presented by MOOCs for this target group.

In India, Hasudungan & Ningsih (2022) explored the impact of the COVID-19 pandemic on underprivileged students, highlighting the heightened risk of "learning loss" among this group. Their study underscores the critical need for accessible online learning platforms, such as MOOCs, to mitigate the effects of disruptions to traditional education systems. This research provides valuable insights into the potential role of MOOCs in promoting educational equity in developing countries facing similar challenges.

While South Africa lacks extensive research on MOOC adoption by underprivileged learners, Adam (2020) conducted a study examining the experiences of marginalized youth in peri-urban areas, revealing a lack of access to technology and a limited understanding of MOOCs as a learning option. This research emphasizes the need for targeted interventions to bridge the digital divide and enhance awareness of MOOCs among underprivileged communities.

Additional studies, such as Lambert (2020), have examined the potential of MOOCs to promote equity and social inclusion, highlighting the importance of designing MOOCs to be more accessible, culturally relevant, and supportive of diverse learners. These studies suggest that while MOOCs hold promise for expanding access to education, careful consideration must be given to addressing the specific needs and challenges of underprivileged learners.

These studies collectively demonstrate the growing interest in understanding the potential and limitations of MOOCs for underprivileged learners. They highlight the need for further research exploring the factors influencing MOOC adoption in diverse contexts, the development of effective interventions to address barriers to access, and the creation of MOOCs that are tailored to the specific needs of this target group.

2.7 Chapter Summary

This chapter provides a comprehensive review of existing literature on the impact of MOOCs on access to higher education, with a particular focus on the experiences of underprivileged learners in South Africa. It acknowledges the growing popularity of MOOCs, but also highlights the limited understanding of their impact on marginalised communities. The chapter serves as a foundation for the current study, outlining previous research and identifying gaps in knowledge that this dissertation seeks to address.

This chapter aims to provide a robust understanding of the existing knowledge base regarding MOOCs and their impact on access to higher education, particularly for underprivileged learners in South Africa. By identifying gaps in the literature and highlighting the need for further investigation, the chapter sets the stage for the dissertation's contribution to this burgeoning field of study.

Chapter 3. Theoretical Underpinnings of the Study

The literature review unveiled various theories that have been previously applied in the general study of MOOCs. This chapter outlines the theoretical framework that underpins this study, exploring the complex relationships between MOOCs, access to higher education, and the experiences of underprivileged learners in South Africa. Drawing upon relevant theories from existing literature, a conceptual model has been developed to guide the research and provide a framework for understanding the key factors influencing MOOCs' use within this context.

3.1 Selected Theories

The proposed conceptual model, known as the MOOCs Access Model (MAM), integrates key constructs from several prominent theories. Firstly, the MAM incorporates the Possible Selves Theory (PST), drawing upon the work of (Harrison, 2018) and (Harrison & Waller, 2018). PST highlights the role of individual motivation and aspirations in shaping an individual's pursuit of higher education, particularly within stratified social systems. The MAM incorporates this concept by including the construct of Self-motivation, Aptitude, Attitude, and Awareness (SAAA).

Secondly, the MAM utilizes the Three-tier ICT Access Model (Chang et al., 2016), which emphasizes the importance of access to technology in facilitating social access. This framework has been incorporated into the MAM through the construct of Access to ICT.

Finally, the MAM integrates elements of the Technology Acceptance Model (TAM) and Task Technology Fit (TTF) model, drawing upon the work of Wu & Chen (2017). TAM focuses on user perceptions of technology's usefulness and ease of use, while TTF explores the alignment between technology features and the specific tasks it is designed to support. These concepts are reflected in the MAM through the constructs of Perceived Usefulness and MOOCs Features.

The MAM proposes that the interplay of these key constructs - Socio-cultural Environment, SAAA, Perceived Usefulness, MOOCs Features, Access to ICT, and MOOC Use - ultimately impacts access to higher education for underprivileged learners. This model provides a framework for understanding the interconnectedness of various factors influencing the adoption and use of MOOCs in this specific context.

3.2 Proposed Conceptual Model and Hypotheses

To understand the intricate relationship between MOOCs, access to higher education, and the specific challenges faced by underprivileged learners in South Africa, this study proposes a conceptual model known as the MOOCs Access Model (MAM). The MAM integrates key constructs from established theories, including the Possible Selves Theory, the Three-tier ICT Access Model, and the Technology Acceptance Model combined with Task Technology Fit. This integrated model provides a framework for exploring how socio-cultural environment, individual motivation, technology features, and access to ICT all contribute to the utilization of MOOCs and their potential to bridge the gap in higher education access for underprivileged learners.

3.2.1 Constructs Underlying the Conceptual Model

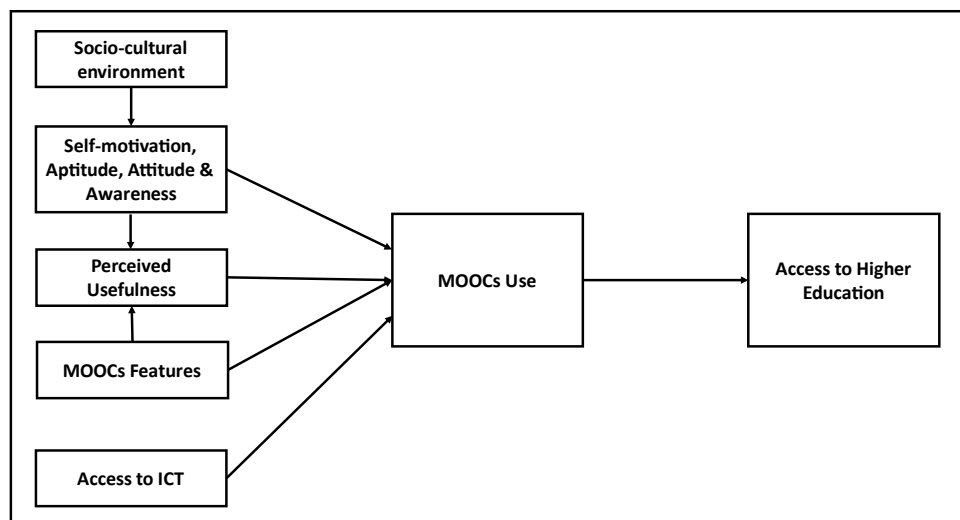


Figure 3.1: The MOOCs Access Model (MAM)

The Socio-cultural environment and Self-motivation, Aptitude, Attitude & Awareness (SAAA) are adapted from the Possible Selves Theory. The Socio-cultural environment affect SAAA. SAAA in turns affects Perceived Usefulness and MOOCs Use.

Perceived Usefulness, MOOCs Features and Access to ICT are adapted from the TTF and TTF MOOCs Research Framework. Perceived Usefulness affects MOOCs Use, while MOOCs Features affect both Perceived Usefulness and MOOCs Use.

In MAM, it is proposed that SAAA, Perceived Usefulness, MOOCs Features and Access to ICT affect MOOCs Use. MOOCs Use in turn affects Access to Higher Education.

3.2.2 MAM Hypotheses

The relationships between the constructs are further hypothesised in the figure below.

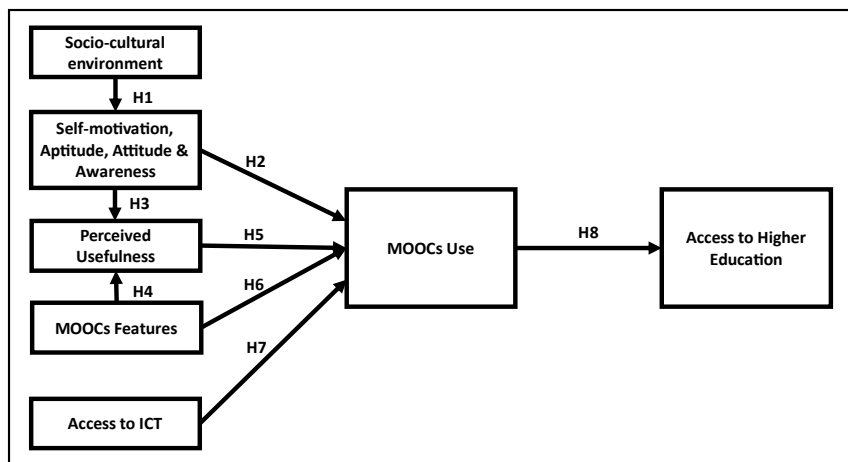


Figure 3.2: MAM and the proposed hypotheses

The following hypotheses are proposed:

H1: The socio-cultural environment positively affects self-motivation, aptitude, attitude, and awareness.

H2: Self-motivation, aptitude, attitude, and awareness positively affects MOOCs use.

H3: Self-motivation, aptitude, attitude, and awareness positively affects perceived usefulness of MOOCs.

H4: MOOCs features positively affects perceived usefulness of MOOCs.

H5: Perceived usefulness of MOOCs positively affects MOOCs use.

H6: MOOCs features positively affects MOOCs use.

H7: Access to ICT positively affects MOOCs use.

H8: MOOCs use positively affects access to higher education.

3.3 Chapter Summary

This chapter delves into the theoretical framework underpinning this study, exploring the complex relationship between MOOCs, access to higher education, and the unique experiences of underprivileged learners in South Africa. The chapter presents a comprehensive exploration

of the theoretical landscape, drawing upon established theories and integrating key concepts to create a robust conceptual model.

The chapter begins by identifying relevant theories from the literature, focusing specifically on the social learning process, individual motivation, and technology access. This leads to the development of the MOOCs Access Model (MAM), a unique conceptual framework that integrates key constructs from the Possible Selves Theory, the Three-tier ICT Access Model, and the Technology Acceptance Model combined with Task Technology Fit. The MAM proposes that the interplay of these constructs – Socio-cultural Environment, Self-motivation, Aptitude, Attitude & Awareness (SAAA), Perceived Usefulness, MOOCs Features, Access to ICT, and MOOC Use – ultimately impacts access to higher education for underprivileged learners. This model provides a framework for understanding the interconnectedness of various factors influencing the adoption and use of MOOCs in this specific context.

Finally, the chapter presents a series of hypotheses derived from the MAM, outlining the expected relationships between its key constructs. These hypotheses serve as the foundation for the empirical analysis in subsequent chapters, guiding the study's investigation of the impact of MOOCs on access to higher education for underprivileged learners in South Africa. This comprehensive approach provides a solid foundation for understanding the complex dynamics at play and guides the research towards uncovering meaningful insights.

Chapter 4. Research Methodology

This chapter outlines the research design employed in this study, detailing the philosophical underpinnings, methodological approach, data collection strategies, and analysis techniques utilised to investigate the relationship between MOOCs and access to higher education for underprivileged learners in South Africa.

4.1 Research Philosophy

The research adopts a positivist epistemology, aligning with the belief that knowledge can be derived through objective observation and measurement of quantifiable data. This approach aims to identify generalizable patterns and test objective constructs, leading to the development of a testable conceptual model. (Neuman, 2014) defines positivism as “combining deductive logic with precise empirical observations of individual behaviour in order to discover and confirm a set of probabilistic causal laws that can be used to predict general patterns of human activity” (p.97).

However, acknowledging the complexities of individual experiences and perceptions, the study incorporates both qualitative and quantitative methods, creating a mixed-methods approach that allows for a more comprehensive understanding of the phenomenon.

4.2 Research Approach

The mixed-methods approach employed in this study combines qualitative and quantitative methods in a sequential manner. This strategy allows for a deeper understanding of the phenomenon under investigation, with the qualitative data providing rich insights and context, which then inform the development of the quantitative survey.

- **Qualitative Phase:** The first phase involved conducting structured interviews with 25 participants who self-identified as underprivileged or had experienced underprivileged circumstances. The interviews explored participants' perceptions of the value of higher education, the factors influencing their access to education, and their awareness of and experiences with MOOCs.

- **Quantitative Phase:** The insights gathered from the interviews informed the development of the quantitative survey instrument, which was administered to 116 participants. The survey focused on measuring the relationships between various factors, including self-motivation, perceived usefulness, MOOCs features, access to ICT, and MOOC use, and their impact on access to higher education.

4.3 Sampling Techniques

Qualitative Sampling: A purposive sampling technique was used to identify interview participants, selecting individuals who met the criteria of being South African internet users with some level of awareness of higher education and potential for MOOC engagement.

Quantitative Sampling: A convenience sampling method was employed for the survey, inviting voluntary participation through social media platforms.

4.4 Data Collection

Qualitative Data Collection: Structured interviews were conducted using a pre-determined script, ensuring consistency across participants. Interviews were conducted online through platforms such as Microsoft Teams and Zoom, and audio recordings were transcribed verbatim for analysis.

Quantitative Data Collection: A structured survey instrument was designed and distributed online using Qualtrics, a robust survey platform. The instrument included a range of multiple-choice, Likert scale, and open-ended questions to gather data on participants' demographics, awareness of MOOCs, MOOC use, and perceptions of various factors influencing their engagement.

4.5 Data Analysis Methodology

Qualitative Data Analysis: Thematic analysis was used to analyse the transcribed interview data, following a systematic process of familiarisation, coding, theme identification, review, definition, and reporting. This process involved identifying recurring themes and patterns in the data, interpreting their significance within the context of the study's objectives. This process involved:

- **Familiarisation:** The researcher immersed themselves in the data by repeatedly reading through the transcripts, gaining a comprehensive understanding of the nuances and

complexities of the participants' experiences and perspectives. This involved highlighting key phrases, noting initial observations, and gaining an overall sense of the data.

- **Coding:** The researcher systematically identified meaningful units of text within the transcripts, labelling them with codes that captured their essence. This process involved reading through the transcripts line-by-line and assigning codes that reflected the underlying themes and patterns in the data. Codes were both inductive and deductive, drawing upon existing themes from the literature review and emerging themes from the data.
- **Theme Identification:** The researcher grouped together codes that shared commonalities or related to similar concepts, forming potential themes. This process involved searching for patterns and connections across the codes, identifying recurring themes that emerged from the data.
- **Theme Review:** The researcher critically reviewed the identified themes, ensuring that they were consistent, relevant, and comprehensive. This process involved refining and refining themes, ensuring that they adequately captured the richness and complexity of the data.
- **Theme Definition and Naming:** The researcher defined and named each theme, ensuring clarity and accuracy in their description. This involved providing a concise and informative definition of each theme, reflecting its significance within the context of the study.
- **Reporting:** The researcher presented the findings in a clear and concise manner, incorporating illustrative quotes and examples to support the themes. This involved creating a narrative that communicated the key findings from the qualitative data analysis, offering insights into the participants' experiences and perspectives.

Name	Files	References
1. Perceived value of higher education by the underprivileged	18	132
2. Factors that influence underprivileged learners in accessing high	19	209
External	19	139
Internal	14	70
3. Barriers to access higher education institutions	13	22
Affordability of higher education	8	10
Availability of spaces in institutions	1	1
Entry Requirements	7	8
Proximity to institutions	3	3
4. Factors that influence the use of MOOCs by underprivileged lear	25	245
Negative	24	134
Positive	20	86
Recommendations	18	25
Future Research	2	3

Figure 4.1: NVivo Themes

Quantitative Data Analysis: Statistical analysis was conducted using SPSS, focusing on descriptive statistics, correlations, and multiple linear regression to test the hypotheses derived from the conceptual model. This involved analysing the relationships between various factors and their impact on MOOC use and access to higher education.

While some participants who took part in the interviews also completed the survey, their responses were treated as independent data points, and no attempt was made to combine or aggregate the data across the two sets of participants.

4.6 Research Validity and Reliability

Qualitative Validity: Member checking was employed to enhance the trustworthiness of the qualitative data analysis. Transcripts were shared with participants for verification and feedback, ensuring accuracy and authenticity of interpretations.

Quantitative Validity: Exploratory factor analysis with Varimax rotation was employed to assess the construct validity of the survey instrument, ensuring that the items accurately measured the intended constructs.

Quantitative Reliability: Cronbach's Alpha was used to assess the internal consistency reliability of the survey instrument, ensuring that the items measuring the same construct were internally consistent.

4.7 Research Ethics and Approval

The researcher followed UCT's formal ethical clearance process from the Ethics Committee. While this study was focused on underprivileged learners, no personal data was collected about the participants. Furthermore, ethical considerations were applied so as not to compromise the participants' rights and confidentiality. The UCT ethics clearance process was followed before engaging any participants. A formal request and detailed research purpose for participation was shared with participants.

In-depth interviews were made by agreement and a transcribed version of interview provided to participants for verification. All responses were treated with confidentiality.

4.8 Chapter Summary

This chapter details the methodological approach employed in this study. It outlines the research philosophy, approach, data collection methods, analysis techniques, and ethical considerations that guided the study.

The chapter begins by establishing a realist philosophical perspective, acknowledging the complexities of individual experiences while aiming to uncover generalizable patterns and test objectively measured constructs. This aligns with a positivist epistemology, employing both qualitative and quantitative methods to provide a comprehensive understanding of the phenomenon.

The chapter then describes the mixed methods approach chosen for the study. This approach involves two phases: first, semi-structured interviews were conducted with 25 South African participants to gather rich qualitative data on perceptions and motivations regarding MOOCs and access to higher education. Second, a questionnaire-based survey was administered to 116 participants to collect quantitative data for analysis and statistical verification of the proposed model. This combination of qualitative and quantitative methods allows for a multifaceted exploration of the research problem, drawing on both inductive and deductive reasoning.

The chapter further details the sampling techniques employed, targeting South African online users with access to MOOCs. A purposive and convenience sampling method was used for the interviews, aiming for a balanced representation across demographic variables. Data collection involved structured interviews and a survey instrument, both informed by the literature review and subsequently refined based on interview insights. The study adopted a cross-sectional approach, capturing a snapshot of the sample at a specific point in time.

The chapter concludes by outlining the data analysis methodologies used, employing thematic analysis for the qualitative data and statistical analysis, including correlation, regression, and factor analysis, for the quantitative data. It also addresses research validity and reliability, highlighting the use of factor analysis and Cronbach's Alpha to assess these aspects. Finally, the chapter emphasizes the ethical considerations implemented throughout the study, adhering to UCT's ethical clearance guidelines and ensuring participant confidentiality and informed consent.

Chapter 5. Research Findings (Interviews)

This chapter presents research findings from the initial interviews that explored the experiences, reasons, and motivations surrounding the use and non-use of MOOCs in accessing higher education by underprivileged learners in South Africa. The quotations of the participants are their own views, reflecting what they believe to be true.

Section 5.1 highlights the demographic and professional profile of the interview participants. This section is followed by an overview of the themes that were identified during analysis (Section 5.2). Section 4 presents the participants' perceived views on the value of higher education in general. Section 5 discusses the factors that influence underprivileged learners in accessing higher education. Several barriers to access higher education institutions were identified. These barriers are discussed in Section 6. Factors that influence the use of MOOCs by underprivileged learners are presented in Section 7. Finally, Section 8 gives a summary of the findings.

5.1 Participants Profile

Twenty-five (25) adult participants were interviewed for this study. All the participants are South African internet users who either self-identify as underprivileged or were underprivileged at some point in their lives. During the period of this study, all the participants had access to ICT that allowed them to access and participate in MOOCs. In varying degrees, the participants had an interest in pursuing higher education. While 17 participants (68%) were interested in professional MOOCs, some considered pursuing hobby-related and non-commercial MOOCs.

Table 5.1 shows the distribution of the participants according to their demographics, whether they identified as underprivileged, level of education and extent of their MOOCs use.

Table 5.1: Demographic and professional profile of the participants

Attribute	Attribute value	No. of participants
Gender	Male	11
	Female	14
Self-identify as currently underprivileged¹	Yes	15
	No	10
Highest level of education	Secondary	5
	Undergraduate	11
	Postgraduate	9
Current Occupation	Employed	16
	Self-Employed	3
	Unemployed	6
Aware of MOOCs	Yes	17
	No	8
Number of MOOCs ever enrolled in	None	9
	1 to 2	9
	3 to 5	5
	6 or more	2
Total participants		n = 25

Most of the participants had a current occupation (19) and went further than secondary education (20), however almost a third (30%) were not aware of MOOCs. Interestingly, the unemployed participants were the least aware of MOOCs and had not enrolled in any MOOCs; they seem to be just the ones to whom MOOCs could add to or strengthen the skill set offered to future employers. Of the participants who were aware of MOOCs, only seven (7) enrolled in more than two (2) MOOCs in their life. The table below cross-tabulates between identification by privilege and MOOCs awareness.

¹ ALL participants identified as coming from a previously disadvantaged background.

Table 5.2: *Cross-tabulation between privilege identity and MOOCs*

	Identify as underprivileged	
	Yes	No
	15	10
Not aware of MOOCs	6	2
Aware of MOOCs	9	8
Never enrolled in MOOCs	6	3
Enrolled in one to two MOOCs	8	5
Enrolled in more than 2 MOOCs	1	2

All the participants were aware of challenges faced by the underprivileged in accessing higher education, having either been underprivileged at some point in their lives or currently (still) underprivileged (as self-identified). All the participants, in varying degrees, acknowledged the positive value of higher education to the underprivileged. The following section discusses how these participants perceived the value of higher education both from their own perspective and from their conceived viewpoints about the underprivileged.

5.2 Overview of Identified Themes

Using the thematic analysis approach and the literature reviewed; various themes emerged from this study. The table below outlines the themes that were uncovered. These are explained in more detail in the sections that follow.

Table 5.3: Identified themes by category

1. Perceived value of higher education by the underprivileged	2. Factors that influence underprivileged learners in accessing higher education	
Access to a career	External	Internal
Access to income	Government support	Academic aptitude
Exposure to opportunities	Lack of career guidance	Belief system
Exposure to the modern world	Lack of role models	Conflicting priorities
Increased social mobility (status)	Limited access to resources	Motivation and Inspiration
Personal development	Low standard of basic education	Perceptions about the future education
	Poverty	Preparedness for higher education
	Unfavourable social environment	Propensity to take initiative

3. Barriers to access higher education institutions	4. Factors that influence the use of MOOCs by underprivileged learners	
Affordability of higher education	Negative	Positive
Availability of spaces in institutions	Limited access to ICT	Affordability
Entry Requirements	Limited awareness about MOOCs	Alternative to traditional higher education
Proximity to institutions	Limited learner support	Career development
	Limited recognition by employers	Convenience
	Local accreditation	Exposure to variety
	Payment for certification	Low access barriers
	Scepticism	Personal development
	Recommendations	
	Government support	Relevant courses
	Information sharing	Unrestricted access
	Infrastructure	Zero rating
	Ownership	Future Research
	Promotion	

5.3 Perceived Value of Higher Education MOOCs by the Underprivileged

Even though there was no direct question that asked the participants how they viewed the value of higher education, the participant responses repeatedly highlighted the value of education, particularly its emancipatory potential for the underprivileged. **Table 5.4** shows the number of times participants mentioned each of the sub-themes related to perceived value of higher education.

Table 5.4: Perceived value of higher education by sub-theme

Sub-theme	No. of participants who mentioned the sub-theme	No. of times mentioned
	18	132
Personal development	11	35
Access to income	11	22
Exposure to opportunities	11	29
Exposure to the modern world	9	16
Increased social mobility (status)	7	12
Access to a career	8	18

Personal development, access to income and exposure to opportunities were the most frequently mentioned sub-themes. Being less exposed to helpful life opportunities was seen as one of the identifying characteristics associated with being underprivileged; as a result 60% of the participants viewed higher education as a potential tool that can be used by the underprivileged in accessing beneficial opportunities. The modern world is characterised by high use of technology in different fields, however, the underprivileged have limited access to technology. 60% of the participants felt that higher education gives the underprivileged an opportunity to access technology and in turn be exposed to the modern world.

The underprivileged value how they are perceived as social actors, as a result they view the higher status brought by higher education as important (47%). Whilst access to a career is driven mainly by a need for income, this sub-theme came out strongly on its own. 40% of the participants felt that it was one of the main reasons the underprivileged pursue higher education. The table below shows some of the participants' responses on how they perceived the value of higher education.

Table 5.5: Sample responses on perceived value of higher education by the underprivileged

Sub-theme	Sample response
Personal development	<i>“The first point of departure for an individual should be the desire to gain knowledge in a certain subject matter.” [Participant 6]</i>
Access to income	<i>“They might know what they want to do but if that course is full, they end up taking whatever is available because of the fear of going back home to face poverty.” [Participant 4]</i>
	<i>“We all know that because again of the different backgrounds that we’ve had, you get teenagers who’ve gone to school but they’ve had to drop out because of early childhood pregnancies or teenage pregnancies and because of having to grown up young I guess they’ve left the whole school thing and decided to work in order to support their families. And not only their own pregnancies but also because of their family dynamics, say an unemployed parent or both parents are unemployed. So, they end up going to find work and never got the opportunity.” [Participant 11]</i>
	<i>“So, some people feel that to get themselves out of their home situation or to change their home situation, they must go for higher education.” [Participant 14]</i>
Exposure to opportunities	<i>“When I get my PMP I can work anywhere in the world as a project manager.” [Participant 4]</i>
	<i>“I will give you one of the small milestones that I know a few of my peers and I went into a couple of years ago. It was to start a group that goes into the very rural and remote areas to talk to youngsters before they even went into the 3 final years of their high school about dreaming big about looking outside the very few higher education option that people had access to, like teaching, nursing, protective services and whatever else. Seeing beyond what is on offer out there because part of it is: How much do you know about what is out there?” [Participant 6]</i>
	<i>“We have to be mindful of the fact that MOOCs is a strategic tool that can unlock lots of opportunities, but if no one knows about it, it is going to make very little impact and it will take a long time for it to make the impact.” [Participant 15]</i>
	<i>“It is valuable because it opens up a lot of doors for a person. Not necessarily job opportunities and, it just opens up a whole lot of new avenues. For example, you get to understand even for oneself, you get to understand a whole lot more, a whole lot other things. Your insights are increased basically and well as I said even job opportunities and a better life.” [Participant 17]</i>
Exposure to the modern world	<i>“I know we will never be on the same level ... because it feels like it’s the children from the cities who keep growing in terms of knowledge and the children from the villages are stuck in an environment where they can only learn if they move to town. It should be that the child in</i>

	<p><i>the village has the same knowledge as the child living in town, although they might not have access but at least they understand, and you have knowledge.</i>” [Participant 4]</p>
	<p><i>“Seeing beyond what is on offer out there because part of it is: How much do you know about what is out there.”</i> [Participant 6]</p>
	<p><i>“Underprivileged should have nothing to do with race, unfortunately we are a very polarized nation, but it should be about whether the student has equal access to resources and materials that would make their education, or rather take their education at the same level with their peers across the border, across the entire country, across the continent if we were to standardize things or across the globe.”</i> [Participant 6]</p>
<p>Increased social mobility (status)</p>	<p><i>“Some students wouldn’t go for any other institution like the TEVT’s, they wouldn’t go for those necessarily because of the view we have you know. If you go to university there’s respect for someone who’s been to a university compared to someone who’s been to a college for example.”</i> [Participant 3]</p>
	<p><i>“Even though you were saying, you as an individual did these things, how many of you are out there? And that’s the problem because most of the underprivileged individuals don’t think like that. But even if that’s the case, they have these aspirations of becoming someone at some point in their lives by pursuing a formal program, they just don’t have the eagerness or the tools they go ahead and do these things.”</i> [Participant 5]</p>
	<p><i>“If you have been in a family of people who have never finished high school, who have never been exposed to higher education and what opportunities it presents for them, then that view would not present itself to someone from an underprivileged background because there is no one there who has ever been exposed to higher education or the lifestyle or whatever it may be. So, you cannot aspire to something that you do not know. People who have had access to other people who have gone through higher education and they see those people as been successful, they have had an impact of lifting a few people out of poverty because they have seen what higher education can do for them in lifting their lives, but it tends to be quite a small percentage.”</i> [Participant 15]</p>
<p>Access to a career</p>	<p><i>“I did MOOCs while I was working and so on...’ I think that is a motivator for me. To say ‘ok you know what I can go this route.’ So, people need to know about them, for example we only know people who went to university and got good jobs. But if I knew someone who went the MOOCs route and they are as successful then I can ... definitely be motivated to go for them.”</i> [Participant 3]</p>
	<p><i>“I think higher education you know a degree from a recognized higher education institution could give someone an advantage. If they’re going to start their first job, it gives that perception to the employer, you know, that you’ve gone through a formal learning process, so you could fit in a workplace that has that kind of environment where they want someone that can also learn you know... and do things in a formal</i></p>

	<i>way. So, it definitely helps with employment, especially if you're trying to get your first job." [Participant 16]</i>
	<i>"It's for you to get a particular skill, you know. In high school I believe we are only taught the fundamentals of how to communicate, you know and how to grasp the bare minimum of being able to communicate with people outside the world, you know. So, with the higher education that's where now you are given a particular skill to possess, like for instance, as a person in IT I understand that in high school I might be given an introduction through computer, CAT, computer technology or other programming languages but it's difficult to get into the nitty gritty and the specific skill that will allow you to grow into a career that you actually would be able to live off." [Participant 19]</i>

The above responses highlight the transformative potential that the participants felt higher education level MOOCs have for the underprivileged. All the sub-themes address the main challenges faced by the underprivileged in varying degrees. None of the participants viewed higher education as detrimental or disadvantageous to the underprivileged learners. The following section discusses the factors that influence underprivileged learners in accessing higher education.

5.4 Factors that influence underprivileged learners in accessing higher education MOOCs

The previous section discussed various value judgements that the participants associated with higher education. Various factors influence underprivileged learners in realising the perceived value. The factors discussed by the participants are grouped into external and internal factors. External factors refer to those factors that are outside the power or influence of the learners. On the other hand, internal factors refer to factors that describe and/or under the control of the individual. **Table 5.6** shows a breakdown of the external and internal factors that influence access to higher education by underprivileged learners.

Table 5.6: External and internal factors that influence underprivileged learners in accessing higher education.

Sub-theme	No. of participants who discussed	No. of times discussed
	19	209
<i>External</i>	19	139
Unfavourable social environment (Negative)	17	48
Limited access to resources (Negative)	17	41
Lack of role models (Negative)	10	17
Lack of career guidance (Negative)	7	17
Poverty (Negative)	6	9
Low standard of basic education (Negative)	3	5
Government support (e.g., NSFAS) (Positive)	2	2
<i>Internal</i>	14	70
Insufficient motivation and Inspiration	9	36
Conflicting priorities	8	13
Lack of propensity to take initiative	6	9
Preparedness for higher education	3	4
Belief system	2	4
Perceived lower academic aptitude	2	2
Perceptions about the future	2	2

All the participants identified both the external and internal factors that influence the underprivileged learners. The factors are discussed in detail in the following sub-sections.

External factors

External factors affect the underprivileged learner; however, the learner has no control over them. Although the learners have no control, these factors play a significant role in determining the learners' ability to access higher education.

Table 5.7 highlights some of the participants' responses related to external factors.

Table 5.7: Sample responses related to external factors

<i>External factor</i>	<i>Sub-category</i>	<i>Sample response</i>
Unfavourable social environment (Negative)	Society views	<i>“The views that we have as a nation regarding higher education... does hinder some people from continuing.”</i> [Participant 3]
	Tradition	<i>“in households ... boys were chosen to go to schools over girls.”</i> [Participant 6]
Limited access to resources (Negative)	Financial resources	<i>“I’d like to think money opens a lot of doors because if you do have money and don’t have the information, you can access places that have information.”</i> [Participant 1]
	Infrastructure	<i>“So, the children are willing to learn but there are no libraries.”</i> [Participant 4] <i>“Schools in the rural areas, the whole infrastructure is not really up to standard. Those kids are going to school and sitting under the trees to study. I know there are schools that still teach kids under the trees, where the roof leaks when it is raining. Such things can discourage those learners to go to school.”</i> [Participant 9]
Lack of career guidance (Negative)	At school	<i>“Career guidance should start at earlier grades, instead of it starting only at grade 12. It should start at grade 8. When you start it at grade 8, you’re also influencing the child that they will reach grade 12 and they need to think of their career.”</i> [Participant 4]
		<i>“You have a student who has just passed his matric, you are not clear that in order for you to achieve whatever you want to achieve in the future there are certain things you need to do.”</i> [Participant 5]
Lack of role models (Negative)	Negative	<i>“Existing graduates do not have jobs...”</i> [Participant 15]
	Positive	<i>“Another thing might be not having the right people surrounding one.”</i> [Participant 13]
Poverty (Negative)	Basics	<i>“Some children grew up in homes where they had no one caring for their physical and emotional needs.”</i> [Participant 4]
		<i>“Some learners go to school without the basic needs, food, learning utensils or resources be it computer, textbooks, and such.”</i> [Participant 11]

	Future impact	<p><i>“Poverty increases the number of children that are not educated and who have little opportunities for education.” [Participant 4]</i></p> <p><i>“You end up not looking further than what is in front of you. It’s hand to mouth.” [Participant 12]</i></p>
Low Standard of basic education (Negative)		<i>Teachers in the rural areas are not as exposed as teachers in the urban areas. So, if your source, the kind of person teaching you does not know the right things, you are underprivileged. [Participant 11]</i>
Government support (e.g. NSFAS) (Positive)		<i>“There are disadvantages financially, but there are the likes of NSFAS, but not everybody knows how to tap into that.” [Participant 2]</i>

The social environment came out as the most frequently mentioned external factor by the majority of participants. The social environment is generally understood to be the situation and conditions that the underprivileged live in. The environment includes the community, family and friends. Responding on the extent to which the social environment affects one’s view of the world, Participant 1 commented:

“I also think your surroundings – if I’m surrounded by people who think that during COVID-19 they’ll lose their jobs, fear retrenchment and so on, obviously I’m also bound to see all of that. But if I’m surrounded by entrepreneurs and business owners who are facing COVID-19 differently, then I’ll find ways to make my business profitable even at a time like this. So, I also think it’s the surroundings and I don’t know what the barrier is because there are people who have the potential but because they spend their time on the streets, then that becomes their day-to-day thing, to a point that even the potential that they have or may have had would not be used.”

Participants further identified access to resources as another external factor that has an influence on access to higher education by the underprivileged. Resources such as finances, infrastructure and ICT enable learners to participate in the learning process freely and adequately.

Most participant identified the lack of career guidance in underprivileged communities as detrimental to access to higher education. If a learner is not properly guided, they have limited means of identifying available career opportunities, career paths and pre-requisites required by institutions.

Positive role modelling was also identified by 8 participants (32%) as having a positive effect

in influencing learners towards aspiring for a better future for themselves. When the underprivileged learners encounter local people who have achieved positive results through higher education, they are likely to emulate those role models.

“If a person who’s driving a BMW X5 didn’t pass matric well but did the MOOCs, was able to get a job and is actually doing well, it might be a good motivation.” [Participant 3]

However, the prevalence of recent graduates who are jobless after years of higher education communicates a negative message.

“You must understand that seeing people who are educated and seeing them not working also discourages people. Because you ask yourself; ‘why should I go to school, since I am seeing so many people who are educated but aren’t employed?’” [Participant 1]

Poverty robs many capable learners of an opportunity to a better life. Participant 4 stressed this point by commenting *“So, I think poverty plays a huge role within some families, in that, it increases the number of children that are not educated and who have little opportunities for education.”*

Internal factors

Internal factors are inherent within the individual. To a large extent, they define an individual’s make up and/or disposition. These internal factors have a big role they play in influencing the underprivileged learners’ access to higher education. **Table 5.8** shows some of the participants’ responses on internal factors.

Table 5.8: Sample responses related to internal factors

Factor	Sub-category	Sample response
Motivation and Inspiration	Self-motivation	<i>"Sometimes an individual needs to have inner motivation, you know. Like 'I need to work on myself'"</i> [Participant 3]
	Inspiration	<i>"So, there is nothing that inspires them..."</i> [Participant 9]
Conflicting priorities	Job first	<i>"...I could be focusing on getting a job."</i> [Participant 1]
	Family first	<i>"You have to pay black tax so much back at home."</i> [Participant 9]
Propensity to take initiative	Hard worker	<i>"I think that one can achieve anything by just working hard on it"</i> [Participant 3]
	Self-starter	<i>"I decided to be part of some initiative"</i> [Participant 13]
Preparedness for higher education	Knowledge	<i>"When you go there to engage with these learners, there is a lack of knowledge."</i> [Participant 13]
Belief system	Traditional belief	<i>"...belief that education is not very important in certain parts of our society."</i> [Participant 7]
	Self-belief	<i>"If you believe that you are underprivileged, you will act and do as an underprivileged person."</i> [Participant 13]
Academic aptitude	Progress	<i>"...it could be that a person was unable to progress academically to the next step."</i> [Participant 10]
	Entry requirements	<i>"...could be that you are not meeting the minimum requirements for a particular degree."</i> [Participant 6]
Future perception	Brighter future	<i>"Kids find it hard to understand that the situation they're facing currently will be over one day and they will be better people."</i> [Participant 4]

Thirteen (13) participants (52%) identified motivation and inspiration as the leading internal factors that influence the underprivileged in accessing higher education. A self-motivated and inspired learner is most likely to overcome other challenges to pursue higher education. They may not have financial resources or the best academic results, but their determination makes them break all barriers.

Due to limited resources, underprivileged learners are sometimes faced with the challenge of seeking immediate income-generating opportunities rather than furthering their education. The situation at home would necessitate the learner to either work or seek finances in other ways. The short-term opportunity cost affects the long-term benefit of higher education.

Some participants identified the capacity to take initiative and working hard as a necessary skill for the underprivileged in overcoming other challenges and accessing higher education. Taking initiative is associated with diligence and get rewarded with opportunities. Moreover, learners that are exposed to the modern world through taking initiative can creatively leverage opportunities such as access to higher education.

Many participants are not convinced that the underprivileged are adequately prepared for higher education. This thought is linked to academic performance and having life skills in general. Some participants believe that underprivileged learners tend not to fare well academically. These factors reduce the ability to access higher education and to perform well once there.

According to some participants, many underprivileged learners have developed a belief that education is not important in life. This is also influenced by close family members who never attended higher education. This factor can potentially reduce the interest of those learners in pursuing higher education.

Finally, a learner's future perception and life choices can heavily influence their destiny in life. The brighter one sees their future, the more likely they would engage in actions that bring about that bright future. Participant 4 comments, "*Kids find it hard to understand that the situation they're facing currently will be over one day and they will be better people.*"

This section looked at both external and internal factors that influence underprivileged learners in accessing higher education. These factors can either be beneficial or detrimental in influencing an individual's chances of accessing higher education. The following section looks at the inherent barriers within higher education institutions that prevent access for the underprivileged learners.

5.5 Access barriers imposed by higher education institutions

From the interviews, it became clear that the participants distinguished between the factors that affected underprivileged learners from the actual barriers that higher education institutions imposed on the learners. Whether the barriers were created by design or coincidental was not explored. **Table 5.9** shows the number of participants and mentions per sub-theme.

Table 5.9: Barriers to access higher education by participant response count.

Sub-theme	No. of participants who discussed	No. of times discussed
	13	22
Affordability of higher education	8	10
Entry Requirements	7	8
Proximity to institutions	3	3
Availability of spaces in institutions	1	1

Fourteen (14) participants (56%) identified affordability and entry requirements as the main barriers of access to higher education institutions. These barriers were followed by physical proximity to higher education institutions, due to their distance from where the underprivileged learners reside. Only one participant identified availability of space in institutions as a barrier. **Table 5.10** illustrates sample responses from participants regarding barriers to access higher education institutions.

Table 5.10: Sample responses on barriers to access higher education institutions.

Factor	Sample response
Affordability of higher education	<i>“First, I think the issue of funds. I think there is a lot of people who cannot access higher education because they cannot afford it. Higher education, as you know, is not free in South Africa and it is quite expensive, even in the high-ranking institutions, even for those who are working, who have a source of income, cannot afford it.” [Participant 15]</i>
	<i>“Ja, of course because you know, getting a degree from an institution is costly. So, there is that cost thing involved and a lot of underprivileged people don’t have only like the cost to deal with, you know, generally they come from homes where they have to take care of their younger ones or you know have to deal with other issues at home such as getting food or eating properly and even just an environment to study, you know, all of these things really affect how you fit into a normal higher education institution. So, being underprivileged definitely has an impact or a role to play on, you know, how you access higher education. I think also the most important factor being just the course itself, you might not just be able to pay the fees to access that higher education institution and that raise a barrier before we start talking about things like environment, food and the rest that you need to be able to study properly.” [Participant 16]</i>

	<i>“The majority of people in our country I do believe its people who cannot afford, so through things like NFSAS and such things and bursaries, that’s how a lot of them do go even though they cannot afford in the background.” [Participant 19]</i>
Entry Requirements	<i>“There are issues around policies in access to higher education, for an example the entry criteria become a barrier” [Participant 7]</i>
	<i>“It is a huge number of people who find themselves not meeting the qualifying criteria. And I think the reason is that you find a whole lot of people going through high school or basic education just studying for the sake of studying, not focusing, or not being guided to understand what qualification will be required when they get to higher education. It becomes a bit of a shocker when they now need to apply, and they do not qualify.” [Participant 11]</i>
	<i>“Higher education is not easily accessible. Some people cannot access it because they do not have the prerequisite qualifications that are required. So, if you look at the number of people that make it out of high school, it is quite a limited pool.” [Participant 15]</i>
Proximity to institutions	<i>“Because it feels like it’s the children from the cities who keep growing in terms of knowledge and the children from the villages are stuck in an environment where they can only learn if they move to town.” [Participant 4]</i>
	<i>“Where there are no schools around, students have to travel 50 or 60 kilometres just to get to school.” [Participant 9]</i>
Availability of spaces in institutions	<i>“So, if there are courses like those, the child could be doing those if they didn’t get space at the university.” [Participant 4]</i>

These barriers are a real hindrance to the underprivileged learner in accessing higher education. Whilst MOOCs address all these barriers, the underprivileged do not use them. The following sections look at factors that influence the use of MOOCs by the underprivileged.

5.6 Factors that influence the use of MOOCs by underprivileged learners

MOOCs have been heralded as an opportunity to realise the value of higher education by reducing barriers to access higher education institutions and addressing some of the challenges faced by the underprivileged in accessing higher education. However, MOOCs are not without challenges when it comes to being used by the underprivileged learners. For an example, 12 participants (48%) believe that MOOCs are mostly used by the privileged who already enjoy

easy access to higher education. **Table 5.11** shows the sub-themes identified by participants, split into negative and positive factors and ranked by popularity.

Participants were split into two groups. Group 1 (16) knew about MOOCs beforehand and have participated in at least one. Group 2 (8) didn't know about MOOCs, as a result have no actual experience but just views and expectations.

Table 5.11: Themes related to the use of MOOCs by underprivileged learners.

MOOC challenges: Sub-theme	Total Participants	Group 1 "Users"	Group 2 "Non-Users"	No. of times discussed
Negative factors	24	16	8	134
Limited awareness about MOOCs	19	11	8	46
Limited access to ICT	19	13	6	36
Scepticism	10	5	5	14
Local accreditation	10	7	3	14
Limited learner support	10	5	5	12
Limited recognition by employers	7	6	1	11
Payment for certification	1	1	0	1
Positive factors	20	16	4	86
Convenience	14	12	2	17
Career development	11	6	4	24
Personal development	8	7	1	17
Affordability	10	8	2	11
Alternative to traditional higher education	6	4	2	10
Exposure to variety	3	3	0	5
Low access barriers	2	2	0	2

5.6.1 Negative factors

Negative factors make it difficult or challenging for the underprivileged to access MOOCs.

Table 5.12 highlights negative factors mentioned by some of the participants.

Table 5.12: Sample responses on negative factors that influence the use of MOOCs by underprivileged learners.

<i>Negative factor</i>	<i>Sample response</i>
Limited awareness about MOOCs	<i>“If people were to know about these online courses, they would do it. But because people don’t know about them, they don’t.” [Participant 1]</i>
	<i>“I realized the issue with you know the underprivileged is always one, is lack of information. I mean there’s millions and millions of courses out there and they’re free and this skills that comes out of these courses you don’t buy them, you don’t pay a fee, but for the mere fact that there’s no knowledge around that, I mean there’s, these courses can be enrolled by any person in the rural area, in the village in you know, underprivileged what is it, locations here in South Africa.” [Participant 20]</i>
Limited access to ICT	<i>“My understanding is that lack of access to typical educational resources such as textbooks, such as technology, tools like laptops, like tablets, and just the general understanding of how to utilize these because these individuals have never ever had access or used these tools.” [Participant 5]</i>
	<i>“...I ended up having to postpone my online course because the network is terrible where I stay.” [Participant 12]</i>
	<i>“At least ICASA has tried to some extent to lower these fees especially now during the pandemic when they realized that ok everyone is using virtual forms to communicate and learn and what not, so there’s the biggest issue honestly is the infrastructure itself and having access to reliable and slightly affordable data.” [Participant 22]</i>
Scepticism	<i>“...but I’ve seen those, possibly online, offered through UCT and thought 'that’s probably a scam'.” [Participant 2]</i>
	<i>“The feeling that I get regarding them is that they are not necessarily viewed as courses that one can do and get a certification, get a job.” [Participant 3]</i>
	<i>“With us it could also be ignorance, like I told you that someone told me about something along these lines, but I did not take it seriously.” [Participant 9]</i>
Local accreditation	<i>“I think trust and accreditation is something that really, really matters.” [Participant 2]</i>
	<i>“The second is, we live in a very fluid job market where one has to prove themselves beyond doubt and the piece of paper in which your qualification is written - the South African context still holds a lot of weight. I do not know if these platforms provide the same and I cannot speak to it obviously I still need to get myself acquainted with what can and cannot be done on such platforms as MOOCs.” [Participant 6]</i>

	<p><i>"I think another thing would be judging the credibility of the course. So, what I mean, how sure can you be that this course that I'll be doing for of weeks or months will serve me well in my career. Is it going to add on my CV or am I just wasting my time? Is it recognised basically? Yes, you won't really get like university credits when you do these MOOCs, or again I think it depends on the level of the course you're doing, however generally I think my concern was okay I need to look who which institution is offering the course and maybe that adds to the credibility."</i> [Participant 24]</p>
Limited learner support	<p><i>"The environment of being in classroom is very much different. It is very interactive; you have peers that you can engage with. I am not sure and I cannot speak to MOOCs for instance whether these hundreds of thousands of people that actually come together to do this particular module or whatever they are doing have an opportunity to interact?"</i> [Participant 6]</p> <p><i>"The underprivileged child will need support to do the courses, as they do not have the resources. If an underprivileged child wanted to do these courses, where would they start? I think it would be better if the institution said 'where you are staying, we have an arrangement with schools or certain individuals for assistance with the resources.' Because it doesn't help if it's not accessible."</i> [Participant 14]</p>
Limited recognition by employers	<p><i>"If I've got an online certificate from MIT I don't know if a Kobus van Zyl for instance knows about MIT and I'm applying at his company or he's a manager there."</i> [Participant 3]</p> <p><i>"The platform that I am enrolled has very good quality courses and they are freely available unless you want certification which is a nominal fee compared to the money one would have to pay for a one- or two-days course at a university. So, the quality of the material and recognition by my workplace is what drew me to the MOOCs."</i> [Participant 15]</p>
Payment for certification	<p><i>Then from the student's side, obviously get a certification, to someone who doesn't have the financial means could be a bit of a hindrance and then as well as structuring the course in a way that is fit to make the individual a professional, I think that is also a bit of a barrier there.</i> [Participant 23]</p>

Limited awareness about MOOCs

Fifteen (15) participants indicated that the underprivileged are not aware of MOOCs. Being aware of something is the first step to using it. Not being aware of MOOCs therefore means that they do not exist in most people's minds.

“It’s foreign to me. Right now, I’d love to pursue my studies further and when you mentioned online education, it’s something I’ve heard of, and I won’t deem myself as someone who doesn’t have access to information.” [Participant 2]

“I’ve always heard of online courses but not in South Africa, but instead in the US etc. and I am shocked to hear that it’s actually offered here.” [Participant 4]

Some participants believed that if educated people lack the awareness about MOOCs, the situation is probably worse for underprivileged people.

“No, they don’t know anything about it. I’m one of them, I don’t know anything about Coursera. I can even call my 18-year-old that I think is very smart with technology, no one knows about that. Imagine at the village, they’ll ask what is that, can we eat it? They don’t know it.” [Participant 4]

Some of the participants were aware of online learning but not the term MOOCs, with some participants even confusing MOOCs with computer-based learning and distance learning.

“I think the only thing we associate online courses with, is Unisa in South Africa, I think that’s the closest thing a lot of people understand. But I think it’s just a matter of getting the information out there and actually if it was to be known to people that they can actually, they are quite credible MOOCs, they really are, just obviously depending on which platform you using and the courses that you’re doing and which institution is offering it, it can be really great, I think it’s just the, the issue is the lack of knowledge and access to the information and actually using the platforms as well.” [Participant 24]

“I do not think there is more knowledge when it comes to MOOCs. I mean for instance, nobody taught me about the word or the terminology MOOCs, I found out by myself. And I was able to relate it to the online courses that I did that this is what MOOCs mean because I could not identify with MOOCs. I still feel that the underprivileged are not taught, they are not aware and have no knowledge of what MOOCs is as terminology.” [Participant 10]

MOOCs rely on the use of information technology artifacts such as computers and smart phones. Three (3) participants identified ignorance and fear of technology as the main contributing factors to limited awareness of MOOCs.

“The perception in terms of IT for instance, is that it is something for a certain group. There are fears around IT and people feel that IT is for certain people, they block their minds as well, even in my space I have people who would say ‘Look, I am not familiar with computers or whatsoever.’ Even if something does not require you to be an IT guru. There is that perception that MOOCs are IT related and therefore I have fears and either I do not like or do not know about IT therefore I would not do it.” [Participant 10]

Some of the participants recommended that a government drive to promote MOOCs is required for the message to reach the underprivileged. This idea is supported by Twinomurinzi and Msweli (2021) who assert that “Inclusivity can only be achieved if the entire population is made aware of the options available for improving work-related skills, particularly the benefits of studying online and the MOOC courses that are available.”

“It seems like it's going to be a challenge this thing for underprivileged people to use this thing unless a lot of things change. For instance, these things need to be properly promoted so that they are aware about them.” [Participant 19]

Limited access to ICT

The next identified challenge facing the underprivileged is their limited access to ICT. ICT includes telecommunication infrastructure, technology devices capable of delivering MOOCs, data bandwidth and the skills to use them. Most underprivileged people do not have adequate access to ICT.

“I never could take MOOCs the way I wanted to because back then I never had very good access to internet, I never had the funds, or the environment you know, normally go to a cybercafé, it wasn't a good environment to learn and all of that. I never had my own place where I could have private internet connection, and maybe fibre, so those things influence how you study online. I've been able to study more online now, because I have more access to have good internet, to have good computer of which it's something that we under look the poorest people don't have access to a good computer that has even a speed to play video in a very, you know, nice way. So, if someone is

underprivileged it's a factor that they might not be able to access MOOCs and learn with MOOCs because there's a cost that they still must endure, a cost of playing videos that's quite expensive. Watching a video, they might not have a personal computer, they might have to get a computer from someone else just to learn, they might not even have the quiet space to sit and learn which is a problem.” [Participant 16]

Of the learners that have access to capable devices, data might still be in limited supply. Data is relatively expensive in South Africa compared to other countries (Twinomurizi & Msweli, 2020). With limited data, the underprivileged are forced to prioritise how they use it. MOOCs use a lot of data, especially in rendering video-based content.

“Access to data is one thing. I see a lot of people that buy social media bundles, say for R10, and you can use Facebook and WhatsApp and these things for one week right. Of course, those things are available, a lot of people that have access to data to access social media. But to go online and watch an education video you're not going to do that with R10, you know, you're going to need fast internet and you're going to need a lot of internet to watch a one-hour video because you need a lot of data.” [Participant 16]

The quality of telecommunications infrastructure also plays a role in the ability to access ICT. Networks that have speeds less than 3G may frustrate users such that they will be unable to properly access and benefit from MOOCs.

“Even if we would have free network, it would be difficult. Having a service provider that can actually give access for free, for example, a person who stays in the villages of Ngqushwa, even if it's free it would be difficult for that person even if it's free because of our network infrastructure is so behind, I believe that can be a very big challenge up until we find a way to support areas that are far off in terms of coverage.” [Participant 19]

The participants suggested various means to improve access to ICT. These included making data more affordable, zero rating all education-based content and government subsidies for devices.

“The tools or access of tools or lack thereof, how can that gap be bridged? How does government rope in businesses? How do higher learning institutions work with

government, work with communities in support them to get these tools and platforms.”

[Participant 5]

“The use of internet could be a biggest barrier so which means that to tackle this could require some sort of support to say that okay since this company is offering these free courses, how about an approach to government institution to supply data for whoever that is enrolling.” [Participant 20]

“We need to enable the students and once that content is enabled with the zero-rated link, these students will start engaging on that.” [Participant 21]

Scepticism

Many online offerings have been met with a degree of scepticism (Bowen, 2013). For some people, the promise of free education seems too good to be true. In a high crime rate country such as South Africa, potential MOOCs users get to be sceptical of enrolling.

“It was me transitioning from face-to-face lectures to distance learning. I was very sceptical and thought to myself, ‘okay, I might not be able to do this but let me give it a try’, which I did.” [Participant 1]

“The first time I got in touch with the MOOC was through Coursera and at the time I didn’t even believe that it’s possible. I was doubting the quality. I was doubting that there would be like well recognised in the market.” [Participant 23]

As an emerging alternative to an already entrenched mode of education, the benefits of MOOCs are not readily appreciated. Some participants felt that there should be more alignment with traditional educational institutions before MOOCs are widely accepted.

“There is scope for it to be grown and to be integrated into mainstream education offerings and perhaps that would do a great deal going forward. I know that for people who want to advance themselves, like your MBAs and certificates, people actually do take that platform and it works very well but I am still adamant that the benefits that one derives from in class might still far outweigh those one would gain from online learning.” [Participant 6]

Local accreditation

In South Africa, accreditation of education and training is managed by the South African Qualifications Authority (SAQA) through a body called the Education and Training Quality Assurance (ETQA) (Council on Higher Education, 2007). Sector Education and Training Authorities (SETAs) and other professional bodies such as SAICA, SAPBB, SANC and SAPC are also mandated to accredit courses (Twinomurinzi & Msweli, 2020). Most MOOCs are however not officially accredited (De Freitas et al., 2015). This lack of accreditation may demotivate students from enrolling and completing MOOCs (Fife, 2016).

“I don’t think as they currently stand these courses will do that. The issue of accreditation being the main reasons. Also, if industry were to start recognising the courses, that will be a door opener. Accreditation introduces cost to the model. You must comply with many things which might be cumbersome. I think traditional institutions are expensive because of that reason of having to comply with accreditation requirements.” [Participant 7]

The accreditation process and mutual recognition between MOOCs and traditional institutions is not currently in place (Twinomurinzi & Msweli, 2020). Furthermore, South Africa has a significant backlog in accrediting formal, university courses (Twinomurinzi & Msweli, 2020), which may undermine the accreditation of MOOCs.

“I think authentication of these MOOCs platform and being taken serious by the education department and speaking on their behalf would make a lot of difference. I do not see why government is not supporting these, because this solves their problem. If I was them, I would support them, because why should we have so many kids that the universities are going to reject because there is no space while all they need is access to quality education at their homes, online and just continue.” [Participant 15]

Limited learner support

Flexible learner support plays a critical role in increasing the performance of students in both distance and face-to-face learning contexts (Veletsianos, 2016). Six (6) participants (24%) identified learner support as another important factor for learners who are already using MOOCs. Studying remotely removed face-to-face interaction, which can be valuable in peer-to-peer support.

"It's more or less the same method with teaching and learning but the thing is you get an immediate response with face to face learning, unlike online learning where you'd just read, so you read what you're given and just listen to the video, then if you have to be, if you want to ask a question, you obviously write through some chat and hopefully your lecturer will be able to respond within the necessary time that you'd like, you know. You can't always be sure that you will get the response within the time that you'd like, but because it's a paid institution they try to have a good response time, you know."
[Participant 19]

Limited recognition by employers

Employers place emphasis on the recognition of certificates offered by MOOCs and other learning institutions (Twinomurinzi & Msweli, 2021). With most MOOCs not having local accreditation and certification, employers may be reluctant to recognise them.

"These kinds of platforms, I am yet to go back and look at it, I think provide a lot of fundamental information, but are they at this point in time going to be able to be recognised by corporates in our country? Would one be able to take what they got out of an online institution and compete with a candidate that comes from, say the University of Pretoria or Cape Town University, sit for an interview and say 'I did this online' and the other presents what they did over three years at a university full time, would they be given the same amount of consideration?" [Participant 6]

Payment for certification

Certification increases the likelihood of securing employment and/or promotion (Twinomurinzi & Msweli, 2021). Whilst MOOCs certification is much cheaper than traditional certification, the underprivileged students may still have a challenge in paying.

"From the student's side, getting a certification, to someone who doesn't have the financial means can be a bit of a hindrance and then as well as structuring the course in a way that is fit to make the individual a professional, I think that is also a bit of a barrier there." [Participant 23]

5.6.2 Positive factors

Positive factors make it easy or conducive for the underprivileged to access MOOCs. **Table 5.13** highlights positive factors mentioned by some of the participants.

Table 5.13: Sample responses on positive factors that influence the use of MOOCs by underprivileged learners.

Positive factor	Sample response
Convenience	<i>"I will base it on my experience. I think people would do it because you don't have to go to the institution, you do it in the comfort of your home. And you manage your time as you go through the course. I read something that some people can do this as a community."</i> [Participant 14]
	<i>"As a working person with other responsibilities I access the MOOCs as and when I have time to access the material."</i> [Participant 15]
	<i>"Another factor is that even for people who have also gotten that kind of education before, it allows them to be more flexible, to move and change fields quickly. As you've seen with COVID now, has forced people to be very flexible in term of career choices and picking up a MOOC instead of going and waiting for January in order to apply and only then start acquiring education, I think this is something that is highly needed right now and for underprivileged communities from the Kasi to towns, to townships, as well as like in farming communities I think this would be a great idea."</i> [Participant 23]
Career development	<i>"The many people that I know who are doing online courses are doing courses like COBIT, courses that add to their career. I do know one guy who is doing his second masters online, but the majority are doing certification courses to add on their careers, like project management, PMP, BA or any other courses that are related to their career. I don't really know anyone who comes from grade 12 and is doing an online course."</i> [Participant 4]
	<i>"But with me, it was also a career change. I was more in finance, for almost 15 years of my life I was in finance. So, I had to change to IT. So, now I have to pick up IT and learn and all those things. But I am enjoying the learnings, it is quite interesting. My mission is to prove these guys wrong. I want to show them that it can be done with the finance experience. I can do IT and explain IT, hence I want to do my PhD one day in IT."</i> [Participant 9]
Personal development	<i>"It wasn't necessarily to get a certification, a qualification. The courses that I did were short enough to just skill myself in particular areas of interest such as Excel, presentation, English and so on."</i> [Participant 3]
	<i>"I used that platform as an example which has a lot of tutorials on subjects that I find very interesting. I go there to watch the videos, learn, take those online tests but never on an official level."</i> [Participant 6]
	<i>"I started doing MOOCs because I wanted to have a better education, better understanding of writing, so I studied creative writing, that was the first MOOC I did. Because locally it is not available, so I'd say that's the first thing with them is that it exposes you to courses that are not available locally."</i> [Participant 25]
Affordability	<i>"If I have to drive to go to the campus, I have to stay at the campus residence but if I can do the course online, then the costs are taken away."</i> [Participant 13]

	<i>“Well, I think it’s cheaper access, easier access in terms of you don’t have to actually travel to Scotland to study a course that’s available in Scotland and also you study at your own pace, at home, at the comfort of your own home or that internet café if ever you need an internet café. I think that’s the advantage.” [Participant 25]</i>
Alternative to traditional higher education	<i>“I must have hinted also to mainstream, your conventional way of doing education in this country is pro ‘spend so many years in this institution and what not.’ So we need to be able to put the value of these kind of platforms into perspective looking at how our systems are engineered for instance.” [Participant 6]</i> <i>“With the turnaround of how things are done in this century, like with the digitization of things, I think it’s of high importance that high schools and schools in general help the learners understand things like online learning as something that is not looked down upon, as something that is at par with institutions of higher learning. So that the kids, as they come out of high school, they do have a lot more options than just thinking ‘Uh I didn’t get into Wits, I didn’t get into UCT, then what? I can’t go to Udemy because what would society think of me’, you know.” [Participant 17]</i>
Exposure to variety	<i>“Online is a new experience to interact with a number of candidates around the world at the same time.” [Participant 8]</i>
Low access barriers	<i>“There was a course I was doing, which was meant for undergrad or postgrad and there was a kid there I think he is in grade 10 or 11. He was in that course because there were no restrictions as to who may take this course. He was going through the course, a grade 11 pupil. The possibilities are endless when it comes to these things.” [Participant 15]</i>

Convenience

MOOCs leverage the effectiveness and efficiency of technology to provide convenience to students (Twinomurinzi & Msweli, 2020). The participants highlighted various conveniences such as working at their own pace, at a time that suits them and wherever they choose to be.

“From a personal level - firstly I was pregnant, and I couldn't travel to Cambridge University. Secondly, I wanted international certification in my area of interest of specialisation (Innovation). Thirdly, online is a new experience to interact with a number of candidates around the world at the same time.” [Participant 8]

“I absolutely love the idea of doing MOOCs at your own time, it allows you to keep on learning whenever that you want to, you’re not limited to actually having to walk in physically to for instance the University of Joburg and then register yourself and pay

all these huge amounts that you would be spending on, MOOCs allow you to do what you want when you want at your own pace.” [Participant 22]

Career development

MOOCs open the opportunity for access for skills required by employers in the everchanging world of work. Gaining such skills in the workplace is important in accessing better career opportunities (Santandreu Calonge et al., 2019). Where traditional institutions struggle with supplying such skills, MOOCs, thanks to their up-to-date content, seem to offer a better alternative for aspiring job seekers.

“I’ve done about 20 Massive Open Online Courses, 19 of those after graduating from higher education. So, for me it was more of career development, learning new things but I used that predominantly not as an alternative to higher education, so I finished higher education and then used MOOCs as supplement for growing professionally.”

[Participant 16]

Personal development

While some participants didn't view MOOCs as useful in mainstream career development due to limited localised accreditation and industry/employer perceptions, others felt that MOOCs were valuable in skills enhancement, personal development and accessing niche courses that are not currently offered in South Africa.

For some participants who are on a lifelong journey of self-improvement, MOOCs have been a useful tool. These participants seem to be intrinsically driven to develop themselves on top of their career ambitions.

“MOOCs have an element of willingness, commitment from a person who wants to further or advance their studies through MOOCs, it stands a better chance in changing that person’s attitude, in enhancing that person’s skill, than the formal education, because for some reason, I think people felt forced to go through the formal education whether they liked it or not. But the advantage with MOOCs is that there is willingness, there is commitment, and it is a self-initiated kind of process.” [Participant 10]

“If we can have an advocacy drive that says ‘it is not that you will be employed, but you can do something that can empower you and have the skill, so that we do not have

this ongoing discussion about lack of skill, lack of capacity therefore we cannot have jobs. We can start creating an economy in which people create their own jobs, based on the skills that they got from the MOOCs.” [Participant 15]

Affordability

Besides the prohibitive cost of ICT, MOOCs affordability improves chances of uptake (Twinomurinzi & Msweli, 2020). In most instances MOOCs are offered free of charge. This potentially reduces the burden of tuition and other costs, positively benefiting underprivileged students.

“You get a platform where you can access from wherever you are, at no cost or at a very small cost, then it takes away from that restriction for access. So, for people who really want to be educated and are not able to or they don’t have the opportunity then definitely.” [Participant 17]

“Most, the model that I’ve seen, is one takes a free course then for certification there’s a normally a minimum of R400,00 or R500,00 [...] at that time the knowledge is already acquired. The individual already has the knowledge that they may need to run a small business or run a farm or start whatever venture that they need in their life. So, MOOCs are very important for us, like developing countries in getting the knowledge out there and getting, allowing people to acquire the knowledge that they require to improve their lives without the hustle of getting scholarships from say NFSAS or going to commercial education.” [Participant 23]

Alternative to traditional higher education

MOOCs are proving to be a great alternative for students that seek quality higher education they would otherwise not be able to access through traditional means (Naithani, 2017). Nine (9) participants (36%) felt that traditional modes of higher education are heavily entrenched in South Africa and viewed MOOCs as only an optional extra on top of an already attained degree or diploma.

“There are 6 months diploma courses that are being released by institutions such as Google, they call them professional certificates. Ideally you would want to do something like a professional certificate that is offered by an industry expert such as

Google, so I would say that, and I say that to a lot of people now that if you don't have the opportunity, especially if you're working in something like Information Technology, if you don't have the opportunity to go to a higher education you could use, do those professional certificates to learn new skills and grow and you'd still be productive and successful." [Participant 16]

Exposure to variety

MOOCs provide a wide variety of international courses from different institutions that would otherwise not be easily accessible to the underprivileged students. Moreover, the variety of lecturers and fellow students from different parts of the world can be beneficial. The breadth and depth of courses on offer provides learning opportunities that were not there before. The challenges facing the use of MOOCs can be easily mitigated at individual level.

"One of the advantages of MOOCs from my point of view, is that they actually can reach masses, they can reach many different people at the same time. So, there is no doubt that from a social impact, mobility point of view, they can expose many people to many educational opportunities." [Participant 10]

"We can start creating an economy in which people create their own jobs, based on the skills that they got from the MOOCs." [Participant 15]

Low access barriers

Most MOOCs typically do not have strict entry requirements such as a Grade 12 pass. Also, most MOOCs do not follow a strict time schedule or academic calendar. These factors enable ease of access for some learners.

"I think MOOCs have an element of open registration anytime during the year, unlike your traditional academic institutions, whereby they will tell you that we are open for students to register between February and May, so I think that it's one of things that people would go for MOOCs." [Participant 10]

5.7 Chapter Summary

These findings present a nuanced understanding of how some South African underprivileged learners perceive the value of higher education, factors that affect access to it and factors that affect the learners' access to MOOCs. These new insights bring new knowledge to existing

literature on how MOOCs can be used by the South African underprivileged learners in accessing higher education. The table below illustrates the popularity of each theme during the interviews.

Table 5.14: Summary of themes by participant frequency of mentions

<i>Sub-theme</i>	<i>No. of participants who discussed</i>	<i>No. of times discussed</i>
1. Perceived value of higher education by the underprivileged	18	132
2. Factors that influence underprivileged learners in accessing higher education	19	209
3. Barriers to access higher education institutions	13	22
4. Factors that influence the use of MOOCs by underprivileged learners	25	245

The participants realise the emancipatory value of higher education to the underprivileged learners in addressing the social and individual challenges. However, various internal and external factors influence these learners in accessing higher education. At the same time, traditional higher education institutions have inherent barriers to access. MOOCs provide a potential solution to challenge. In total, fourteen (14) factors were identified as having an influence in the use of MOOCs by underprivileged learners. Overall, the participants realise and acknowledge the potential of MOOCs in addressing the challenge of accessing higher education by the underprivileged learners.

Chapter 6. Research Findings (Survey)

While the interviews provided depth, variety, complexity and sometimes contradicting views of the participants, the richness and variety of views cannot be captured fully in a single quantitative model. A survey was therefore done to get a higher level of abstraction i.e., high-level view describing the more common, pervasive elements thus giving future researchers a better starting point for their research.

6.1 Demographic Analysis

The survey had a total of 120 participants that completed the online form. Four (4) responses were deleted due to more than 40% items being non-response; the final sample for the data analysis was therefore 116 participants. Out of the total, 11 (9.5%) were from a rural setting, 29 (25%) were from semi-urban, and 73 (62.9%) were from urban settings. The table below further shows that the age distribution of participants were: (3.4%) – less than 18 years, 12.9% were 18 – 25 years, 25.9% were 26 – 35 years, 46.6% were 36 – 50 years and 11.2% were older than 50 years. 1.7% had primary education, 6.9% had secondary education, 24.1% had done matriculation and 67.2% have post-matriculation qualification. By employment status, 8.6% were unemployed, 15.5% were students, 19% were self-employed and 56.9% were employed.

Table 6.15: Demographics of the survey participants

<i>Location Type</i>	<i>Frequency</i>	<i>% Frequency</i>
Rural	11	9.5
Semi-Urban	29	25
Urban	73	62.9
No response	3	3
Age		
Less than 18 ²	4	3.4
18 – 25	15	12.9
26 – 35	30	25.9
36 – 50	54	46.6

² Prospective participants were asked to confirm that they were above 18 prior to the start of the survey as per ethics protocol, but some nevertheless ticked the 'under 18' box.

51 and older	13	11.2
Highest Level of Schooling		
Primary	2	1.7
Secondary	8	6.9
Matric	28	24.1
Post-matric qualification	78	67.2
Employment Status		
Unemployed	10	8.6
Student	18	15.5
Self-Employed	22	19
Employed	66	56.9

n = 116

Table 6.16 shows that participants 25.9% of the participants are not familiar with the term MOOCs while 27.6% understand MOOCs to mean all online courses targeted at large audiences, with free access; 26.7% claimed it means all online courses, 11.2% claimed it means all online courses with free access and 7.8% said it refers to all online courses provided by universities. Figure 1 showed that participants have heard of Coursera (16%), Udemy (14%) and EdX (12%).

Table 6.16 further shows that 69% had enrolled in a MOOC before while 31% had not enrolled in an MOOC. 28.4% had enrolled in MOOC as hobby while 27.6% enrolled for formal higher education. 38.8% claimed to have been encouraged to pursue higher learning by the MOOC while 30.2% did not feel encouraged to pursue further higher learning by the MOOC.

Table 6.16: MOOCs responses

Understanding of the term MOOCs	Frequency	% Frequency
I do not understand the meaning of the term MOOCs	30	25.9
All online courses	31	26.7
All online courses provided by universities	9	7.8
All online courses with free access	13	11.2
All online courses targeted at large audiences, with free access	32	27.6
No response	1	.9
Do you have tools that enable you to access MOOCs		
No, none at all	6	5.2
Yes, access device only and no internet	19	16.4

Yes, internet and no device	19	16.4
Yes, all tools	72	62.1
Have you enrolled at a MOOC before?		
No	36	31.0
Yes	80	69.0
Type/s of MOOC enrolled for		
Hobby	33	28.4
Formal Higher Education	32	27.6
Hobby and Formal Higher Education	1	0.9
No response	50	43.1
Did the MOOC encourage you to pursue higher learning?		
No	35	30.2
Yes	45	38.8
No response	36	31.0
How long ago did you take your last MOOC		
0 -3 months	34	29.3
4 -6 months	23	19.8
7 – 12 months	9	7.8
1 – 3 years	13	11.1
4 years and longer	1	.9
No response	36	31.0
Did you complete any MOOC before		
No	11	9.5
Yes	19	16.4
No response	86	74.1
How many MOOC have you taken in total		
1 – 2	20	17.2
3 – 5	20	17.2
6 – 10	13	11.2
11 – 20	13	11.2
21 and above	13	11.2
No response	37	31.9
I intend enrolling for a MOOC in the next...		
0 – 1 month	11	9.5
1 – 3 months	19	16.4
3 – 6 months	15	12.9
6 – 12 months	11	9.5
I do not intend enrolling for a MOOC	19	16.4
More than 1 year	10	8.6
I do not know	31	26.7
Duration of MOOCs you intend taking		
Short (up to 4 weeks)	24	20.7
Medium (up to 12 weeks)	31	26.7
Long (longer than 12 weeks)	18	15.5
I am not sure	40	34.5
No response	3	2.6

n = 116

The figure below shows how familiar the respondents are with the most popular MOOC platforms.

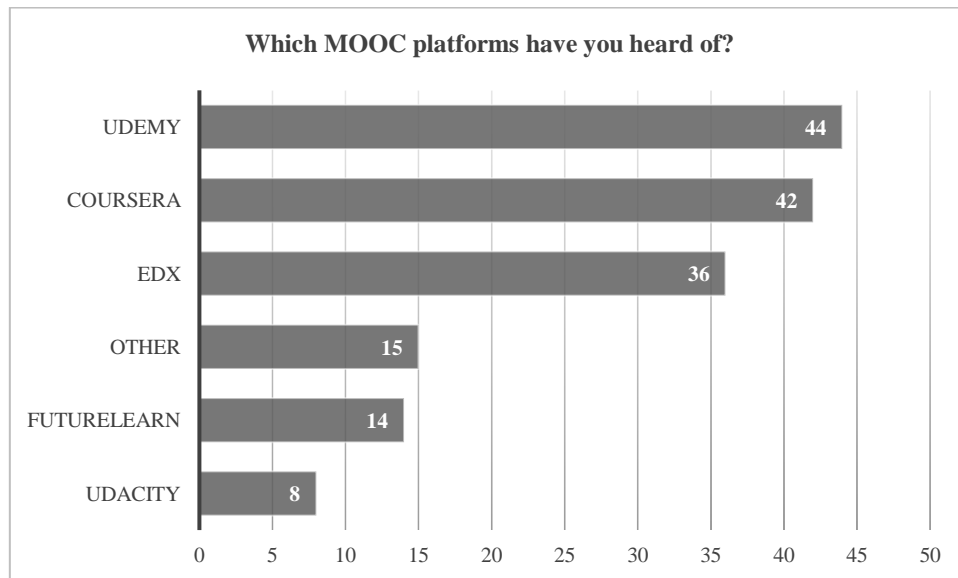


Figure 6.1: Familiarity with popular MOOCs

Validity of Scales

To explore the factorial structure of the survey instrument, all 35 items of the instrument were subjected to an exploratory factor analysis with varimax rotation using Kaiser normalization. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, $KMO = .726$. Bartlett's test of sphericity $\chi^2(595) = 112.908, p < .001$, indicating that correlation structure is adequate for factor analyses. The Principal Component Analysis yielded a twelve-factor solution as the best fit for the data, accounting for 65.44% of the variance. No item has communality less than 0.4 (Tabachnick & Fidell, 2007) and no item was deleted.

Reliability of Scales

The Cronbach's alpha of the items is 0.859, suggesting good internal consistency reliability for the scales. The Cronbach alpha of each construct showed that good internal consistency among the constructs except for socio-cultural environment with alpha score of 0.362; after the inter-item correlations were conducted, items 'I had role models that inspired me to pursue higher education' and 'Government support was available for learners who wanted to pursue higher education' were deleted to improve the reliability of the construct to 0.471.

Table 6.17: Reliability of constructs

Construct	Cronbach Alpha
Socio-cultural environment	0.471
Self-motivation	0.664
Perceived Usefulness	0.747
MOOC features	0.589
Access to ICT	0.190
MOOC use	0.705

6.2 Regression Analysis

Normality and Outliers

Figure 1 showed that there are no major deviations from normality. Mahalanobis distance have critical value less than 20.58 (Tabachnick & Fidell, 2007), indicating there are no outliers in our dataset.

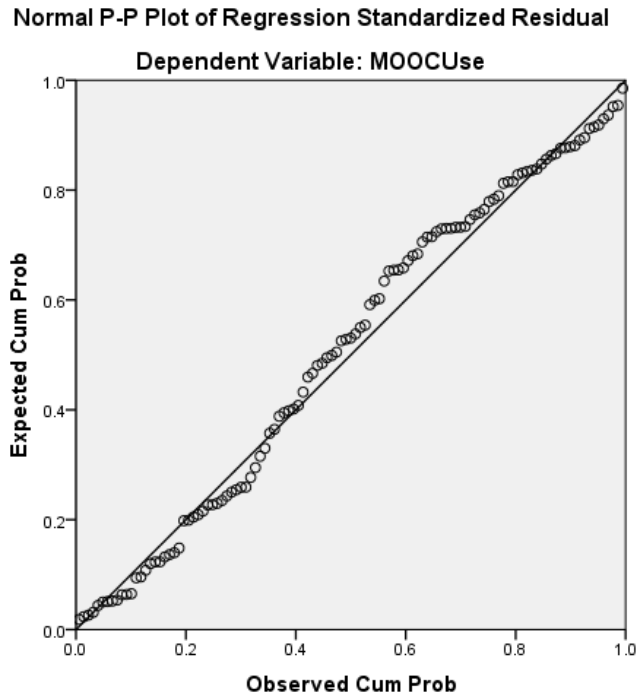


Figure 6.2 Normal Plot

A multiple linear regression model was conducted to determine the relationships between MOOCs use and the predictors: self-motivation, perceived usefulness, socio-cultural environment, MOOC features, Access to ICT and Access Higher Education. The model has a R Squared of 0.453, implying that the predictors explains 45.3% of the variance in the dependent variable MOOC use.

The regression model $F(6, 108) = 14.891, p = .000$; this indicates the model is statistically significant and the model is good fit to the data.

Table 6.18: Regression Analysis of predictors on use of MOOCs

	Estimate	SE	95% CI		t	p
			LL	UL		
Intercept	1.058	.401	.263	1.853	2.638	.010*
Self-Motivation	.029	.099	-.167	.226	.295	.769
Perceived Usefulness	.244	.079	.086	.401	3.072	.003**
MOOCFeatures	.188	.075	.039	.336	2.503	.014*
AccessICT	.257	.069	.121	.394	3.734	.000**
Socio-environment	.029	.057	-.083	.142	.514	.609
AccessHighEd	.038	.049	-.059	.136	.781	.437

Rsquared = 0.451³

Research Question 1: To what extent does perceived usefulness of MOOCs affect use of MOOCs?

The multiple linear regression (Table 6.18) showed that there is a statistically significant relationship between perceived usefulness of MOOCs and use of MOOCs ($\beta=.244$, $t(108) = 3.072$, $p < .01$). This implies that a unit increase in perceived usefulness of MOOCs will yield 24.4% increase in use of MOOCs. Also perceived usefulness was found to be the second highest predictor of the use of MOOC among the predictors in this research.

³ * - p-values significant at the 95% confidence level
** - p-values significant at the 99% confidence level

Research Question 2: To what extent does self-motivation, aptitude, attitude and awareness affect MOOCs use?

The multiple linear regression (Table 6.18) showed that self-motivation, aptitude, attitude and awareness does not have any statistically significant relationship with the use of MOOCs ($\beta=.029$, $t(108) = .295$, $p = .769$). Self-motivation, aptitude, attitude and awareness contributed 2.9% to use of MOOCs.

Research Question 3: To what extent do MOOCs features affect MOOCs use?

MOOC features contributed to the use of MOOCs by 18.8%, as shown in the multiple linear regression model in Table 6.18. The relationship between MOOC features and use of MOOCs is statistically significant ($\beta = .188$, $t(108) = 2.503$, $p < .01$).

Research Question 4: To what extent does access to ICT affect MOOCs use?

The multiple linear regression model showed that Access to ICT significantly predict the use of MOOCs ($\beta = .257$, $t(108) = 3.734$, $p < .001$). This implies that a unit increase in perceived usefulness of MOOCs will yield 25.7% increase in use of MOOCs. Also Access to ICT was found to be the highest predictor of the use of MOOC among the predictors in this research.

Research Question 5: To what extent does self-motivation, aptitude, attitude and awareness affect perceived usefulness?

A multiple linear regression model was conducted to examine the relationship between self-motivation, aptitude, attitude and awareness and perceived usefulness. The model has a R-squared of 0.418, indicating that the predictors explain 41.8% of the variance in perceived usefulness of MOOCs. The model was found to be predictive enough to fit the data, $F(6, 108) = 12.910$, $p < .001$).

As shown in Table 6.19, self-motivation, aptitude, attitude and awareness contributes 0.156 or 15.6% to perceived usefulness of MOOCs, ($\beta = .156$, $t(108) = 1.364$, $p < .175$), but this relationship is statistically significant.

Table 6.19: Regression Analysis of predictors on perceived usefulness of MOOCs

	Estimate	SE	95% CI		t	p
			LL	UL		
Intercept	.813	.475	-.129	1.754	1.711	.090
Self-Motivation	.156	.114	-.071	.383	1.364	.175
MOOC Use	.330	.107	.117	.542	3.072	.003**
MOOCFeatures	.138	.089	-.038	.313	1.552	.123
AccessICT	.113	.085	-.017	.208	1.341	.183
Socio-environment	.072	.066	-.059	.202	1.092	.277
AccessHighEd	.096	.057	-.017	.208	1.689	.094

Rsquared = 0.418

Research Question 6: To what extent do MOOCs features affect perceived usefulness?

The multiple linear regression in Table 6.19 showed that MOOC features does not have any statistically significant relationship with perceived usefulness of MOOCs ($\beta = .138, t(108) = 1.552, p = .123$). Self-motivation, aptitude, attitude and awareness contributed 2.9% to use of MOOCs.

Research Question 7: To what extent does the socio-cultural environment affect self-motivation, aptitude, attitude and awareness?

A multiple linear regression model was conducted to examine the relationship between socio-cultural environment and self-motivation, aptitude, attitude and awareness. The model has a R-squared of 0.344, indicating that the predictors explain 34.4% of the variance in self-motivation, aptitude, attitude and awareness. The model was found to be predictive enough to fit the data, $F(6, 108) = 9.439, p < .001$.

As shown in Table 6.20, socio-cultural environment contributes 0.043 or 4.3% to self-motivation, aptitude, attitude and awareness, ($\beta = .043, t(108) = .776, p = .440$), but this relationship is not statistically significant.

Table 6.20: Regression Analysis of predictors on self-motivation, aptitude, attitude and awareness

	Estimate	SE	95% CI		t	P
			LL	UL		
Intercept	1.865	.359	1.154	2.576	5.200	.000
Perceived Usefulness	.108	.080	-.049	.266	1.364	.175
MOOC Use	.028	.093	-.157	.212	.295	.769
MOOCFeatures	.251	.071	.111	.391	3.547	.001**
AccessICT	.072	.071	-.068	.212	1.024	.308
Socio-environment	.043	.055	-.066	.152	.776	.440
AccessHighEd	.051	.047	-.043	.145	1.068	.288

R squared = .344

Rsquared = 0.344

6.3 Hypothesis Testing

H1: The socio-cultural environment does not positively affect self-motivation, aptitude, attitude and awareness.

Ha1: The socio-cultural environment positively affects self-motivation, aptitude, attitude and awareness.

The multiple regression model in Table 6.20, showed that there is no significant relationship between socio-cultural environment and self-motivation, aptitude, attitude and awareness ($\beta = .043$, $t(108) = .776$, $p = .440$); thus, we fail to reject the null hypothesis and conclude that the socio-cultural environment does not positively affect self-motivation, aptitude, attitude and awareness.

H2: Self-motivation, aptitude, attitude and awareness does not positively affect MOOCs use.

Ha2: Self-motivation, aptitude, attitude and awareness positively affect MOOCs use.

The multiple regression model in Table 6.18, showed that there is no significant relationship between Self-motivation, aptitude, attitude and MOOCs ($\beta = .029, t(108) = .295, p = .769$); thus, we fail to reject the null hypothesis and conclude that Self-motivation, aptitude, attitude and awareness does not positively affect MOOCs use.

H3: Self-motivation, aptitude, attitude and awareness does not positively affect perceived usefulness of MOOCs.

Ha3: Self-motivation, aptitude, attitude and awareness positively affects perceived usefulness of MOOCs.

The multiple regression model in Table 6.19, showed that there is no significant relationship between Self-motivation, aptitude, attitude, awareness and perceived usefulness of MOOCs ($\beta = .156, t(108) = 1.364, p < .175$); thus, we fail to reject the null hypothesis and conclude that Self-motivation, aptitude, attitude and awareness does not positively affect perceived usefulness of MOOCs.

H4: MOOCs features does not positively affect perceived usefulness of MOOCs.

Ha4: MOOCs features positively affects perceived usefulness of MOOCs.

The multiple regression model in Table 6.19, showed that there is no significant relationship between MOOCs features and perceived usefulness of MOOCs ($\beta = .138, t(108) = 1.552, p = .123$); thus, we fail to reject the null hypothesis and conclude that MOOCs features does not positively affect perceived usefulness of MOOCs.

H5: Perceived usefulness of MOOCs does not positively affect MOOCs use.

Ha5: Perceived usefulness of MOOCs positively affect MOOCs use.

The multiple regression model in Table 6.18, showed that there is a statistically significant relationship between Perceived usefulness of MOOCs and MOOCs use ($\beta = .244, t(108) = 3.072, p < .01$); thus, we reject the null hypothesis and conclude that perceived usefulness of MOOCs positively affect MOOCs use.

H6: MOOCs features does not positively affect MOOCs use.

Ha6: MOOCs features positively affects MOOCs use.

The multiple regression model in Table 6.18, showed that there is a statistically significant relationship between MOOCs features and MOOCs use ($\beta = .257, t(108) = 3.734, p < .001$); thus, we reject the null hypothesis and conclude that MOOCs features positively affect MOOCs use.

H7: Access to ICT does not positively affect MOOCs use.

Ha7: Access to ICT positively affects MOOCs use.

The multiple regression model in Table 6.18, showed that there is a statistically significant relationship between Access to ICT and MOOCs use ($\beta = .257, t(108) = 3.734, p < .001$); thus, we reject the null hypothesis and conclude that Access to ICT positively affect MOOCs use.

H8: MOOCs use does not positively affect access to higher education.

Ha8: MOOCs use positively affects access to higher education.

A multiple linear regression was conducted with access to higher education as the predictor. The model showed that there is no statistically significant relationship between MOOCs use and access to higher education ($\beta = .146, t(108) = .781, p = .437$); thus, we fail to reject the null hypothesis and conclude that MOOCs use does not positively affect access to higher education.

6.4 Chapter Summary

Chapter 6 presents the quantitative findings of the study, drawing on data collected from a survey of 116 South African participants. The survey aimed to gain a broader, more statistically robust understanding of the factors influencing MOOCs use among underprivileged learners. A demographic analysis revealed that 102 participants (88%) were from urban and semi-urban areas, with a significant portion being aged 36-50 and holding post-matriculation qualifications. While 45 participants (39%) were familiar with MOOC platforms, a substantial proportion (25.9%) did not understand the term 'MOOCs.' Notably, over two-thirds of respondents had previously enrolled in a MOOC, often for hobby-related purposes.

To further analyse the relationships between various factors and MOOC use, a multiple linear regression model was employed. The model revealed a statistically significant relationship between perceived usefulness and MOOC use, suggesting that learners who perceive MOOCs

as valuable are more likely to engage with them. Access to ICT emerged as the strongest predictor of MOOC use, highlighting the importance of overcoming infrastructure barriers. However, the study found no statistically significant relationships between self-motivation, aptitude, attitude, and awareness and either perceived usefulness or actual MOOC use. Furthermore, despite testing the hypotheses derived from the conceptual model, the results did not provide strong support for the influence of socio-cultural environment on self-motivation, aptitude, attitude, and awareness.

Chapter 7. Discussion and Conclusions

The aim of this study was to investigate the extent to which MOOCs affect access to higher education by underprivileged learners. The previous two chapters presented the findings of the study using a mixed methods approach. This chapter discusses the research findings in the context of the research question and objectives, comparing with previous finds from the literature reviewed.

Section 7.1 summarises the research objectives and research questions. This is followed by a summary of the key findings (Section 7.2). Section 7.3 discusses the limitations and proposed future work. Finally, Section 7.4 concludes the chapter.

7.1 Research Objectives and Research Questions Summary

The main research objective of this study was to identify and generate new and alternative perspectives on access to higher education by the underprivileged when assisted by the inclusion of MOOCs. The second objective was to identify how these perspectives can be used in the development of policies and/or strategies for access to higher education.

The sub-objectives of this research are concerned with gaining more insights into MOOCs and their application in higher education, within the context of the underprivileged learners. Therefore, the research sub-objectives were:

- To gain insights into the influence of MOOCs use on access to higher education.
- To gain insights into the factors that influence underprivileged learners to enrol in MOOCs.

The research questions for this study were:

- To what extent does perceived usefulness of MOOCs affect use of MOOCs?
- To what extent does self-motivation, aptitude, attitude and awareness affect perceived usefulness?
- To what extent does self-motivation, aptitude, attitude and awareness affect MOOCs use?
- To what extent do MOOCs features affect perceived usefulness?
- To what extent do MOOCs features affect MOOCs use?

- To what extent does access to ICT affect MOOCs use?
- To what extent does the socio-cultural environment affect self-motivation, aptitude, attitude and awareness?

7.2 Summary of Key Findings

The following sub-section summarises the key findings from the interviews and the survey. The interview findings resulted in the themes that are listed below.

7.2.1 Interview Findings from the Interviews

The interviews revealed a strong perception among participants that higher education holds significant value for underprivileged learners in South Africa. Participants consistently highlighted the transformative potential of higher education for personal development, access to income, exposure to opportunities, and increased social mobility. They emphasised that higher education could help break the cycle of poverty and empower individuals to achieve their aspirations.

Despite recognising the benefits of higher education, participants identified numerous barriers that impede access for underprivileged learners. These barriers fall into two broad categories: external and internal factors. External factors include limited resources, lack of role models, a negative social environment, and low standards of basic education. Internal factors include insufficient motivation, conflicting priorities, a lack of preparedness, and a sense of under-preparedness. These challenges often work in concert, creating a complex web of obstacles for underprivileged learners seeking to pursue higher education.

While participants acknowledged the potential of MOOCs to address some of these barriers, they also highlighted various challenges associated with their use. These challenges include limited awareness, scepticism about the validity and accreditation of MOOCs, and a lack of adequate learner support. The interviews also revealed a perceived lack of employer recognition of MOOC credentials, further deterring learners from pursuing these online learning opportunities.

7.2.2 Survey Findings

The finding from the survey suggests that:

- There is a statistically significant relationship between perceived usefulness of MOOCs and use of MOOCs.
- There is a statistically significant relationship between self-motivation, aptitude, attitude and awareness and perceived usefulness.
- There is a statistically significant relationship between self-motivation, aptitude, attitude and awareness and MOOCs use.
- There is a statistically significant relationship between MOOCs features and perceived usefulness.
- There is a statistically significant relationship between MOOCs features and MOOCs use.
- There is a statistically significant relationship between access to ICT and MOOCs use.
- There is a statistically significant relationship between socio-cultural environment and self-motivation, aptitude, attitude and awareness.

7.3 Discussion

This dissertation has explored the potential of Massive Open Online Courses (MOOCs) to enhance access to higher education for underprivileged learners in South Africa, utilizing a mixed methods approach. While both the qualitative and quantitative findings highlight the potential of MOOCs, they also reveal significant challenges hindering their adoption by this target group. Integrating the insights from both data sets allows for a nuanced understanding of the complex landscape of MOOC use and its implications for promoting educational equity.

One striking observation is the discrepancy between the percentage of participants who were not aware of MOOCs in the qualitative analysis (30%) and those who did not understand the meaning of the term in the quantitative analysis (25.9%). While these figures may seem close, they indicate a nuanced difference. The interview data suggests a lack of general knowledge about MOOCs, while the survey data suggests a lack of precise understanding of the term. This discrepancy suggests a broader issue of information dissemination and awareness around MOOCs. Underprivileged learners may have heard the term but lack a clear understanding of its potential benefits and applications. This finding aligns with previous research by Evans and McIntyre (2016b) who suggest that even in developed countries, awareness of MOOCs among underprivileged learners is often limited, suggesting a persistent challenge across contexts.

The findings also highlight a substantial gap between the potential benefits of MOOCs for underprivileged learners and their actual uptake. While participants in the interviews recognized the value of higher education, they also identified numerous external and internal barriers that impeded their access. Limited resources, lack of role models, and a negative social environment were key external factors. Insufficient motivation, conflicting priorities, and feelings of under-preparedness were common internal barriers. These findings echo the concerns raised by Njoko (2018) who highlighted the unique challenges faced by underprivileged learners from rural backgrounds, who often lack exposure to post-secondary educational opportunities.

The research further reveals that even among those who are aware of MOOCs, significant barriers exist. The quantitative analysis confirms the importance of access to ICT, echoing the findings of Castillo et al. (2015) who identified this as a major challenge for MOOC adoption in developing countries. Despite the accessibility and affordability of many MOOC platforms, the lack of reliable internet access and devices capable of accessing them effectively prevents many underprivileged learners from participating. While the survey demonstrated the positive impact of MOOC features on perceived usefulness, this factor was less influential than access to ICT, highlighting the crucial need for bridging this digital divide.

However, the findings also reveal a surprising trend: the lack of a statistically significant relationship between self-motivation, aptitude, attitude, and awareness and either perceived usefulness or actual MOOC use. This suggests that while internal factors are undoubtedly important, they may not be as decisive as external factors like access to ICT and awareness in driving MOOC engagement. This finding challenges the assumptions of some scholars Harrison (2018) who emphasise the role of individual motivation in accessing higher education. It suggests that interventions focused solely on individual motivation may not be sufficient to overcome the systemic challenges faced by underprivileged learners.

Finally, the dissertation's findings offer valuable insights for future research and policy initiatives. The discrepancy between awareness and understanding of MOOCs necessitates targeted campaigns to educate potential learners about their benefits and how to effectively utilize them. Moreover, the research highlights the critical need to address the digital divide by investing in accessible and affordable ICT infrastructure, particularly in underserved communities. Policymakers and educational institutions must work collaboratively to ensure

that MOOCs are not just a theoretical opportunity, but a tangible reality for underprivileged learners seeking to unlock their potential.

7.4 Limitations and Future Work

This dissertation provides valuable insights into the relationship between MOOCs and access to higher education for underprivileged learners in South Africa. However, several limitations need to be acknowledged and inform future research directions.

Firstly, the study's data collection was conducted before the COVID-19 pandemic, significantly impacting the landscape of online learning. The findings may not fully reflect the current attitudes and experiences of underprivileged learners considering the widespread adoption of remote learning during the pandemic. Future research should explore the impact of COVID-19 on MOOC use, including any potential shifts in awareness, access, and perceptions among underprivileged learners. Additionally, the research relied solely on online interviews through platforms like Microsoft Teams and Zoom. Conducting in-person interviews could provide richer data and potentially uncover insights that are missed in a virtual setting.

Secondly, the sample size, particularly for the qualitative data, was limited, with only 25 interviewees, of whom only 15 self-identified as underprivileged. This small sample size restricts the generalizability of the findings. Future research should consider expanding the sample size, particularly focusing on underprivileged learners. Furthermore, the selection of participants was based on volunteers who responded to invitations via Facebook and LinkedIn, introducing selection bias. This sampling method limits the representativeness of the findings, as it does not reflect the experiences of underprivileged learners who may not have access to these platforms. Future research should consider more systematic sampling techniques, such as identifying a selection of underprivileged schools and conducting random interviews with learners at those institutions.

Thirdly, the dissertation did not delve into the specific MOOC content and academic levels of interest for the participants, both for courses taken and courses desired. For example, it would be valuable to know if they were interested in first-year Chemistry, fourth-year Agriculture, or second-year IT courses. Future research should include a more detailed exploration of the specific content needs and desired academic levels of underprivileged learners, which can inform the development of more relevant and effective MOOC offerings.

Finally, future research could benefit from explicitly dividing participants into two groups: Learners and Employers. This division would allow for separate surveys targeting both groups to understand their specific needs and perspectives. For instance, surveying employers could reveal whether they perceive MOOC-educated learners as competent compared to university-trained learners, identify specific MOOC-provided topics they need employees to be proficient in, and gauge their perspectives on expanding MOOC access. This nuanced approach would provide valuable insights into the current and future role of MOOCs in the South African workforce.

By addressing these limitations and pursuing these future research directions, we can gain a more comprehensive and nuanced understanding of the potential and challenges of MOOCs in fostering educational equity and economic opportunity for underprivileged learners in South Africa.

7.5 Conclusions

This dissertation has provided a nuanced exploration of the potential of MOOCs to enhance access to higher education for underprivileged learners in South Africa. While the research revealed the significant value that learners place on higher education, it also uncovered a complex web of challenges hindering their access to both traditional institutions and MOOC platforms.

The findings underscore the vital need to address the information gap surrounding MOOCs, particularly among underprivileged learners. The discrepancy between awareness and understanding of MOOCs highlights the importance of targeted campaigns to educate potential learners about their benefits and how to effectively utilize them.

Moreover, the study forcefully underscores the crucial need to bridge the digital divide by investing in accessible and affordable ICT infrastructure, particularly in underserved communities. This is not simply a matter of providing hardware and connectivity, but also of ensuring digital literacy and skills development among learners.

While internal factors like self-motivation are undoubtedly important, the research suggests that external factors, such as access to ICT and awareness, play a more decisive role in driving MOOC engagement. This finding emphasises the importance of a multi-faceted approach, addressing systemic barriers in addition to individual aspirations.

The research also points to the importance of tailoring MOOC content to the unique needs and aspirations of underprivileged learners in South Africa. This includes considering the cultural and linguistic contexts of these communities, and developing courses that are relevant to their social and economic realities.

This dissertation concludes that while MOOCs hold significant promise for increasing access to higher education for underprivileged learners in South Africa, achieving this goal requires a concerted effort from policymakers, educational institutions, and community stakeholders. By working collaboratively to address the challenges identified in this study, we can move toward a future where MOOCs become a powerful tool for empowering underprivileged learners, contributing to a more inclusive and equitable society.

7.6 Chapter Summary

The chapter begins by summarising the research objectives and questions, outlining the study's focus on understanding the potential of MOOCs to enhance access to higher education and the factors influencing underprivileged learners' participation. It then presents a concise overview of the key themes that emerged from the interviews, highlighting the perceived value of higher education, the barriers to access, and the factors influencing MOOC use. The chapter then discusses the statistically significant findings from the survey, emphasising the importance of perceived usefulness and access to ICT in driving MOOC engagement. However, the chapter also acknowledges the lack of significant relationships between self-motivation, aptitude, attitude, and awareness and MOOC use, suggesting that external factors may play a more significant role than internal ones.

The chapter concludes by outlining the study's limitations, including the data collection period preceding the COVID-19 pandemic, and the restricted sample that primarily included learners with access to technology. It then offers recommendations for future research, emphasising the need for more inclusive sampling, research into the content needs of underprivileged learners, and the exploration of MOOCs for broader skills development and job readiness. Ultimately, this chapter reiterates the dissertation's central argument: that while MOOCs hold promise for increasing access to higher education for underprivileged learners in South Africa, realising this potential requires a multi-pronged approach that addresses both individual and systemic challenges.

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Appendices

- Appendix A: Research Schedule
- Appendix B: Ethics Approval
- Appendix C: Letter of Introduction
- Appendix D: Consent Form
- Appendix E: Interview Script
- Appendix F: Instrument (Survey Questionnaire)
- Appendix G: Participants Profiles

Appendix A: Research Schedule

Task Name	Duration	Start	Finish
Research Project Plan	1019 days	Fri 01 03 19	Wed 25 01 23
Compile Dissertation Proposal	34 days	Fri 01 03 19	Wed 17 04 19
Dissertation Proposal Submission	0 days	Wed 17 04 19	Wed 17 04 19
Conduct and compile Literature Review	44 days	Thu 18 04 19	Tue 18 06 19
Literature Review Submission	0 days	Tue 18 06 19	Tue 18 06 19
Compile Research Design	40 days	Mon 22 07 19	Sat 14 09 19
Research Design Submission	0 days	Sat 14 09 19	Sat 14 09 19
Research Design Improvements	30 days	Mon 20 01 20	Fri 28 02 20
Ethics Approval	45 days	Mon 02 03 20	Fri 01 05 20
Schedule and conduct Interviews (Pilot Study)	120 days	Mon 04 05 20	Fri 16 10 20
Pilot study analysis and instrument improvement	15 days	Mon 19 10 20	Fri 06 11 20
Break	9 mons	Mon 09 11 20	Fri 16 07 21
Ethics Approval (Renewal)	21 days	Mon 19 07 21	Mon 16 08 21
Further Phase 1 Analysis and Instrument Improvement	3 mons	Tue 17 08 21	Mon 08 11 21
Conduct survey	8 mons	Tue 09 11 21	Mon 20 06 22
Analysis	5 mons	Tue 21 06 22	Mon 07 11 22
Compile Dissertation Draft	27 days	Tue 08 11 22	Wed 14 12 22
Dissertation Draft Submission	0 days	Wed 14 12 22	Wed 14 12 22
Revisions	30 days	Thu 15 12 22	Wed 25 01 23
Final Dissertation Submission	0 days	Wed 25 01 23	Wed 25 01 23

Appendix B: Ethics Approval



Faculty of Commerce

Private Bag X3, Rondebosch, 7701
2.26 Leslie Commerce Building, Upper Campus
Tel: +27 (0) 21 650 4375/ 5748 Fax: +27 (0) 21 650 4369
E-mail: jacques.rousseau@uct.ac.za
Internet: www.uct.ac.za



@Commerce UCT



UCT Commerce Faculty Office

08 02 2021

Chris Mabhele
Department of Information Systems
University of Cape Town
REF: REC 2020/02/023

MOOCs and access to higher education for South African underprivileged learners

We are pleased to inform you that your ethics application has been approved. Unless otherwise specified this ethical clearance is valid until 28-Feb-2022 .

Your clearance may be renewed upon application.

Please be aware that you need to notify the Ethics Committee immediately should any aspect of your study regarding the engagement with participants as approved in this application, change. This may include aspects such as changes to the research design, questionnaires, or choice of participants.

The ongoing ethical conduct throughout the duration of the study remains the responsibility of the principal investigator.

We wish you well for your research.

A handwritten signature in black ink, appearing to read 'Jacques Rousseau'.

2021.02.08
18:09:54 +02'00'

Jacques Rousseau
Commerce Research Ethics Chair
University of Cape Town
Commerce Faculty Office
Room 2.26 | Leslie Commerce Building

Office Telephone: +27 (0)21 650 2695 / 4375
Office Fax: +27 (0)21 650 4369
E-mail: jacques.rousseau@uct.ac.za
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"Our Mission is to be an outstanding teaching and research university, educating for life and addressing the challenges facing our society."



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@Commerce UCT



UCT Commerce Faculty Office

29 12 2021

Chris Mabhele

Department of Information Systems

University of Cape Town

REF: REC 2020/02/023

MOOCs and access to higher education for South African underprivileged learners

We are pleased to inform you that your ethics approval has been **extended**. Unless otherwise specified this ethical clearance is valid until 31-Jan-2023 .

Your clearance may be renewed upon application.

Please be aware that you need to notify the Ethics Committee immediately should any aspect of your study regarding the engagement with participants as approved in this application, change. This may include aspects such as changes to the research design, questionnaires, or choice of participants.

The ongoing ethical conduct throughout the duration of the study remains the responsibility of the principal investigator.

We wish you well for your research.

Jacques Rousseau

Commerce Research Ethics Chair

University of Cape Town

Commerce Faculty Office

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"Our Mission is to be an outstanding teaching and research university, educating for life and addressing the challenges facing our society."

Appendix C: Letter of Introduction



Department of Information Systems

Leslie Commerce Building
Engineering Mall, Upper Campus
OR
Private Bag X3 - Rondebosch - 7701
Tel: +27 (0) 21 650 2261 Fax: +27 (0) 21650 2280
Internet: <http://www.commerce.uct.ac.za/informationssystemsf/>

20 February 2020

RE: REQUEST FOR RESEARCH PARTICIPATION AND CONSENT FORM

Dear Sir or Madam

I would like to extend my sincere gratitude to you for showing interest in my research. This is my formal invitation seeking your participation in my research project titled "**MOOCs and access to higher education for South African underprivileged learners**". This project forms part of my Master's programme.

This study will produce new and alternative perspectives on access to higher education by the underprivileged when assisted by the inclusion of MOOCs. These perspectives can be used in the development of policies and/or strategies for access to higher education. This research has been approved by the Commerce Faculty Ethics in Research Committee. I am personally committed to ethical conduct. To that end, your participation in this research is on a voluntary and anonymous basis. Furthermore, the information you provide will be treated confidentially and used within the confines of this study. An option to withdraw your participation remains open for the entire duration of this research.

The data collection method for the first phase will be one-on-one interviews, which will last for a maximum of one hour (60 minutes). The subsequent survey will use an online questionnaire, which will take no more than 20 minutes to complete. If you are willing to participate in this study, kindly sign the attached form and return to me at your earliest convenience.

Should you wish to raise any query and/or concern, or to withdraw from participation please email me at mbhmnc001@myuct.ac.za. Please also feel free to contact my supervisor Prof JP Van Belle at jean-paul.vanbelle@uct.ac.za, should you have any concerns regarding this research and/or my conduct.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mabhele'.

Chris Mabhele
M.Com Student
Department of Information Systems
University of Cape Town
Tel: 082 5200 359
Email: mbhmnc001@myuct.ac.za

A handwritten signature in black ink, appearing to read 'Jean-Paul Van Belle'.

Prof Jean-Paul Van Belle
Research Supervisor
Department of Information Systems
University of Cape Town
Tel: (021) 650 4256
Email: jean-paul.vanbelle@uct.ac.za

Appendix D: Consent Form



Department of Information Systems

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Private Bag X3 - Rondebosch - 7701
Tel: +27 (0) 21 650 2261 Fax: +27 (0) 21650 2280
Internet: <http://www.commerce.uct.ac.za/informationssystemsf/>

Research Participant Consent Form

I, _____, consent to participate in the research on MOOCs and access to higher education for South African underprivileged learners.

I am aware that participation is voluntary and that I may choose to withdraw from this study at any time, should I choose to do so.

Signature

Date

Appendix E: Interview Script

Interview Script

1. Greetings and pre-interview chat

2. Introduction and Background

Thank you for taking the time to participate in this case study. Firstly, I would like to formally introduce myself and briefly describe my research. By profession, I am an IT Consultant, consulting mainly in the public sector. Over the past 15 years I have assisted government institutions in implementing various technology solutions. Last year I decided to continue with my studies, with the intention of starting an academic career. I am currently an M.Com.(Information Systems) student at the University of Cape Town. As part of the course deliverables, I am expected to produce academic research work that will contribute to existing knowledge. My research topic is on Massive Open Online Courses (MOOCs) and their impact on access to higher education for underprivileged learners. This interview is therefore in the context of me being a student in pursuit of an academic qualification.

I would like to be upfront and let you know that I will be recording our conversation, which will help in recalling the details and to analyse the details of our conversation and other interviews. Please also note that I am obliged to make this recording an appendix to my dissertation. The recording will be anonymous. Should you wish, I am happy to share the transcript with you. Can I proceed with the recording?

3. Firstly, you might be aware that not everyone has had an opportunity to attend higher education for various reasons. What do you think these reasons are?

4. In your own words, what defines an underprivileged learner?

5. Zooming in specifically at underprivileged learners, what do you think are factors that influence not being able to access higher education?

6. I am interested to know about your experiences of Massive Open Online Courses. Are you aware of them, have you taken one, are you considering taking one?

7. If taken, what were your reasons for taking the MOOC/s? If not, what are your reasons for not taking them?

8. In your opinion, what are the factors that generally influence the use of MOOCs?

9. Do you think underprivileged in general are aware of MOOCs and do they take them?

10. What is your opinion on the impact of MOOCs (given that they are online and free) in access to higher education, particularly for underprivileged learners?

11. Subsequent to this interview, I will be conducting a research survey targeted at a wider range of respondents. Can you please comment on the questions raised in this questionnaire? Do you think they make sense? Also, are they relevant? (Handing out a print-out of the questionnaire).

12. Do you have any other comments that you think will be beneficial in this research?

13. Thank you for the opportunity. As indicated, I will share the transcript with you, should you be interested.

[END]

Appendix F: Instrument (Survey Questionnaire)

12/14/22, 5:36 AM

Qualtrics Survey Software

Demographics

Thank you for your participation in this survey titled "MOOCs and access to higher education for South African underprivileged learners". For the purpose of this survey, the term MOOC refers to free-to-access higher education online courses targetted at a large audience.

Are you located in the Republic of South Africa?

- No
 Yes

Location Type

- Rural
 Semi-Urban
 Urban

Current Age

- Younger than 18 years 18 - 25 26 - 35 36 - 50 51 and older

Highest level of schooling

- No formal schooling Primary schooling Some secondary Matric Post-matric qualification

Employment status

- Unemployed Student Self-employed Employed

What is your understanding of the term MOOCs?

- I do not understand the meaning of the term MOOCs All online courses All online courses provided by universities All online courses with free access All online courses targetted at large audiences, with free access

Which MOOC platforms have you heard of?

- Coursera EdX FutureLearn Udemy Udacity Other None

Do you have the tools that enable you to access MOOCs (e.g. Laptop, Smartphone, Internet access, etc.)

- No, none at all
 Yes, access device only and no internet
 Yes, internet and no device
 Yes, all tools

https://ucpcommerce.eu.qualtrics.com/Q/EditSection/Blocks/Ajax/GetSurveyPrintPreview?ContextSurveyID=SV_1LCifVGqJJRC4e&ContextLibr... 1/7

Have you enrolled for a MOOC before?

- No
- Yes

Type/s of MOOC enrolled for

- Hobby
- Formal Higher Education
- Other

Subject/s covered

Did the MOOC encourage you to pursue higher learning?

- No
- Yes

How long ago did you take your last MOOC?

- 0 – 3 months
- 4 – 6 months
- 7 – 12 months
- 1 – 3 years
- 4 years and longer

Did you complete any MOOC before?

- No
- Yes

How many MOOCs have you taken in total?

- 1 to 2
- 3 to 5
- 6 to 10
- 11 to 20
- 21 and above

I intend enrolling for a MOOC in the next

- 0 to 1 month
- 1 to 3 months
- 3 to 6 months
- 6 to 12 months
- more than 1 year
- I do not intend enrolling for a MOOC
- I do not know

Which learning areas do you intend covering?

Duration of MOOCs you intend taking

Short (up to 4 weeks)

Medium (up to 12 weeks)

Long (longer than 12 weeks)

I am not sure

Barriers of access to higher education (External)

My social environment enabled me to access higher education

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

I had all resources required to pursue higher education

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

I had role models that inspired me to pursue higher education

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

I had adequate career guidance that helped me choose a career

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Poverty affected my opportunities of accessing higher education

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree

- Somewhat Agree
- Agree
- Strongly Agree

The standard of basic education in my community was low

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Government support was available for learners who wanted to pursue higher education

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Barriers of access to higher education (Internal)

I am a highly motivated individual

- | | | | | | | |
|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| Strongly Disagree | Disagree | Somewhat Disagree | Neither Agree nor Disagree | Somewhat Agree | Agree | Strongly Agree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

I have clearly defined goals for my career

- | | | | | | | |
|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| Strongly Disagree | Disagree | Somewhat Disagree | Neither Agree nor Disagree | Somewhat Agree | Agree | Strongly Agree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

I take initiative in developing myself

- | | | | | | | |
|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| Strongly Disagree | Disagree | Somewhat Disagree | Neither Agree nor Disagree | Somewhat Agree | Agree | Strongly Agree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

I have a strong primary and secondary education background

- | | | | | | | |
|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| Strongly Disagree | Disagree | Somewhat Disagree | Neither Agree nor Disagree | Somewhat Agree | Agree | Strongly Agree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

My belief system encourages my educational aspirations

- | | | | | | | |
|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| Strongly Disagree | Disagree | Somewhat Disagree | Neither Agree nor Disagree | Somewhat Agree | Agree | Strongly Agree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

I perform well academically

Strongly Disagree Disagree Somewhat Disagree Neither Agree not Disagree Somewhat Agree Agree Strongly Agree

I have positive expectations about the future

Strongly Disagree Disagree Somewhat Disagree Neither Agree not Disagree Somewhat Agree Agree Strongly Agree

Value of MOOCs for higher education

MOOCs are useful in my personal development

Strongly Disagree Disagree Somewhat Disagree Neither Agree not Disagree Somewhat Agree Agree Strongly Agree

MOOCs increase access to income opportunities

Strongly Disagree Disagree Somewhat Disagree Neither Agree not Disagree Somewhat Agree Agree Strongly Agree

MOOCs increase exposure to other opportunities

Strongly Disagree Disagree Somewhat Disagree Neither Agree not Disagree Somewhat Agree Agree Strongly Agree

MOOCs increase exposure to the modern world

Strongly Disagree Disagree Somewhat Disagree Neither Agree not Disagree Somewhat Agree Agree Strongly Agree

MOOCs increase social status

Strongly Disagree Disagree Somewhat Disagree Neither Agree not Disagree Somewhat Agree Agree Strongly Agree

MOOCs increase access to a career

Strongly Disagree Disagree Somewhat Disagree Neither Agree not Disagree Somewhat Agree Agree Strongly Agree

Use of MOOCs

Convenience encourages me to use MOOCs

Strongly Disagree Disagree Somewhat Disagree Neither Agree not Disagree Somewhat Agree Agree Strongly Agree

MOOCs opens up career development opportunities

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree not Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

MOOCs are beneficial in my personal development

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree not Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Affordability encourages me to use MOOCs

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree not Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

MOOCs are a viable alternative to traditional higher education

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree not Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

MOOCs expose me to a wide variety of content

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree not Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Low access barriers encourage me to use MOOCs

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree not Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Limited awareness prevents me from using MOOCs

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree not Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Limited access to ICT prevents me from using MOOCs

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree not Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Scepticism prevents me from using MOOCs

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree not Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Lack of local accreditation in MOOCs discourages me from enrolling

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree not Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Limited learner support in MOOCs discourages me from enrolling

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree not Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Limited recognition by employers discourages me from participating in MOOCs

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree not Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Payment for certification discourages me from participating in MOOCs

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree not Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix G: Participants Profiles

Participant No.	Gender	Education	Employment Status
1.	F	Undergraduate	Employed
2.	F	Secondary	Employed
3.	F	Secondary	Employed
4.	F	Postgraduate	Employed
5.	M	Postgraduate	Self-Employed
6.	F	Undergraduate	Employed
7.	M	Undergraduate	Employed
8.	F	Postgraduate	Employed
9.	F	Postgraduate	Employed
10.	M	Undergraduate	Employed
11.	F	Undergraduate	Employed
12.	M	Secondary	Self-Employed
13.	M	Undergraduate	Employed
14.	F	Undergraduate	Self-Employed
15.	F	Postgraduate	Employed
16.	M	Undergraduate	Employed
17.	F	Postgraduate	Employed
18.	M	Postgraduate	Employed
19.	M	Undergraduate	Employed
20.	M	Secondary	Unemployed
21.	M	Undergraduate	Unemployed
22.	F	Postgraduate	Unemployed
23.	M	Undergraduate	Unemployed
24.	F	Secondary	Unemployed
25.	F	Postgraduate	Unemployed