OPEN EDUCATIONAL RESOURCES UTILISATION AMONG LEARNERS AT MAKERERE UNIVERSITY: A MIXED METHODS STUDY

Thesis submitted in accordance with the requirements of the University of Liverpool for the degree of Doctor of Education

by Samuel Ndeda Siminyu

October 2017

Abstract

Open Educational Resources Utilisation among Learners at Makerere University: a Mixed Methods Study

Samuel Ndeda Siminyu

Considering the challenges facing higher education world over, sponsors of the premier Open Educational Resources expected developing nations in Sub-Saharan Africa to benefit from the social, financial, legal, and technological freedoms proffered by this innovation. However, this expectation has not materialised, thus raising the following questions: What drives and/or hinders Open Educational Resources utilisation by learners at Makerere University (in Uganda)? And how does Legitimate Peripheral Practice enable learners to move (or fail to move) from the periphery and towards the core of the Community of Open Educational Resources Practice?

I employed Situated Learning theoretical lenses to assess the interaction between the learner and environmental, organisational and personal factors influencing Open Educational Resources adoption. Data was collected through a survey and interviews. While the survey data were analysed to derive simple descriptive statistics indicating the extent of Open Educational Resources use by learners, the interview data were analysed thematically to explain the 'how' and 'why' of learner behaviour towards Open Educational Resources.

The study established that personal agency exercised through Communities of Open Educational Resources Practice enabled learners to take advantage of the contextual enablers and circumvent barriers to adoption. Extrinsic motivators for engagement included assessment requirements, project requirements, and out-of-class interests. Others were: learner awareness of, involvement with, and frequent use of Open Educational Resources, engagement in Communities of Practice, teachers' influence, and social capital. Within the Communities of Practice, students learned to handle the deficient Information and Communication Technology infrastructure and equipment, lack of requisite skills, lack of clarity on copyright issues, and defective institutional policies and practices. Those who failed to engage with Communities of Open Educational Resources Practice fared poorly.

The study recommends the flagging of Open Educational Practices in the strategic and operational plans of Makerere and letting it guide future investment decisions; reviewing relevant policies to cater for open licensing; creating a conducive environment for emergence of Communities of Open Educational Resources Practice; encouraging regular learner utilisation of local and global Open Educational Resources; and making Open Educational Resources a regular feature of learner orientation, staff induction and Continuous Professional Development programmes. The study proposes deepening the Open Educational Resources research agenda by making the assessment of Open Educational Practices at Makerere an ongoing concern.

List of Abbreviations

CoP	:	Community of Practice
Co(OER)P	:	Community of OER Practice
CPD	:	Continuous Professional Development
GER	:	Gross Enrolment Ratio
HE	:	Higher Education
HEI	:	Higher Education Institution
ICT	:	Information & Communication Technology
LAN	:	Local Area Network
LMS	:	Learning Management System
LPP	:	Legitimate Peripheral Participation
OA	:	Open Access
OCW	:	OpenCourseWare
OECD	:	Organisation for Economic Cooperation and Development
OEP	:	Open Educational Practices
OER	:	Open Educational Resources
OPAL	:	**Op**en Educational Qu**al**ity Initiative
OSS	:	Open Source Software
PIS	:	Participant Information Sheet
PHEA	:	Partnership for Higher Education in Africa
SSA	:	Sub-Saharan Africa
TESSA	:	Teacher Education in Sub-Saharan Africa
UNESCO	:	United Nations Educational, Scientific and Cultural Organisation

Table of Contents

List of Figures

List of Tables

1. Introduction

Sub-Saharan Africa (SSA) is not exempt from the pressures exerted on Higher Education (HE) globally: increasing learner enrolments and the fear that it has compromised the quality of education; the apparent mismatch between the training offered by Higher Education Institutions (HEIs) and the expectations of industry and the "increasing competition … as numerous private and transnational providers enter the scene" (Materu, 2007, p. vii). Declining public resources leading to greater demand for accountability, and unprecedented tensions in HEIs and systems (Altbach, Reisberg, & Rumbley, 2009; Alzouma, 2005). Given these new demands, learners, teachers and HEIs, turned to emerging Information and Communication Technologies (ICTs) for, among other things, learning resources, including Open Educational Resources (OER) (Glennie, Harley, Butcher, & van Wyk, 2012) whose utilisation by learners is the focus of this study.

The OER movement aims at redressing imbalances in access to quality education. The biggest investor in OER so far, the William and Flora Hewlett Foundation, said its goal was to "help create powerful, lasting improvements in learning opportunities for all students, all over the world" (M. S. Smith, Wang, & Casserly, 2006, p. 1). As a philosophy, 'openness' is a cherished academic tradition (Bates, 2005; Butcher, Kanwar, & Uvalić-Trumbić, 2011; Middleton, 2014) that promotes unrestricted access to knowledge and the technologies used to disseminate it (Downes, 2007). OER are global innovations taking advantage of the ubiquity of ICTs to democratise learning by making quality learning materials and tools accessible to anyone, anywhere, at any time, and at reduced cost (Glennie et al., 2012; Wright & Reju, 2012). Achieving this goal is however challenging.

Speedy advancements in ICT have led to the massive expansion in OER, pushing OER utilisation by teachers, formal and independent learners to unprecedented levels. Johnstone (2005, p. 15) captured well the hopes that came with the emergence of digital OER in 2001, including "allowing instructors in less-developed countries to access timely materials to support their teaching – materials that would otherwise never be available to them". The most recent OER Evidence Report (de los Arcos, Farrow, Perryman, Pitt, & Weller, 2014) however confirmed that the majority of OER users are from the more developed global North, with the South lagging far behind. Ngimwa (2006) and Kanwar, Kodhandaraman, and Umar

(2010) attributed this to infrastructural challenges, low ICT skills, and the gaping digital divide. Remarking on the state of OER utilisation in Europe, Ehlers (2011, p. 1) noted that "[OER] in HE institutions are, in principle, available but are not frequently used". While this dismal performance of OER in European HE could be attributed to availability of other learning resources, studies by Atkins, Brown, and Hammond (2007), Mulder (2008), Wolfenden (2008), and Kanwar et al. (2010) indicated that OER had also not performed as expected in the global South.

Increasing participation by institutions in Asia may be a pointer to the existence of conditions that may encourage or discourage adoption of OER by different players in varying contexts. The dominance of English in the proliferating OER and detestation of what some consider Western cultural imperialism (Johnstone, 2005) may account for this global picture. Less philanthropic goals like helping to support peer review of teaching resources, and marketing institutional programmes across the globe, have emerged as more compelling drivers of OER adoption in the more developed countries. There is however a need to examine these developments at a micro level if trends are to be better appreciated and OER appropriately planned for.

The emergence of OER immediately attracted the attention of Makerere University, which, besides mirroring the Massachusetts Institute of Technology OpenCourseWare (MIT-OCW), has since engaged in several OER initiatives. One example are the Teacher Education in SSA (TESSA) OER (Wolfenden, 2008). Others included: the e-Learning for Integrated Watershed Management project; African Virtual University OER project (Wright & Reju, 2012); the e-Content Capacity Development for the Regional Universities Forum for Capacity Building in Agriculture network (Dhlamini, 2011); the OER-Africa consortium, and several others. Makerere's constituent units, individual staff and students played varying roles in this.

1.1 Framing the Research Questions

Glennie et al. (2012, p. 6) pinpointed the "lack of critical perspective" as a malaise particularly afflicting OER studies emanating from Africa. They noted that these studies did not go beyond institutional experiences with OER to embrace wider trends and challenges to the implementation of OER; they simply endorsed OER without critically assessing problems that come with its use; and they lacked rigour in

their analysis of OER, OER projects, and the implementation of OER projects. Since failed OER projects are rarely studied and/or reported on, lessons from them are missed. Remarking on the state of research in OER, Glennie et al. (2012) aptly pointed out that most of the existing research focussed on preparing and publishing OER. Not much is known about how the different stakeholders use OER in actual practice. Some of the pertinent questions they said required critical investigation include: the effectiveness of OER developed for a different context in another context; how and under what conditions re-users of OER take advantage of open licensing to produce high quality resources suited to their local contexts; and, how unrestricted learner access to a variety of OER affects the teaching/learning processes. The reasons behind the behaviour of teachers faced with OER were not yet well explained. They also recommended that since the institutional and national cultural and policy environments within which OER are used determine uptake, they need to be critically investigated.

In an effort to address some of these knowledge gaps, this study sought to answer the question: (1) What drives, and/or (2) what hinders learner utilisation of OER at Makerere University? In this study, personal agency played a pivotal role in confronting institutional and other environmental issues that supported or militated against OER adoption. Personal agency was exercised within Communities of Practice (CoPs) in an institutional context and within a global e-environment. This raised the question: How does Legitimate Peripheral Practice (LPP) enable learners to: (1) take advantage of the drivers and (2) circumvent the inhibitors of OER uptake at Makerere to move (or fail to move) from the periphery and towards the core of the Community of (OER) Practice (Co(OER)P)?

1.2 Motivation for conducting this study

Three factors influenced my decision to conduct this study:

Rationale 1: My professional inclination

Having worked with study materials development and utilisation for nearly three decades, how to avail and ensure effective utilisation of affordable, quality, learning materials has been central to my everyday professional concerns.

Rationale 2: My research interest

From this vantage point, I too saw the emergence of OER as an opportunity worth investigating. As a novice researcher, I found this area challenging and yet likely to contribute significantly to my professional growth. The declining public funding for HE and the increased demand for accountability (El-Khawas, 2006; Maila, 2007; Maila & Awino, 2008) require innovations that enhance value for money. Emergence of knowledge economies and the high rate of knowledge decay require individuals, institutions, and groups to collaborate in the production and utilisation of knowledge (Lai, 2011); OER in this case. Despite the phenomenal growth in the variety and number of digital OER from its inception in 2002 (Atkins et al., 2007), the extent and form of learners' utilisation of these resources is still not clear, especially in countries challenged by the digital divide (Lane, 2009). Since the conventional learner, the teacher, and the self-directed independent learner were the intended beneficiaries of this movement, a clear understanding of their behaviour will help gauge its success and to plot its sustainability.

Bliss, Jared Robinson, Hilton, and Wiley (2013) noted that although a lot had been done in the production and deployment of OER worldwide, not much empirical study has been conducted into its effectiveness. A few studies have been done on specific projects in particular jurisdictions (Wiley, 2007) but those that include Africa are very broad and lacking in specific detail (Conole, 2012b; McGreal, Kinuthia, Marshall, & McNamara, 2013). This study adds detail to the broader picture of learner utilisation and perceptions on OER in a SSA context. It focuses on a constituent college of Makerere University where many OER-related projects have been rolled out. The net effect of this exposure on leaner experiences with OER is the subject of this report.

Rationale 3: My desire to contribute to the practice of HE

By shining new light on how OER contributes to learning, the study points to new policy initiatives and strategic investment in OER by the university and the nation. The insights generated will contribute to a better understanding of what supports the effective use of OER for learning. While earlier studies focused on teachers and lifelong learners (M. S. Smith et al., 2006; Wright & Reju, 2012), this study sought to establish the nature of socio-cultural influences that support or

militate against the use of OER by conventional learners. It investigated impediments to the adoption of OER ethos and practices, and explored practices that are effective in promoting OER uptake among learners. Such understanding will provide guidance on future policies, practices and investment in OER.

1.3 Background to the Study

The cost of quality study materials features prominently among the impediments to accessing affordable, quality HE (Ally & Samaka, 2013; J. Baker, Thierstein, Fletcher, Kaur, & Emmons, 2009; Donat, 2001; Moore & Daday, 2010; Reynolds, 2011; Vishwakarma & Narayanan, 2012). Issues of accessibility, availability, affordability, relevance, usability and quality of learning materials are therefore an on-going concern in HE discourse, particularly in the developing world (Kanwar et al., 2010). In an effort to establish equity, the United Nations Educational Scientific and Cultural Organisation (UNESCO), MIT, and some private philanthropists championed the development and deployment of digital OER in the hope of lowering the cost of education by providing cost-free access to quality learning resources worldwide (Atkins et al., 2007; Hylén, 2006).

Although 'openness' implies removal of social, technical, financial, and legal restrictions (UNESCO, 2012), Downes (2007), Wiley (2007) and Materu (2007) all noted that there are costs that come with preparing and sustaining OER initiatives on the one hand, and accessing them for use on the other. These costs impact on learner and teacher engagement with OER. Therefore, to equate 'openness' with 'free of charge' belies this fact (Ally & Samaka, 2013; Kirkwood & Price, 2013; Lane, 2009).

Downes (2007, p. 32) identified four freedoms associated with OER: "[1] freedom to copy; [2] freedom to modify; [3] freedom to redistribute; and [4] freedom to redistribute modified versions"; but he also adds a fifth 'freedom', which is in fact an obligation: "[5] obligation to contribute back to the community". Notwithstanding, these freedoms are not absolute. OER is often regulated by an open, non-commercial license – like the Creative Commons license – which specifies what freedoms the user of the resource has.

Hylén (2006, p. 2) related the 'openness' of OER to that informing the Open Source Software (OSS) and other Open Access (OA) movements. Middleton (2014,

p. 8) added “open courses”, “open research methods and dissemination approaches”, “the open data movement”, “open APIs” (Application Programming Interface), and “open access publishing” as ways that openness is influencing education. Extant literature also mentions ‘open pedagogies’ (Hodgkinson-Williams & Gray, 2009). By emphasising ‘openness’, definitions of OER also point at the technology used to create and support the delivery of OER. In tandem with the kind of license appended to the resource, the technology may affect the extent to which a resource is used or re-versioned for re-use, thus hindering access (Organisation for Economic Co-operation Development - OECD, 2007). The idea of ‘openness’ of the OER is therefore complex and should not be mistaken for “unfettered, … boundless … opportunities and alternatives” (Middleton, 2014, p. 6). Hodgkinson-Williams and Gray (2009) noted that ‘openness’ has social, technical, legal and financial attributes.

What are OER, therefore?

1.4 Defining OER

Given that the OER concept is relatively young, it is not surprising that its definition is still contentious. First adopted by UNESCO in 1992 to mean digital content freely available via Internet for educational use (Atkins et al., 2007), this definition has over time been revisited by various scholars (Bliss et al., 2013; Butcher et al., 2011; Downes, 2007). Earlier, the OECD (2007, p. 29) had defined OER as “accumulated digital assets which can be adjusted and provide benefits without restricting the possibilities for others to enjoy them.”

An evaluation of the proffered definitions of OER reveals three tendencies: definitions based on exemplars of OER; OER as complete packages of OCW; and OER as independent learning objects. In the first category are Bliss et al. (2013, pp. 1-2) who noted that:

> OER take on various shapes and sizes including the creation of open courseware at MIT and several other universities …, learning objects and modules like those made available by Connexions …, openly licensed textbooks …, openly available classes …, and Massively Open Online Courses (MOOCs) …. More recent developments include Udacity …, Coursera …, and edX …, which intend to make learning resources freely available and provide low-cost certification as well.

Downes (2007, p. 30) proposed extending the definition to include non-digital educational information resources, categorising them as:

> [1] Learning resources – courseware, content modules, learning objects, learner support and assessment tools, online learning communities; [2] resources to support teachers – tools for teachers and support materials to enable them to create, adapt, and use OER, as well as training materials for teachers and other training tools; [3] resources to assure the quality of education and educational practices.

Although a number of scholars agree that the term 'OER' brings together concepts of 'openness' and 'educational resources', their definitions differ on the finer details. Those who define OER as primarily digital materials in the public domain (Bliss et al., 2013; Lindshield & Adhikari, 2013) overlook the fact that not all digital resources in the public domain are OER. As Ngugi (2011) noted, OER users may opt to print or use other non-digital media to distribute, use, remix, and reuse OER. To be 'in the public domain' would also suggest that OER are offered to the end-users free of charge and with no legal restrictions and yet, as intellectual property, digital resources 'in the public domain' are different from OER issued under an open license. As Middleton (2014) aptly noted, lack of clarity on the legal status of OER in the minds of the users may directly or indirectly affect its utilisation. He suggested that much OER usage may be going on under the radar because users are not sure under what legal regimes they may be operating when they re-mix digital resources from varied sources.

A distinguishing feature worth noting is that OER "incorporates a license that facilitates reuse, and potentially adaptation, without first requesting permission from the copyright holder" (Butcher et al., 2011, p. 5). According to Fitzgerald (2007, pp. 4-5), while Creative Commons licenses have common features, they also provide restrictions from which copyright owners may choose. The common features include: freedom to copy, modify and distribute copies of the work; an irrevocable worldwide copyright; forbidding use of technology to restrict access; and always acknowledging the author. The three license conditions are: "Non-commercial"; "No derivative works"; and "Share alike". OER users may not be familiar with these subtle distinctions and nuances of the law governing open licenses and yet studies show that awareness of these legal permissions and restrictions does influence stakeholders' engagement with OER (Clegg, Alison, & Steel, 2003).

The definition of OER proffered by Butcher et al. (2011, p. 5) fairly addresses the question of 'openness' and 'educational resources', and is thus adopted for this study:

> … any *educational resources* (including curriculum maps, course materials, textbooks, streaming videos, multimedia applications, podcasts, and any other materials that have been *designed for use in teaching and learning*) that are *openly available* for use by educators and students, *without an accompanying need to pay royalties or license fees*. [Emphasis mine.]

It is important that the resources are developed for teaching and learning and that they are physically, linguistically, legally and technically accessible to end-users. Therefore, if 'openness' implies free access to: courseware and content in whatever media it is presented; software tools; support tools for delivery and assessment of the course; and the repository of learning objects and courses (Hylén, 2006; Lane, 2009), then it is assumed that OER come in all-inclusive packages containing courseware or content, software tools, pedagogical tools, and a repository. This is not always the case. Examples provided by Butcher et al. (2011) and by Bliss et al. (2013), illustrate these different instances of OER – ranging from stand-alone digital learning objects to all-inclusive repositories of digital resources.

1.5 Defining Learner Utilisation of OER

For the purposes of this study, 'utilisation of OER' refers to engagement with OER for the purpose of learning, whether it is facilitated by a teacher or not. Designating OER as 'educational', distinguishes OER as intended for teaching, learning, research, and independent study (Wilson, 2008). OER are developed within the principles of learner engagement so as to be effective in meeting this goal (Middleton, 2014; Petrides, Jimes, Middleton-Detzner, Walling, & Weiss, 2011). The learning content, the technology and the learning tools ought to enhance the learners' behavioural, emotional and cognitive engagement with the learning community of which they are part (Strange & Banning, 2001; Trowler, 2010). Learner engagement is therefore a defining aspect of OER. Trowler (2010, pp. 7-8) presented the six scales on which learner engagement could be measured: expectations and assessments that present "academic challenge"; students construct knowledge through "active learning"; level and nature of "student and staff

interactions"; "enriching educational experiences"; "supportive learning environment"; and "work-integrated learning". Well-designed 'educational resources' would take these considerations into account.

Learners targeted by OER developers include conventional/traditional learners registered on formal programmes in HEIs, part-time, short-term, distance, and independent lifelong learners. The sample for this study are conventional/traditional learners registered on programmes of Makerere University in Uganda. The university aims at ultimately producing graduates who are lifelong learners in their respective professions and as adult citizens of their respective communities (Makerere University, 2007; 2008).

1.6 Context of the Study

Makerere University is based on a collegiate structure with a Central Administration that supervises ten constituent colleges. The colleges are made up of schools, which are in turn divided into departments. As a public university, Makerere operates under the policy supervision of the Ministry of Education, Science, Technology and Sports, and under the National Council for HE, which oversees academic standards in both public and private HEIs. Despite this regulatory framework, and in pursuit of academic freedom, individual practitioners, institutions and constituent units thereof exercise some autonomy. This influences OER deployment and use among learners at multiple levels.

Among HEIs in Africa, Makerere has previously been associated with innovations like privatisation (Musisi & Muwanga, 2003) and marketization of public HE (Mamdani, 2007), gender mainstreaming (Kwesiga & Ssendiwala, 2006; Morley, 2007), and e-learning (Kahiigi, Ekenberg, Hansson, Tusubira, & Danielson, 2008; Sife, Lwoga, & Sanga, 2007). Although some studies appear to collectively (dis)credit the whole institution for these innovations, on the ground, glaring differences exist at individual unit, staff and student levels; thus the need to look deeper and at multiple levels.

Given Makerere's desire to shift to a learner-centred pedagogy as enshrined in its current strategic plan (Makerere University, 2008), OER could play a significant role in this transformation as teachers learn to teach and learners learn to learn differently. In this context, while some see OER as creating opportunities for quality

enhancement at lower costs, others see it as a pretext for the massification of low quality HE (Downes, 2007).

The Makerere internship policy (Makerere University, n.d.) requires all undergraduates to engage in field attachments so as to create synergies with industry, increasing opportunities for collaborative, worked-related learning. Tenywa and Fungo (2007) however highlighted the disharmony between the classroom and industry in agricultural education at Makerere, which should be investigated against the background of OER availability. The opportunity to adopt, adapt and re-use OER enables Makerere to shift to more practical training linked to the industry its graduates are meant to serve (Murphy & Wolfenden, 2013).

The dominance of ICTs in the knowledge economy worldwide is challenged by the digital divide engulfing less developed nations like Uganda. This study explored how OER utilisation has impacted on the education and training despite the evident gaps in technology and technical skills to support technology-mediated learning. How are practices on the ground changing to articulate with policy recommendations and strategies? Has the ubiquity of ICT and the promise it holds for education, training and employment remained just that – a promise, or have recent developments in ICT infrastructure brought its fulfilment closer (Caswell, Henson, Jensen, & Wiley, 2008)?

Provision of quality learning materials is a major cost in HE. Therefore, OER content, tools and mechanisms have the potential to influence pedagogy from the traditional instructivist to the more constructivist and learner-centred approaches thus circumventing demand for investment in training and materials development. However, the low computer skills among learners and teachers may create a bottleneck (Butcher et al., 2011; Glennie et al., 2012). The introduction of ICT courses at lower educational levels may be changing this; but to what effect? Although compulsory basic computer courses at undergraduate level are a stopgap measure, teaching ICT courses as stand-alone courses may not result into automatic integration of computer skills into other courses. Meanwhile, the unsystematic training of staff in integrating ICTs into their teaching may also affect their potential to serve as models to the learners for integrating ICT in lifelong learning (Siminyu & Watts, 2016). This needed to be examined.

The technology-driven economy is fast-paced, while HEIs transform themselves quite slowly. How has Makerere adjusted to accommodate the fast-growing OER external environment? As a case in point, the OER Africa materials are designed for collaborative knowledge generation and to support learners and their teachers get out of the cycle of knowledge and skills deficiency that characterises African HE. For this strategy to work sustainably, the principles and practices of OER need to be embedded in the policies and practices of the institutions, and extended to cover more fields of knowledge. Open collaboration entailed in the production and utilisation of OER is not conceivable without an enabling technological backbone.

This study examined how OER at Makerere University has fared against these benchmarks from the learners' point of view. More than a decade after the emergence of digital OER, the extent to which learners at Makerere University have adopted OER ethos and practices is not clear; thus the need for this study.

1.7 Significance of the Study

More and more, universal access to quality education is viewed as a human right (Spring, 2000) and OER as possible contributors to its realisation (Willems & Bossu, 2012). This belief is strengthened by the well documented effects of HE on development (Altbach, 1998; Nwagwu & Ahmed, 2009; Thompson, 1981; Wright & Reju, 2012). Materu (2007) summed this up as the centrality of tertiary education to the economic and political development in an increasingly globalising, competitive, knowledge-based society. Some scholars attribute Africa's comparative underdevelopment to disparities in human, scientific and technological developments (Bloom, Canning, & Chan, 2006; Lall & Pietrobelli, 2002). To underscore this link, K. King and McGrath (2002) suggested a learning-led development model for Africa.

Nations have therefore sought to enhance their development potential and prospects by increasing access to quality HE. Research by Bloom et al. (2006) indicated that, in the African context, increased access to tertiary education promotes training of professional and technical personnel leading to faster technological development and higher economic outputs. Underpinning professional and technical skills training are generalist competencies critical for operations of modern economies. Among these are: adaptability, teamwork, communication,

lifelong learning and multiculturalism. When well utilised, OER can potentially address each of these issues.

These new demands constantly call for innovation in HE curricula. However, despite the numerous instruments enshrining education as a human right (for example, UNESCO, 2012 lists 10 such instrumemts), the increased demand for education across board has made educational investment decisions for individuals, families and governments a lot more complex (Altbach, Reisberg, & Rumbley, 2010; P. Scott, 2000; Teferra & Altbach, 2004). As a region, at five percent, SSA still has the lowest HE Gross Enrolments Ratio (GER) in the world (UNDP, 2016), a situation that invites context-specific innovations and assessment of the effects of those innovations with a view to leapfrogging SSA's socio-economic development.

Materu (2007, p. xiv) highlighted the following issues affecting the quality of HE provision in SSA:

> [A] decline in per unit costs … amid rapidly rising enrollments; insufficient numbers of qualified academic staff in HE institutions …; low internal and external efficiency; and poor governance … along with the rapid emergence of private providers in response to the increasing social demand for HE.

Although these concerns are universal, they differ in intensity depending on locality. The question is whether OER are being utilised innovatively enough to address some of these challenges within existing local constraints. Murphy and Wolfenden (2013) provided an example of two case schools and individual teachers and school administrators whose agency in their local contexts contributed to OER practices in their respective institutions. By identifying specific players and the varying policy and practice contexts in which they operate, through this study, I contribute to a better understanding of requirements for successful adoption of OER.

1.8 Structure of the Thesis

Chapter 2 discusses existing literature on enablers and/or hindrances to OER adoption by learners. Chapter 3 examines the Theoretical Framework that underpins this study. Chapter 4 explains and justifies the methodology and methods employed. The results are presented in two parts: Chapter 5 presents the drivers and Chapter 6, the hindrances to the adoption of OER at Makerere. The rationale for this is the structure of the main research question: What *drives* and/or what

hinders OER utilisation by learners at Makerere? This approach helps highlight the themes that emerged from the analysis of the data. Chapter 7 discusses the findings and Chapter 8 concludes and makes recommendations for the policy, practice and scholarly application of this study.

Chapter Summary

Defining OER and relating it to the SSA HE context was necessary for contextualising this exploratory study. A sound definition of OER had to take into account its brief and eventful history. Although the 'openness' concept is at the core of OER, its association with copyright issues and support technology for delivery makes a universal definition of OER elusive. The intended educational role of the 'open resources' is however less disputed. Earlier studies of OER dwelt more of the production aspects and less critically on utilisation of OER, especially by learners whose engagement with OER only peaked in its third generation. However, despite the earlier expectation that the advantages of OER would benefit teaching, learning and research activities in the developing world, evidence has pointed to less utilisation of OER in the global South than in the North, thus inviting this investigation.

2. Literature Review

So as to explain enablers or hindrances to learner utilisation of OER at Makerere, I reviewed literature on the ecological, organisational and personal factors that have influenced learner utilisation of OER in varied contexts. While it is clear from the existing literature (Bloom et al., 2006; Materu, 2007; Teferra & Altbach, 2004) that trends in African HE provide opportunities for OER to make a significant contribution, that expectation has not been realised (Farrow et al., 2015; Masterman et al., 2011). Whereas OER has the potential to increase cross-border access, improve quality and reduce costs of study materials, and initiate collaborative learning and teaching (Atkins et al., 2007), it is not clear why "many people hesitate to use OER and even more hesitate to share their own or improved resources" (Pawlowski, 2012, p. 8). That is why interest in researching learner utilisation of OER is on the rise (de los Arcos et al., 2014; Farrow et al., 2015; McAndrew & Farrow, 2013).

Learners too have shown more interest in third generation than they did in first and second generation OER. Naturally, earlier research in OER focused on first generation OER concerned with the process of creating and publishing OER (Bates, 2005; Ehlers, 2011; Kanwar et al., 2010). Kanwar et al. (2010) noted that students had shown less interest in second generation OER, which focused on production and utilisation of well-designed materials for independent study, than in third generation OER, which entails the shared production of OER. Although their observation underscored learner engagement in knowledge creation as a catalyst for commitment to using OER, Kanwar and her colleagues provided no empirical evidence for their claim. What is clear however, is that OER research has developed in tandem with practice.

Owing to the failure to attract many users, earlier research in OER tended to be more prospective and prescriptive than empirical when dealing with learner participation (a point noted by McAndrew, Scanlon, & Clow, 2010 and other commentaries on OER research). An empirical study by Hylén (2006) reported that the majority of OER users were well-educated, self-directed learners and educators involved in collaborative production and utilisation of OER with other enthusiasts. It was however based on a very small sample of self-selected OER enthusiasts. A more recent study by Farrow et al. (2015) based on a larger population of

beneficiaries of a network of OER projects across the globe confirmed that the majority of OER users are still postgraduate educators, and postgraduate formal and informal learners. Elaborating on the lacklustre performance of OER among learners, Ehlers (2011) and McAndrew et al. (2010) highlighted the need to develop Open Educational Practices (OEP) in our institutions if OER is to achieve massive uptake in the new phase.

By investigating researcher-selected, non-OER enthusiastic, conventional learners at both undergraduate and graduate levels, this study expects to surface new insights in what enables and/or what hinders OER utilisation by conventional learners in an African setting. Factors presented in extant literature include the ecological, organisational and personal, as detailed below.

2.1 Ecological Factors

Despite the fact that digital OER were conceived as a universal phenomenon (Atkins et al., 2007; Caswell et al., 2008), the institutional and national environments within which learners engage with them may enable or hinder OER adoption (Alzouma, 2005; Clegg et al., 2003). Social Learning theories (Fang & Neufeld, 2009; Wenger, 2008) emphasise the social environment within which learning takes place. In the case of learning using OER, the learning environment consists of the open teaching and learning resources; their users; the tools they use to develop, store, and share these resources; and the policies and practices that regulate their mutual engagement (E. L. Baker & O'Neil, 2013; Caswell et al., 2008). In a well-functioning ecosystem, as Khan (2000, p. 3) noted, "these factors are systematically interrelated and interdependent" in what Adam (2003, p. 218) calls a "heterogeneous network of actors, artefacts, and systems". Conversely, the system becomes unstable or dysfunctional when these ecological factors are not balanced (Eraut, 2002). In extant literature, ecological factors enabling or hindering OER usability include: availability and accessibility of OER, the OER user community, tools for OER development and use, and the policy environment.

Availability and Accessibility of OER

Lane (2009) defined 'availability' as physical access and 'accessibility' as usability. Ally and Samaka (2013) attribute failure of many technology-supported learning initiatives (like OER) to the shortage of quality learning materials coupled

with poor buy-in by teachers; both of which stem from user perceptions. As a result of teacher-bias, learners may not be made aware of what is available and how to assess the usability of what they find. Therefore, although the Internet is awash with teaching and learning materials – for example, open textbooks, OA journals, OA repositories and webpages, OA videos, open educational television and radio telecasts, downloadable audiotapes and multimedia packages (Adam, 2003; Caswell et al., 2008), – and tools to support learning – "study guides, exam sheets, worksheets, laboratory manuals, and field exercises" (Adam, 2003, p. 208), – OER remain less available and less accessible than they really are. However, over supply of OER also calls for skills in selecting what is appropriate for a given task; and these skills are often in short supply in African HEIs. Added to this is the 'digital divide' between and within regions, nations, and communities; it too hinders access to what is available online (Alzouma, 2005).

Besides accessing the OER that already exist globally online, institutions in SSA face the additional challenge of versioning existing resources to suit their context or creating their own content and adding it to the existing stock (Adam, 2003). Finding and adopting, adapting or co-creating OER that recognise different cultures, value systems, and contexts, and are locally relevant, is a big challenge for minds untutored and hands untrained in handling OER (Ally & Samaka, 2013).

Another challenge stems from the fact that although OER historically emerged from the efforts of institutions and philanthropic organisations based in the North, the initial target was to meet the needs of teachers worldwide but especially in the South (Atkins et al., 2007; UNESCO, 2012); learners were however not the original primary target audience for OER. Therefore, to the average learner, using OER patterned on the MIT-OCW model was more like eavesdropping on the teacher's preparatory notes for a class based on a foreign curriculum (Caswell et al., 2008). This model alienated the learner. Sadly, it is the model that most developing countries have adopted for their OER initiatives (Ally & Samaka, 2013).

Over the years, there has been a proliferation of large quantities of digital OER of varying quality, with the key audience shifting from educators to learners in tandem with the rise to prominence of constructivist theories of learning (Duffy & Jonassen, 1992; Tam, 2000). Farrow et al. (2015) however show that the majority of OER users are based in English speaking countries of the North. They attribute this

to the predominance of English as the language in which OER are presented and the infrastructural and technical skills gaps encumbering potential users from the South. But as Alzouma (2005) and Clegg et al. (2003) convincingly argued, OER and the technologies supporting them are developed within a different cultural context from where they are consumed. This may affect how they are received and used.

The attempt by utopian idealists like Caswell et al. (2008) and Ally and Samaka (2013) to produce OER that are useable across the globe with minimal adaption might be another factor hindering adoption. Given that different educational ecosystems produce particular OER targeting particular groups and aiming at meeting particular learning goals within particular sociocultural settings (Alzouma, 2005; Clegg et al., 2003), learners can only gainfully engage with what is practically available to them and meets their specific learning needs. It is on that basis that the proposal by Lane (2009) do adopt a co-creation strategy to boost ownership across social and institutional boundaries holds water. In an examination-centred education ecosystem like Uganda and much of SSA, the resources must be seen to contribute to better grades at the end of the day.

Even when foreign-developed OER are freely accessible to learners in the South, as intimated by Spiegel, Gray, Bompani, Bardosh, and Smith (2016), the learners' individual or collective social consciousness could affect their willingness to engage with those resources. Some view OER as "the continuation of Northern domination over the flow of knowledge from 'centre' universities in the North to the 'periphery' institutions in the South" (Adam, 2003, p. 199). This may be under the influence of their mentors who tend to prefer picking ideas from here and there, developing, and using their own local resources to versioning foreign ones, no matter how good they may be (McAndrew & Farrow, 2013). One cannot however rule out the technical challenges in trying to version and re-use technically sophisticated resources designed for a different curriculum in a different social context; and this without the benefit of modern pedagogic and technical training and support. This may be the underlying de-motivator for both teachers and learners as noted by Lane (2009), and Kirkwood and Price (2013). That is probably why, as Farrow et al. (2015) observed, despite the proliferation of OER repositories at different institutions around the globe, most learners preferred to use the more open public websites like

YouTube, TED and Khan Academy videos. This study will seek to establish how and why learners relate to these global resources for learning.

Community of OER Users

The intensity of the community of OER users apparently varies across the globe (Lane, 2009). The variety and density of this community in a given locality or on online platforms, their skills level, and the tools of collaboration at their disposal may enhance the possibility of collaborative learning and thus enable greater adoption of OER across the CoPs (Mosse, Nelson, & Wright, 1995). It is evident that learners in a technology-rich environment like the UK benefit from the synergies within the community of experienced OER users, systems that integrate OER research with strategies and theory-driven processes, as depicted by Wilson and Ferreira (2010), and Caswell et al. (2008).

Among the barriers to OER adoption enumerated by Pawlowski (2012, pp. 8-9) are: “lack of (technical, legal) knowledge, lack of motivation, insecurities on quality and IPR, … the not-invented-here syndrome, … [and] curriculum and didactical differences”, all of which relate to shared practical and mental dispositions towards OER in the user community. But who is it that forms these communities of OER users? While Ehlers (2011) enumerates learners, educators, and organisational leaders as members of the OER community, Kirkwood and Price (2013, p. 327) add “educational developers and technical support staff”, who include instructional designers, programme managers and librarians. Das (2011) provides an even richer milieu including OER researchers, field practitioners and lifelong learners. These variances across the globe reflect the wealth of experience available to the novice OER user in a given context. Receiving mentorship from different members of the OER community enables participants to transit “from acquisition to participation and on to knowledge creation” (Ehlers, 2011, p. 4) as pictured in the Legitimate Peripheral Practice (LPP) concept (Lave & Wenger, 1991). This study investigated the membership of the OER community at Makerere, how they link to the broader OER communities, and how they groom one another into mature OER consumers and producers.

Depending on the role the digital resources play in the particular learning environment, it is expected that learners tailor their engagement with OER and the

OER community accordingly. E. L. Baker and O'Neil (2013) designated nine different permutations of web-based learning and the role played by digital resources in those learning environments. In the case of face-to-face students like those sampled for this study, digital resources play a supplementary role to face-to-face learning resources and activities locally organised by their teachers and with fellow learners (Kahiigi, Ekenberg, Hanson, Danielson, & Tusubira, 2008; Musisi & Muwanga, 2003). By its very nature therefore, the institutional setting at Makerere was expected to influence engagement with OER. While a fully web-based distance learning programme would presuppose synchronous and asynchronous engagement across the network and therefore greater engagement with OER (Alzouma, 2005), the face-to-face student at Makerere has most members of his/her community within their daily reach. How and why would they interact with digital OER? How is the movement of the learner from the periphery to the core of engagement with OER influenced by the local and remote access to the wider OER community? What tools help them to engage and how effective are they?

Tools for Development and Deployment of OER

Open collaboration entailed in the production and utilisation of OER is not conceivable without an enabling technological backbone, end-user hardware and software. If learners are to engage gainfully with OER, they need to have some basic knowledge of different ICT tools available to them. When the basic ICT and Information Literacy trainings they receive do not address OER training needs, this pending challenge affects OER adoption. Basic infrastructure includes telephone networks, reliable electricity supply, adequate bandwidth, technologically competent human resource, supportive budgets, and local content (Adam, 2003). Tools used for OER development and deployment that feature in the literature include Learning Management Systems (LMSs), video conferencing facilities, electronic diaries and blogs, and mind-mapping tools (Wilson & Ferreira, 2010). As Forte and Lampe (2013, p. 536) noted:

> The prototypical open collaboration system is an online environment that (a) supports the collective production of an artefact (b) through a technologically mediated collaboration platform (c) that presents a low barrier to entry and exit and (d) supports the emergence of persistent but malleable social structures.

Even where technology is available and learners are free to indicate their preferences, guidance and support from knowledgeable and skilled members of their community is still required as intimated by Wilson and Ferreira (2010).

The state of ICT infrastructure in African institutions presents a challenge to the adoption of OER. Painting a gloomy picture of the uptake of ICT in African HE, Adam (2003) notes that adoption of ICT for management, researching, teaching and learning was often left to technology-oriented departments and technology-savvy individuals. The author exposes an ICT terrain characterised by "clutters of computers and networks [and] islands of low bandwidth connections with frequent breakdowns" (ibid, p. 196).

This picture keeps getting better as the power of technology improves and the cost drops (Ally & Samaka, 2013; Lane, 2009). The increased availability of Open Source Software (OSS) and OER adds to the windfall. In Uganda, recent developments in ICT infrastructure have raised the hopes of ICT users. The East African Undersea Marine Cable became a reality way back in 2010. Access to Internet through mobile telephony has increased tremendously (Muyinda, Lubega, & Lynch, 2010). Collaborations between Northern and Southern institutions avail opportunities to synergise and mentor one another, establishing rudimentary frameworks for the emergence and development of OER and OEP in partner institutions (Dhlamini, 2011). While Ally and Samaka (2013, p. 5) envisaged a technology future in which "[t]he interface the learner is using should have built-in intelligence to monitor learner progress and needs to find the appropriate OER" taking into account learner preference, context, expertise and language, this may not be a reality in most of the South (Alzouma, 2005). These complexities of the digital divide and the rate at which technology is changing, required closer scrutiny of institutional environments and performance.

Another user-related challenge to OER adoption is the culturally preferred mode of teaching and learning. In orate cultures dominated by instructivist, teacher-centred pedagogy, preference is given to OER that are prepared in what Kirkwood and Price (2013) called passive presentational media like lecture videos, screen casts and podcasts. Where bandwidth is limited, learner access to resources in preferred media is constrained, thus hindering OER adoption. Users tend to resort to offline technologies like DVDs, CD-ROMs and hard copy printouts, pedagogical

limitations of such technologies notwithstanding. The affordances of available technologies thus constrain adoption of OER beyond institutional boundaries.

OER-related Policies and Practices

Using the Open Educational Practices (OEP)-scape (Ehlers, 2011; Piedra, Chicaiza, López, Tovar, & Martínez, 2009; Schaffert & Geser, 2008), nations and institutions can be placed along a continuum of policies and practices that promote learner engagement with OER. Ehlers (2011, p. 4) defines OEP as "practices which support the (re)use and production of OER through institutional policies, promote innovative pedagogical models, and respect and empower learners as co-producers on their lifelong learning path." He calls this Phase 2 of the OER evolution following Phase 1, which emphasized OER availability and accessibility. By inference, empirical studies on OEP are in their infancy. Ehlers (2011, p. 6) notes:

> OEP essentially represent collaborative practice in which resources are shared by making them openly available, and pedagogical practices are employed which rely on social interaction, knowledge creation, peer-learning, and shared learning practices.

Although OER is evidently high on the inclusion policy agenda in the countries of the North (Pawlowski & Hoel, 2012; M. S. Smith, 2009) and some emerging economies (Deacon & Wynsculley, 2009), the same cannot be said of much of the South where, without the required technology and technical skills in the user population and support groups, availability and accessibility of digital OER to learners is curtailed. Adam (2003) attributes this to national policy barriers to ICT and knowledge circulation, a shortage of conscious and committed managers in HEIs, lack of or ineptly implemented institutional ICT policies and strategies, lack of on-going relevant research, and failure to develop and sustain a technology-savvy intellectual capital amidst economic challenges.

Like e-learning, adoption of OER presents technological, technical, managerial, financial, legal and pedagogical challenges for institutions and individuals (Downes, 2007). The study sought evidence of the effects of OER uptake in national and institutional policies and/or practices; and in the practices of individual students and staff (Glennie et al., 2012). Referring to existing studies on OER, de los Arcos et al. (2014, p. 4) argued that "… there is currently not enough emphasis given to the use of OER by formal students", a knowledge gap which this study attempts to fill. Their

analysis of data from 15 globally diverse studies revealed that students are "supplementing their formal education with a wide range of OER", an assertion that needed to be tested in my context. While Stacey (2010) lauded the role of early adopters in e-learning environments, he also noted the importance of deliberately reconciling institutional structures, cultures and identities to the new imperatives if e-learning innovations were to take root and result into institution- or nation-wide transformations of the education systems. It is noteworthy that, like this study, Glennie et al. (2012) employed CoP as a strategy for analysing OER adoption.

2.2 Organisational Factors

Although Alzouma (2005) and Clegg et al. (2003) convincingly argue that the local context determines how technology products are used, owing to the forces of globalisation, it is getting increasingly difficult to isolate African HE from that of the rest of the world. Increasing rigidity occasioned by managerialism and demand for accountability in HE have created tensions that affect policies and practices in HEIs and systems all around the world (Altbach et al., 2009). In addition, Glennie et al. (2012) underscored the overbearing influence ICTs and the avalanche of learning resources that they avail to learners and teachers. Among these are OER. But, like Clegg et al. (2003, p. 50) noted, the bigger picture aside, "Individuals may be knowledgeable about the potential of ICTs and want to explore these but they may be doing so in stressful conditions with little support". These global forces underpin the organisational factors affecting OER uptake.

As is the case in India (Ally & Samaka, 2013; Das, 2011), socioeconomic conditions within a nation may serve as drivers for adoption of innovative approaches to continuing education and lifelong learning. But even in individual countries, institutional variances occur at both the strategic and the tactical levels (Kirkwood & Price, 2013). Das (2011) opines that the high and growing demand for knowledge workers coupled with the limited capacity in conventional institutions to absorb potential learners and to provide the quality of training demanded by global competition, have caused many learners in India to resort to ODL, part-time or short-term training programmes, many of which use local and cross-border OER. He observes that national institutions in India have found OER particularly valuable for bridging socioeconomic gaps by providing equitable access to good quality

education at affordable rates. The use of English as a medium of instruction has also made OER developed in India and elsewhere more accessible. Evidently, this is a case where policy and strategic directions adopted have enabled OER uptake.

As Murphy and Wolfenden (2013) observed, education and training in Africa is predominantly theoretical and detached from the realities of the communities that the graduates are meant to serve. Although national and institutional policies consistently recognise the gap between what is done in education and training institutions and in the field, institutional practices do not seem to immediately change to articulate with the policy recommendations and strategies. Therefore, the ubiquity of ICT and the promise it holds for education, training and employment has apparently remained just that – a promise (Caswell et al., 2008; Wiley, 2007). Changing pedagogic approaches from the traditional instructivist to the more constructivist and learner-centred demands a cultural shift requiring considerable investment in training and policy monitoring.

Lack of requisite computer skills on the part of learners and their teachers seems to play a big part in this impasse (Butcher et al., 2011; Glennie et al., 2012). Coupled with the uneven rollout of the compulsory basic computer training for all undergraduate students, the training of staff in integrating ICTs in their teaching has not been systematic, thus disabling their potential to model for the learners.

These new realities place fresh demands on the roles of learners, teachers and institutions in the teaching/learning processes. Given Africa's weak socioeconomic infrastructure, this study explores how learners in this context have coped with these opportunities and challenges. As Vygotsky (1980) argued, it is expected that such pull-and-push factors drive learning and transformation by stimulating collective innovativeness. OER are one such innovation taking advantage of the ubiquity of ICT to address HE challenges on the African continent.

CoP are based on relationships with mentors and colleagues above, alongside and below the learner on the learning hierarchy. How have institutional policies influenced tutorial and peer support in the use of OER?

Tutorial Support

Existence of resources without potential users being aware of them translates into non-usage (Kirkwood & Price, 2013). In a conventional university context,

awareness-raising is a primary responsibility of the teachers, although other learners and librarians also play a role (Caswell et al., 2008). Unlike the North where most academics are familiar with digital learning environments and tools, the same cannot be said of the South (Adam, 2003); thus making it difficult for them to mentor their learners in OER development and utilisation.

Although a study conducted by Wilson and Ferreira (2010) in the technology-rich Europe showed that distance learners preferred tutor-supported peer groups to those made up of learners only, M. K. Smith et al. (2009) cite other studies that show that learners gain more conceptual understanding from engaging with fellow learners than with tutors. It is conceivable that the learning is enhanced when OER are added to the interactive milieu. Institutions in the North are shifting emphasis from availability and accessibility to improving the quality of learning using OER (Ehlers, 2011), thus emphasising mentorship as a tool for enhancing OER usage. Das (2011) reports on Rai Open Courseware, an initiative that provided access to learning resources developed by students. This marks the highpoint in OER mentorship, when the OER user is transformed into an OER producer.

Peer Support

Peer support, which occurs when members of a community share knowledge, skills, experiences, and empathy for mutual advancement, is at the heart of Situated Learning (Hara, 2009) and could enhance OER adoption. Wilson and Ferreira (2010) noted that peer support groups develop around a learning task and that OER were some of the tools groups use to accomplish learning tasks. Evidence from earlier studies indicates that peer support plays a significant role in learning (Boud, 1999; Brindesi, Monopoli, & Kapidakis, 2013; Hara, 2009; M. K. Smith et al., 2009). M. K. Smith et al. (2009, p. 122) went as far as to suggest that “peer discussion enhances learning, even when none of the students in the discussion group originally knows the correct answer”. They dismiss the instructivist view that knowledge is transmitted from the knowledgeable peers to the less knowledgeable in preference for the constructivist view that learners construct knowledge through debates and discussions. Modern e-learning promotes interaction as a basis for knowledge generation, a view supported by connectivism, an emerging theory of learning (Siemens, 2005). Connectivism explains learning as a process of making meaning by connecting sources of current knowledge and experiences of experts in

CoPs. Peer support thus plays a key role in learning using OER. This study sought to establish whether peer support leads to increased use of OER by learners and increased acceptance of OEP.

2.3 Personal Factors

The OEP-scape model (Ehlers, 2011) relates organisational behaviour to the behaviour of individual learners. Individual learner behaviour is influenced by prior experience and personal motivation.

Prior experience

By defining OER as, “Any digital resource which can be freely accessed and used for educational purposes”, Pawlowski and Hoel (2012) underscored the link between OER and ICT. According to Alzouma (2005) and Kirkwood and Price (2013), exposure to ICT and OER earlier in life may help enhance confidence in using digital resources and OER in particular. While learners in the more technologically advanced North normally meet and work with ICT in their homes and in pre-school, learners in the South often encounter computers much later in life, sometimes at tertiary education level (Farrell, 2007; Musisi & Muwanga, 2003). The phobia associated with this late introduction to ICT may stand in the way of OER utilisation by learners. Clegg et al. (2003) view this as marginalisation that breeds debilitating hostility to externally imposed solutions.

Indian OER provides an example of attempts at maintaining continuity with previous learning experiences, an OER adoption stance advocated by Alzouma (2005). Das (2011) notes that Indian-produced OER is dominated by audio-visual lectures and online textbooks focused on the national curricula in technical-vocational education, HE and lifelong learning. He also points out that Indian OER is characterised by very limited incursion into secondary and basic education. Such OER provisions may positively or negatively affect learner uptake of OER. While relevant resources in a familiar mode links with previous experience and may promote uptake, delayed introduction of OER may not.

Motivation

Psychologists define motivation as that force that triggers, propels and sustains goal-oriented behaviour (Ardichvili, Page, & Wentling, 2003; Dweck, 1986). The role

of extrinsic and intrinsic motivation in learning is evident in the literature (Ardichvili et al., 2003; Dweck, 1986, 2000; Fang & Neufeld, 2009; Svinicki, 1999). Motivation is a key driver in personal agency (Bandura, 2001). It is what drives individuals and groups of individuals to engage or not engage with others in a knowledge enterprise of any kind. Lynch (2000) noted that success in learning using technology was premised upon motivation, which includes self-efficacy and intrinsic goal orientation; technological self-efficacy resulting from built-up confidence in using computers and associated accessories for learning; effective management of study time and the study environment; and knowing where, when, how and from whom to seek assistance. Although these factors play a more pronounced role among purely online learners, their relevance in blended learning environments like the one on which this study is based need not be overstated. Ardichvili et al. (2003, p. 64) noted that "members' motivation to actively participate in community knowledge generation and sharing activities" is a critical determinant in the success of CoPs. Motivation is what drives a learner to engage or not to engage in a certain way with a given learning opportunity, use of OER in this case.

The attitudes that individuals hold towards OER influence the extent to which they are willing to engaged with it. Clegg et al. (2003) are critical of the claims of the inevitability of globalization, the role of ICT in it, and the effect these have on HE in particular. They view OER as part of the top-down managerial, capitalist scheme to privatize and marketise knowledge generation and knowledge consumption, leaving little or no room for bottom-up critical pedagogy (McLaren, 1995). Policy innovations that appear to erode traditional cultural, social and academic freedoms are bound to face resistance from educators and learners who share this worldview. Whether resistance is overt or covert, it does militate against OER adoption.

Examination-centeredness is a perennial theme in the literature on the Uganda education system (Makerere University, 2007a, 2007b; Ministry of Education & Sports - MoES, 2003; Musisi & Muwanga, 2003; Republic of Uganda, 1992, 2008). It is interesting to note that even in Europe, M. K. Smith et al. (2009) noted that students are incentivized by learning activities that prepare them for the examinations. For learners to be motivated to engage with OER, they have to be seen to contribute to learner performance in the final assessment. As Clegg et al. (2003, p. 51) asked about e-learning, "the question [is] whether [OER] can deliver

advantages to the particular group of learners in their concrete social circumstances". This underscores the paradoxical role that OER are perceived to play in Makerere: either promoting low quality massification of HE, or as tools enabling individual learners and teachers to synergise across institutions and borders with a view to enhancing quality cheaply (Downes, 2007), thus influencing uptake by learners. For OER to work sustainably, the principles and practices of OER need to be embedded in the policies and practices of the institution.

Chapter Summary

An assessment of the existing literature on enablers and inhibiters of OER adoption by learners in HEIs points to ecological, organisational and personal factors. The literature also pinpoints the gaps that exist in OER research emanating from SSA. Emerging from these cross-currents of ideas and experiences is the role of personal agency within the CoP in enabling individual learners to move on through the ecological and institutional enablers and hindrances to full adoption of OER in their learning practices, which became the focus of the study.

3. Theoretical Framework

This chapter presents and justifies the theoretical framework underpinning this study. It links the problem being investigated to the methodology used. It also explains and justifies my choice of a constructivist worldview and the associated approaches to knowledge creation to highlight OER's contribution to the discourse on HE in SSA. It explains why I used the Situated Learning theory (Lave & Wenger, 1991) to amplify the literature and to provide a theoretical framework used to interrogate the research data.

3.1 The Ontology and Epistemology Informing the Study

For this study, I adopted an interpretive worldview, which assumes that reality is socially constructed (Bandura, 2001). A positivist epistemology would have emphasised structure over and above human agency (D. Scott & Morrison, 2007), and this would influence the choice of methodology. Constructivist epistemology holds that personal identity, knowledge and skills are socially and culturally constructed (Lave & Wenger, 1991; Wenger, 1998). Learning therefore implies growing in one's implicit understanding of the world within which one lives and of the means by which to survive in that world (Barab & Duffy, 2012).

Seeking to understand what learners at Makerere University use OER for, how and why, I employed mixed inductive-deductive approaches to interrogate their individual and group, local and global experiences with OER. Data from the findings sometimes served as a basis for insights; at other times, my own experience and extant literature served as bases for interpreting data and drawing conclusions. This back-and-forth movement helped clarify and make sense of the diverse data collected so as to negotiate experience bias, given that I was an insider-researcher (Breen, 2007; DeLyser, 2001). My own experience and my interpretation of other participants' experiences were validated against existing literature. This was intended to improve the dependability of the results.

Social Learning theory holds that "human functioning is socially interdependent, richly contextualised, and conditionally orchestrated within the dynamics of various societal subsystems and their complex interplay" (Bandura, 2001, p. 5). Learning enables individuals to function normally within society and society to propagate and sustain itself. Where digital OER is the subject, the e-environment extends beyond

geographical and institutional confines as illustrated in Figure 3.1. The different spheres labelled A, B, C, and D exert bidirectional pressure on one another. Successful acculturation for the individual entails effective participation in the different spheres (Bandura, 2001; Wenger, 2008).

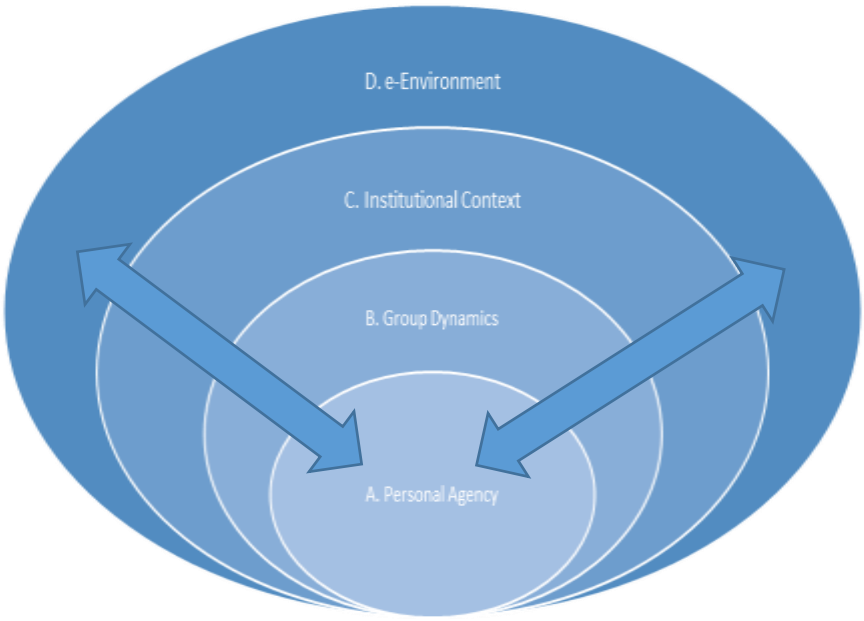


Figure 3.1: OER Adoption in a Context of Situated Learning

Sphere	*Description*	*Implications*
A. Personal Agency (Micro-level)	Rests on self-perception of natural capabilities, world views that guide personal action, and self-regulatory capabilities (i.e., forethought, planful proaction, aspiration, self-appraisal, and self-reflection) (Bandura, 2001; Dweck, 2000).	Higher levels of self-consciousness direct the individual learner – alone or alongside others – to purposively access and deliberatively process OER for self-development, social adaptation, and self-renewal in this fast-changing digital environment. A self-conscious learner will be aware of OER and frequently engage with it, purposefully mobilise and productively deploy OER to address immediate learning needs, ensure personal growth, and prepare for a future of lifelong learning.
B. Group Dynamics (Micro-level)	The Co(OER)P is the voluntary social group with whom the learner engages – fellow students, teachers,	Through LPP (Lave & Wenger, 1991) learners become or fail to become users of OER in their scholarly and extra-scholarly pursuits. As they are influenced by and influence other

		technical support staff, and professional practitioners interacting with the curriculum and the resources used to deliver it (Wenger, 1998).	members of the Co(OER)P, learners become "agents of experience rather than simply undergoers of experience" (Bandura, 2001, p. 4) and thus core members of the CoP (Wenger, 2008).
C.	**Institutional and National Context (Meso-level)**	The institutional environment within which these social interactions leading to learning take place. Although this sphere subsumes spheres A and B, it is the superstructure made up of institutional/ national policies and structures.	Institutional ICT infrastructure and policies, teaching, learning and learner assessment policies and practices, reliance on projects to promote OER usage, access to the Internet, CPD, linkages with supportive local, regional and global Co(OER)P among others, a culture of openness, are some of the meso-level factors that influenced OER uptake.
D.	**e-Environment, including Digital OER (Macro-level)**	Represents the borderless electronic environment within which OER resides and OER users operate.	Engagement with borderless OER influenced and was influenced by learner motivation, community engagement, institutional structures, policies and practices.

To illustrate this, interviewee Fe-Gradstu1 (see section 4.2 for explanation on how pseudonyms were derived), a target learner unfamiliar with and reluctant to use ICT for formal learning, depended on her social networks for success in her studies. She turns to her teachers and inner circle of friends, who formed a CoP, to address her OER usage challenges. Although extrinsically motivated, her level of engagement was comparatively higher than Ma-Undergrad4 and Ma-Undergrad5 who chose to limit their interaction with the Co(OER)P for personal reasons.

Remarking on the complexities that shape the socio-political, cultural and historical forces that influence the individual-society dichotomy, Murphy and Wolfenden (2013, p. 264) underscored the need to push the debate beyond the responsibility of the individual to contribute to their learning to take into account the following contextual dualities that influence the success or failure of an educational intervention:

> [relationships] between global and national policies; between national policies and institutional structures and practices within universities, colleges and schools; and the consequent impact of these relationships on individual teacher's practice which in turn mediates what is made available to learn and for whom.

The study employed a sociocultural theoretical framework linking learner utilisation of OER to personal agency; group dynamics; institutional policies, structures and practices; and the all-pervasive electronic environment (see Figure 3.1). Noting that the constituent college sampled for this study prepares learners for professional practice, I chose a theoretical framework that would interrogate the inculcation of OER practices and ethos as a contributor to professional habitus. As Downes (2007) observed, OER utilisation lays a good foundation for lifelong learning, which is required in the professions. The OER community therefore becomes that ground for negotiating knowledge for the academic credentials and skills required in the workplace. Engagement with OER would furnish the knowledge and attitudes required for lifelong learning within the professions.

From the university's stated strategy of compulsory internship for all undergraduate programmes (Makerere University, 2007b), the desire to see learners starting to habituate to their respective professions while at university is clear and the internship strategy is in place to contribute towards this. Hara (2009, p. 128) enumerated the following elements common to all workplace-based CoPs:

> (1) [T]hey are made up of a group of practitioners; (2) they foster the development of a shared meaning; (3) they are composed of informal networks; (4) they are a precursor to a supporting and trusting culture; (5) their members engage in knowledge building; and (6) they assist individuals in the negotiation and development of professional identities.

CoPs based within a HEI ought to replicate these characteristics if graduates are to fit into the workplace CoPs.

3.2 Situated Learning and OER Uptake

Owing to the relative novelty of OER as a field of study, researching it has lagged behind its exponential growth (McAndrew & Farrow, 2013). Scholars have had to look at research in related fields to draw on theories and methods that could contribute to a better understanding of this emerging phenomenon. One such field is the slightly older and better researched field of e-learning. The distinguishing features between OER and resource-based learning, open learning, distance learning, and e-learning were well articulated by Butcher et al. (2011). However, this does not rule out their interrelatedness (Bates, 2005). Specifically, Butcher and his

colleagues noted that while e-learning is limited to using digital media for educational purposes, OER may use other media.

Like e-learning, OER aim at enhancing learning using digital resources and technologies. Kanwar et al. (2010) cited various studies that established that student learning outcomes progressively improved significantly when they interact with a teacher, more when they interact with fellow students, and much more when they interact with learning resources. Therefore, although the intentions may differ, the implications for adopting OER or e-learning are quite similar for institutions and individuals.

For individual learners and teachers, adoption of e-learning or OER calls for adjustments in the way they teach and learn, and in the way they relate to others in the learning environment. Therefore, owing to the technological leanings of OER, theories relating to technology adoption (Andrews & Haythornthwaite, 2007; Clark & Mayer, 2016; De Freitas & Oliver, 2005; Rogers, 2010) were considered as frameworks to explain learner behaviour in the adoption of OER as a technological innovation. However, the technology component within OER did not warrant that emphasis to the exclusion of content and pedagogy. I found Situated Learning theory more appropriate for assessing learners employing innovative open courseware, open methods and open technologies to span the boundaries of professional practice in a social setting. In any case, many studies on e-learning also employed Situated Learning theory (Downes, 2005; Gannon-Leary & Fontainha, 2007; Garrison, 2011; Hung & Chen, 2001; E. Stacey, Smith, & Barty, 2004).

Specifically, research in learner engagement with OER is relatively new (de los Arcos et al., 2014; McAndrew & Farrow, 2013; McAndrew et al., 2010); not many theories have been postulated to underpin its study and practice. Therefore, I had a choice to either use grounded theory to develop a theoretical framework or turn to closely related fields for tested and proven theories. I considered Design-Based Research (Anderson & Elloumi, 2008; Anderson & Shattuck, 2012), a pragmatic approach which also liberally uses mixed methods, for its theory generation potential and dropped it because it requires reiterative design and testing for which I had little time and no resources. I could also not be assured of the continuing collaborative partnership with the students and their teachers for a prolonged, intrusive study, and for the implementation of the design principles developed. Closest to the objectives

of this research study was the general field of human learning (Jarvis, 2012; Schunk, 1996). More specifically, Open, Distance and e-Learning (ODeL) offered viable alternative theories. But I considered that, since the target population for this study was non-distance conventional students, these theories would require adaptation and testing before use. Situated Learning theory was therefore comparatively more adaptable for this study.

Situated Learning (Lave & Wenger, 1991) is a social learning theory that explains how novices enter and (fail to) transit into experts within a CoP through Legitimate Peripheral Participation (LPP). In a CoP, the members share commitment to a domain of interest, the building of mutually supportive relationships, and shared practices as the basis of learning. It is important to note that although Makerere and its constituent parts form a learning community (Eraut, 2002; Lea, Barton, & Tusting, 2005), CoPs are informal groupings that do not necessarily overlap with formal institutional groupings. Wenger (1998) notes that CoPs may develop as a result of ongoing communication over time between people with shared interests. Communication within formal groupings may or may not therefore result into formation of informal CoPs.

CoP theory was chosen because it helps explain the nature of and challenges associated with OER uptake among learners at Makerere. Since this is a practice-oriented study, this theory provides the conceptual clarity required for developing strategic interventions attuned to local values and aspirations for HE. On a practical note, the theory provides a framework for me to understand the place of OER in the learners' lives (Lea et al., 2005).

As Wenger (2011, p. 229) noted, learning constitutes the domain of interest in an educational setting like Makerere. He defined CoP as "the basic building blocks of a social learning system" and pinpointed the following three elements that define competence in a CoP:

> First, members are bound together by their collectively developed understanding of what their community is about and they hold each other accountable to this sense of joint enterprise. To be competent is to understand the enterprise well enough to be able to contribute to it. Second, members build their community through mutual engagement. They interact with one another, establishing norms and relationships of mutuality that reflect these inter-actions. To be competent is to be able to engage with the community and be trusted as a partner in these

> interactions. Third, CoP have produced a shared repertoire of communal resources—language, routines, sensibilities, artefacts, tools, stories, styles, etc. To be competent is to have access to this repertoire and be able to use it appropriately.

CoP theory focuses on how individuals become competent members drawing their identity, knowledgeable skills and purpose from participation and acceptance within the community. Their school is the world they live in; and their goal is to meet the immediate needs of the community. In the world-of-work, this ideal is achieved through CoPs; in the educational settings which are not authentic arenas for production of artefacts for community survival, fields of practice are contrived to reflect what learners are likely to meet in the field-of-work. Learning institutions do not therefore provide ideal conditions for the creation of CoPs. That is why out-of-school activities like field visits and field attachments are often added to the curriculum to help take the learning to the authentic living world or bring that world into the classroom. Given the current emphasis on providing authentic learning experiences relevant to the workplace, professional training programmes at universities serve as initiators to workplace environments. Internships, field attachments, practicums, and visiting lecturers are all designed to foster an environment akin to the workplace with its CoPs.

Jensen and Worth (2014, p. 288) pointed out that college students “operate simultaneously in at least two social fields: the academic world of the classroom and the competitive world of job market preparation”. These may be construed as two overlapping learning communities in which the learner participates. One of the tools used in preparing learners for professional belonging is the relevant OER. These then become bases for the possible formation of CoPs whose trade, language and principles learners must master so as to belong. I postulated that the value attached to OER in the institution-based CoPs and the anticipated work-based CoPs influences OER adoption. This made Situated Learning a worthwhile tool for, and the main theoretical framework that informed this investigation.

Figure 3.2: Tangential and Overlapping of Learning Communities and CoPs

Murphy and Wolfenden (2013) employed the same theoretical framework in their examination of the use of TESSA OER in the training and development of pre- and in-service school teachers in Kenya. Their observations resonated with the contention of Lee and Roth (2003) that LPP occurs when learners make valuable contributions to authentic production situations of the CoP, in the process of becoming fully-acknowledged, core members, or experts, in their field of practice. Since, according to Ehlers (2011), collaboration is at the root of the Open Education (OE) movement, an analysis of OER usage by learners at Makerere naturally lends itself to Situated Learning. The study focused on LPP to determine how learners use OER to move or fail to move from the periphery to the core of their respective CoPs.

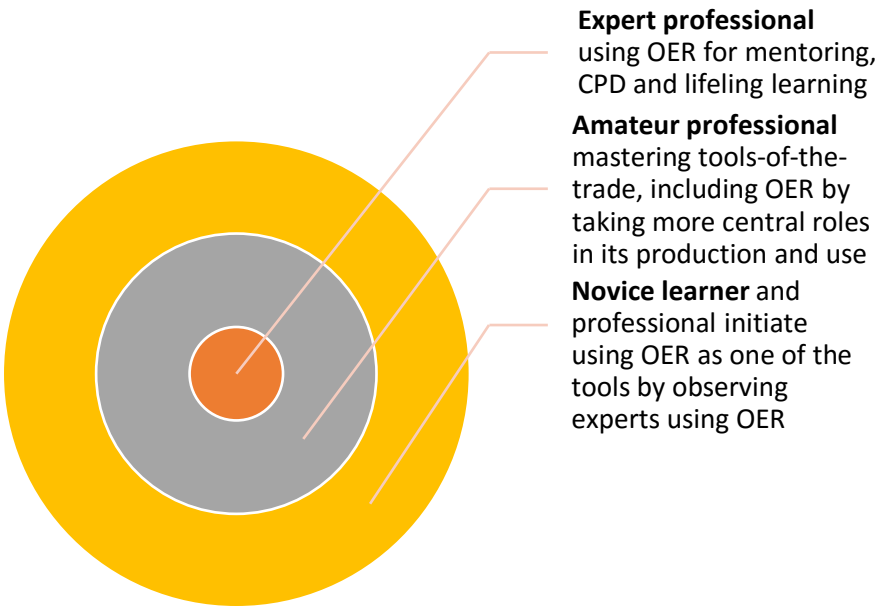


Figure 3.3: OER Engagement in CoP Model

It is worth noting that movement from the periphery to the core of the CoP is not automatic; while some novices will grow into experts in their professions and in the use of OER, others may not go all the way (Wenger, 2011). It is not expected that a novice could grow into an expert during training. However, some learners who were practitioners before returning to the university, especially at postgraduate level, have already become habituated into their professions, thus enabling them to develop more towards becoming higher level experts. These were seen to act as mentors to their junior colleagues and to academic staff that had no field experience.

Depending on whether, when and how participants were introduced to OER, their development within the professional CoP may not match their growth in the Co(OER)P. Additionally, depending on the level of technology available and the job requirements at their workplace, mastery of OER utilisation may not be required for professional maturation; other tools may serve the same purpose, depending on the context. Learners reported that some low-end technology users in the workplace showed no interest in the materials science taught to the interns at the university. Such firms did not require their workers and the interns to consult OER. However, learners attached to government agencies and modern firms with global reach testified to seeing senior colleagues consulting free Internet resources to obtain information for planning and decision-making.

As Garrison (2000, p. 8) opined, a global theory "that reflects the complete continuum and is inclusive of a full range of practices" of a field is an ideal that is unrealistic for a young discipline to attain. An obvious challenge in using CoP lenses in this study was that the theory was developed for informal and non-formal workplace learning (apprenticeship) and not for the formal education setting and is in fact very critical of it. Formal settings that centrally determine learning targets and encourage individual accreditation do not provide the most conducive atmosphere for the blossoming of CoPs (Barab & Duffy, 2012).

Owing to the limitations of CoP theory, and to meet the multiple levels of analysis for this study, I borrowed ideas from related theories. As Gilson (2009, p. 271) opined, "behavioural learning focuses on the way in which environments affect people to behave in certain ways; while cognitive learning focuses on psychological factors." For my study, CoP, a sociology-leaning theory, proved more productive in analysing meso- and macro-level, environmental drivers or hindrances to OER

adoption. A similar study by Pegler (2012) on what motivates educators to share and use OER did not go deep enough to unearth personal drivers or inhibiters of OER adoption, thus reducing its predictive value. Faced with the same dilemma, Barab and Duffy (2012) resorted to using a hybrid of psychological and anthropological concepts to conduct their case study. I too adopted some psychological theories and concepts to fill this gap in my study.

So as to capture the diverse levels of personal motivation exhibited in the study sample and how they related to engagement with Co(OER)P, I used the elaborated Self-Determination Theory (Ryan & Deci, 2000), which explains the role of different types and levels of motivation in propelling individual participation in learning. This model demonstrated that as self-motivation tended to range from amotivation through the various stages of extrinsic motivation to intrinsic motivation, so did engagement with Co(OER)P, as illustrated in Figure 3.4 and in Chapter 7 of this report.

REGULATORY STYLE	Amotivation	Extrinsic Motivation				Intrinsic Motivation
		External Regulation	Introjection	Identification	Integration	
ASSOCIATED PROCESSES	○ Perceived non-contingency ○ Low perceived competence ○ Non-relevance ○ Non-intentionality	○ Salience of extrinsic rewards and punishments	○ Ego involved ○ Focus on approval from self and others	○ Conscious valuing of activity ○ Self-endorsement of goals	○ Hierarchical synthesis of goals ○ Congruence	○ Interest/Enjoyment ○ Inherent satisfaction
PERCIEVED FOCUS OF CAUSALTY	Impersonal	External	Somewhat external	Somewhat internal	Internal	Internal
INTERVIEWEE EXEMPLARS	○ Ma-Undergrad4	○ Fe-Gradstu2 ○ Ma-Undergrad5 ○ Fe-Teacher2	○ Fe-Gradstu1 ○ Ma-Gradstu2 ○ Ma-Undergrad1	○ Fe-Teacher1 ○ Ma-Undergrad2 ○ Fe-Undergrad1 ○ Ma-Undergrad3 ○ Ma-Undergrad7	○ Ma-Gradstu1 ○ Ma-Teacher2 ○ Fe-Undergrad2 ○ Fe-Undergrad3 ○ Ma-Undergrad6	○ Ma-Teacher1 ○ Ma-Teacher3 ○ Ma-Nonteacher1 ○ Ma-Nonteacher2 ○ Fe-Nonteacher1

Figure 3.4: A Taxonomy of Human Motivation [Adapted from Ryan and Deci (2000, p. 61)]

3.3 The Theoretical Framework Used

Figure 3.4 presents a graphical representation of the theoretical framework that guided this study. The individual learner and their immediate Co(OER)P constitute the micro-level unit of analysis for this study. At a personal level, engagement with OER is premised on personal motivation, the technical skills in one's possession, prior experience, self-efficacy and intrinsic goal orientation. Since learning is a social enterprise, the immediate influence on the learner comes from the CoP of which he or she is a member and participant in knowledge creation and utilisation. Some of the groups are formal while CoPs are not. The membership would include older and more experienced mentors, more engaged amateurs, and novices. CoP influences are premised on group perceptions regarding OER, the range of technical skills they possess collectively, and the social capital they are willing to dispense in the form of peer support.

At the meso-level is Makerere University and the nation of Uganda. Among the influences exerted at this level are: socioeconomic conditions that dictate purchasing power; the dominant institutional and national cultures; levels of public and private investment in HE and OER-supportive infrastructure in particular; OER-related policies and practices; available infrastructure and tools for use in the development and deployment of OER; national and/or institutional curriculum requirements; existence and nature of professional CoP; existence and nature of Co(OER)P; and existence and nature of tutorial and technical support services.

At the macro-level are the OER in the digital learning environment. At this level, OER uptake is influenced by: availability and accessibility of relevant OER; access to the international communities of OER users; access to international professional CoP; familiarity with intellectual property rights issues; and access to ICT infrastructure and open source software.

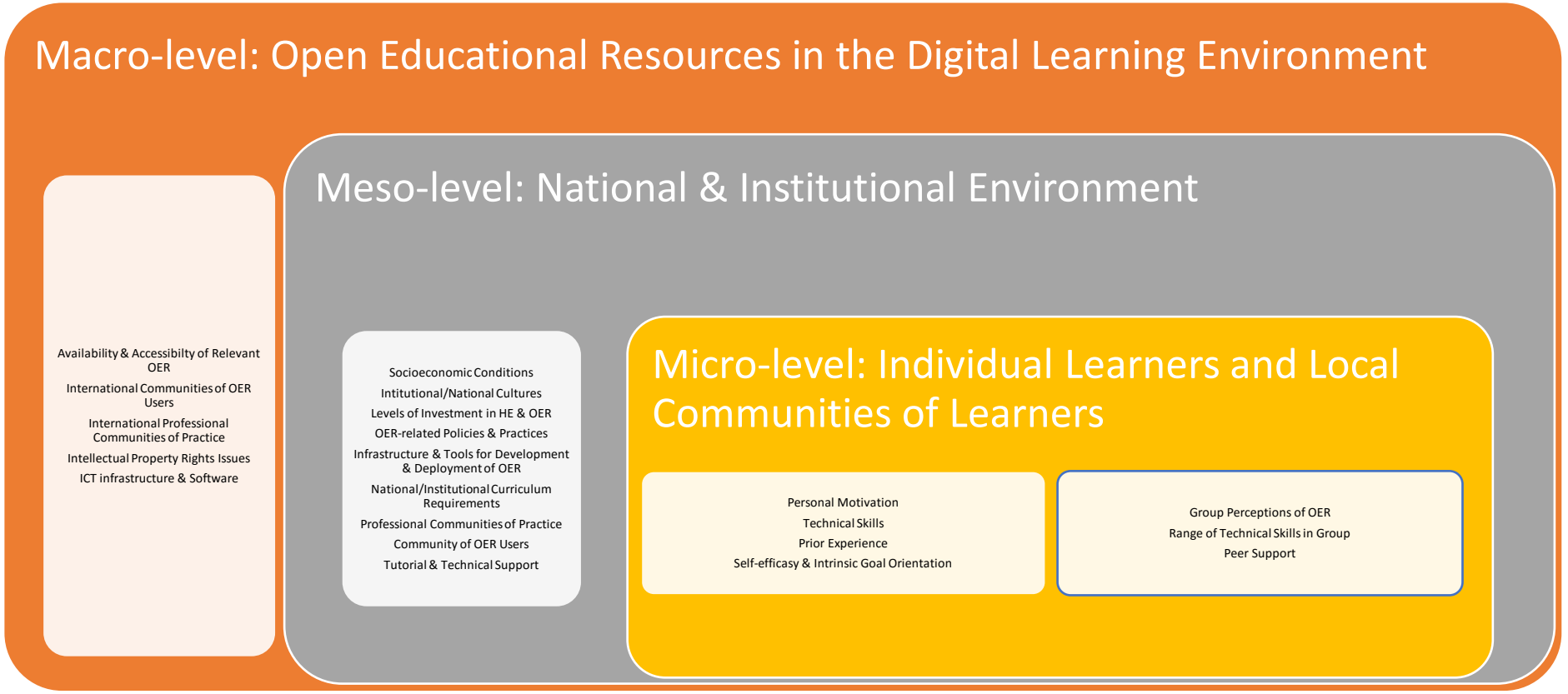


Figure 3.5: Conceptual framework

Chapter Summary

Deployment of Situated Learning helped me to explain how and why learners at Makerere University became (or failed to become) confident and competent users of OER. The use of CoP in earlier studies provided a basis for operationalizing concepts on which this study is based, thus contributing to its construct validity (Yin, 2009). As Downes (2007, p. 29) observed, productive use of OER must fit into a larger picture if it is to be sustainable – "one that includes volunteers and incentives, community and partnerships, co-production and sharing, distributed management and control". Since learner utilisation of OER is influenced by all these factors, they need to be analysed on a case-by-case basis.

The following chapter explains how the data for this study was collected and analysed.

4. Research Methodology

The study employed methodologies that could surface the forces underpinning the choice of learners at Makerere (not) to engage with OER. It employed research methodologies, strategies and methods that interrogated individual and collective human agency in social transformation.

4.1 Study Design

Given the research questions that this study addressed (see section 1.1), I found it prudent to adopt an interpretive, constructivist epistemology (Moses & Knutsen, 2012; Sharlene Nagy, 2010). Since research paradigms are toolkits designed to serve different purposes (Cohen, Manion, & Morrison, 2013), I found the mixed methods approach useful for eschewing the polarity created by the classical juxtaposition of naturalism/positivism and constructivism/interpretivism as the two worldviews that inform how modern social science scholars "see and understand the world they are studying" (Moses & Knutsen, 2012, p. xiv).

As Cohen et al. (2013, p. 116) observed, the mixed methods paradigm "recognises that [social] phenomena are complex to the extent that single-method approaches might result in partial, selective and incomplete understanding". Therefore, throughout the research process, I mixed tools and methods so as to corroborate findings, explore alternative interpretations, or clarify divergent conclusions. So as to adhere to the fundamental principle of mixed methods research, the mixing ensured "complementarity of strengths and non-overlapping of weaknesses" (Johnson & Turner, 2003, p. 299).

Sharlene Nagy (2010) advanced five justifications for using mixed methods – triangulation of methods, complementarity, development, initiation, and expansion – all of which featured in this study. The triangulating of survey data and interview data yielded richer results than any of the methods used independently. I carried out a cross-sectional survey among students, followed by semi-structured in-depth interviews with selected students, their teachers and technical support staff. However, the process was not so linear; whenever developments demanded that I reverse the sequence, I did so. Both quantitative and qualitative approaches were therefore used to assess the role of individuals, the institutional, the national and the

global contexts in learner utilisation of OER. Initial use of the structured questionnaire enabled me to quantify the extent of learner utilisation of OER at Makerere. The in-depth interviews interrogated the nature and purpose of their engagement with OER from the viewpoints of the learners, their teachers and the technical support staff.

During the study, it became apparent that community engagement played a pivotal role in the extent and quality of learner engagement with OER. For instance, interview data helped resolve contradictions behind the larger-than-expected number of OER users in the survey data. The sequencing of data collection methods thus enabled me to explore and probe the survey data and to add narratives and depth. It therefore "helped to satisfy the need for generalisation and to provide the illustrative power of narrative" (Sharlene Nagy, 2010, p. 14).

4.2 Methods of Data Collection

As noted by de los Arcos et al. (2014, p. 6), a number of mixed methods studies on OER employed "surveys, interviews, focus groups and data analytics" as methods of data collection. Both the student survey questionnaire and the various interview protocols used in this study were drafted by me, reviewed by my supervisors and piloted in one of the colleges not designated as the study site. Given that the participants' routinely used English as a language of instruction, easy-to-comprehend English was used for drafting and administering all the research tools. Items that persistently challenged respondents were identified during the pilot and adjusted. Since I personally administered the instruments, I was present to clarify any misconceptions that arose during administration. I used results from the pilot study to refine the survey questionnaire and the protocols for in-depth interviews. I then used preliminary results from the survey to identify OER-engaged and non-engaged male and female participants for the interviews.

Existing literature (Boroughs, 2009; Lubega, Kajura, & Birevu, 2014; Ngugi, 2011; Thakrar, Wolfenden, & Zinn, 2009) and anecdotal evidence suggested that OER usage at Makerere was still low. Therefore, the study targeted a college that is engaged in OER projects and is expected to have exposed learners to OER. Learner engagement with OER in this college was expected to be higher than in the general student population at Makerere. So as to minimise the potential influence of

power relations on the study (Coghlan & Brannick, 2014), I did not use the college in which I teach as the research site.

The selected college had 2,243 undergraduate students of whom 471 (21 percent) were in their final year, and 183 graduate students of whom 120 (66 percent) were in their research phase. This sample were selected because they had had the highest chances of exposure to OER, were at the junction between the university and employment, and were involved in projects that increased the likelihood of them engaging with OER.

I will now examine the specific research methods I employed, why I chose them, their strengths and weaknesses and related contextual issues.

Survey

So as to explain what drives and/or what hinders OER utilisation by learners at Makerere, it was necessary to establish the extent and form of learner engagement with OER at Makerere; how learners find their way to and around OER; how and why teachers' use of OER influences learner engagement with OER; and how and why community engagement influences OER uptake among learners. The survey was chosen because it has capacity to quickly and cheaply generate a broad array of information on and perceptions of the selected population (Cohen et al., 2013). Depending on how the survey tools are developed and used, surveys are known to be cost-effective, versatile, and capable of producing generalizable and reliable results. However, by posing a predetermined set of questions for an entire population, surveys are also known to be inflexible and to sometimes produce invalid data when handling complex social issues (Bryman, 2012; Johnson & Turner, 2003), thus the need for complementary methods. The survey helped describe characteristics of the student population in relation to OER usage and to identify candidates for the in-depth interviews. However, since this was a cross-sectional survey, generalisations based on opinions at a given point in time may be fallacious, thus the need for longitudinal surveys.

I gathered data from students using a self-completion survey questionnaire (see Appendix 4) composed of closed-ended (with a variety of mutually exclusive and exhaustive response options) and open-ended items that enquired into leaners' experiences with OER. During the pilot, the open-ended items in the questionnaire

yielded some interesting suggestions that I incorporated in the subsequent revisions of the questionnaire and the interview protocols. Among these were: (1) the frequency of OER usage by learners, and (2) their planned future interaction with OER, both of which I incorporated in the questionnaire as new items; (3) why participants are interested in OER; (4) how participants evaluate the quality of OER; (5) challenges arising from OER usage; (6) which institutions Makerere collaborates with in OER utilisation; and (7) how to improve OER utilisation at Makerere, which I included in the interview protocols.

Although I had initially planned for an online survey, the challenges faced in administering one during the pilot study persuaded me to adopt hard copies and a face-to-face method of administering the tool. Given an over-researched and fatigued population, slow Internet, and competition from junk mail, responses to online questionnaires from strangers are usually very low. Although the face-to-face method bettered the response rates and provided opportunities to clarify issues, it consumed more time and other resources. Besides encroaching on the autonomy of respondents, questionnaires administered face-to-face also removed the time-saving, automated data analysis that would have come with online tools.

To administer the questionnaire, I sought and obtained permission from the college principal, the registrar and the respective class teachers to go into the lecture rooms where asked students to stay behind to learn about my research project. I then distributed the Participant Information Sheet (PIS) and invited them to participate in the study. Those who were willing to participate were then given Consent Forms and hard copies of survey questionnaires to take with them, fill out and hand back to me at an agreed time and place. In spite of the prior information shared and lead time given to them, most of the respondents preferred to fill it in and return it to me there-and-then.

As expected, the structured survey questionnaire yielded mainly quantitative data that were amalgamated to give a general impression of how learners were engaging with OER across different programmes. This mainly quantitative data was analysed using SPSS software. Descriptive statistics helped explain the nature and extent of OER utilisation by learners. The survey findings also helped identify users and non-users of OER for the follow-up interviews.

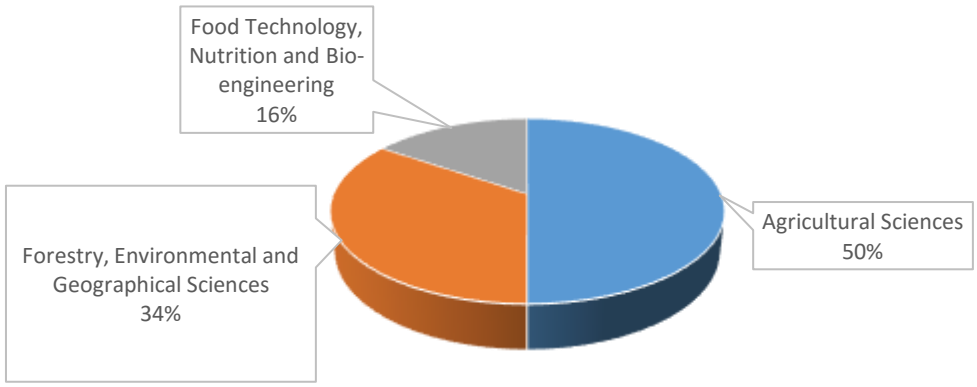
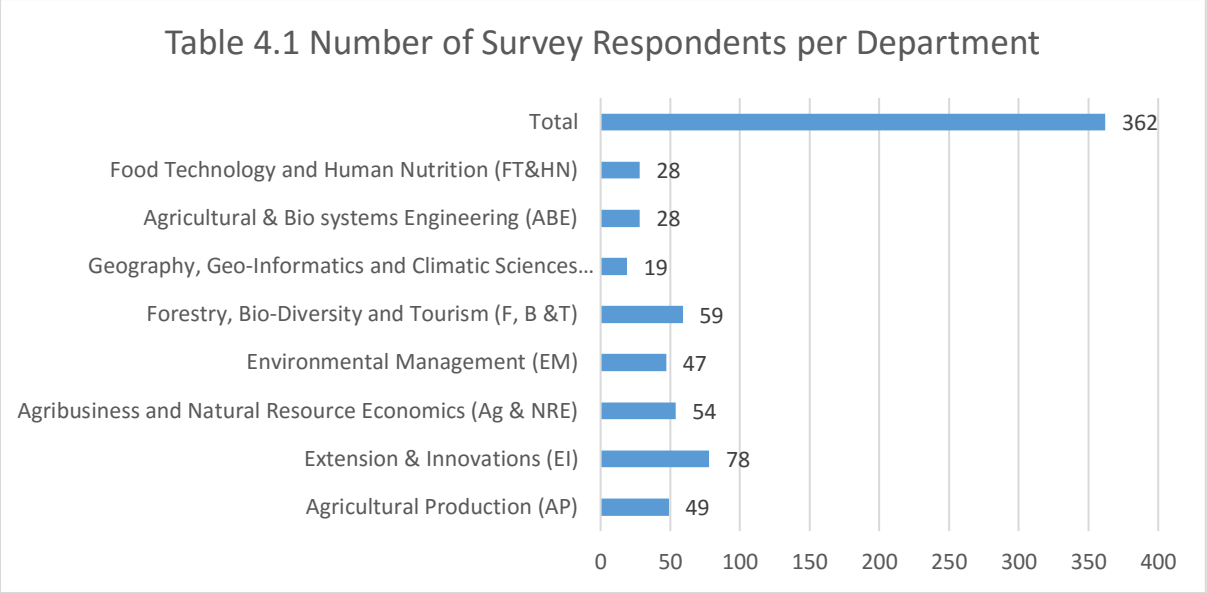


Figure 4.1 Survey Respondents per School

A total of 31 graduate students out of the 50 who were invited participated in the survey; a response rate of 62 percent. Out of the 450 undergraduate students who received the survey questionnaire, 366 responded; giving a response rate of 81 percent. Of these, 59.3 percent were male and 39.9 percent were female. Three respondents did not indicate their gender. These proportions are a fair reflection of the gender composition of the 2,243 total student population at the college at the time the data was collected, which was 38.2 percent female, and the 37,808 university-wide student enrolment at 45 percent female. The majority of the respondents (93.2 percent) were under 30 years of age. This majority would pass for 'digital natives' (Helsper & Eynon, 2010) with the attendant expectations that they would be more inclined to using technology. The rest of the survey respondents (n=21) were aged between 31 and 45 years of age; only two were above 45.

The survey respondents were drawn from all the 13 undergraduate programmes and nine (out of the 20) graduate programmes across all the eight departments of the three schools in the college (see Table 4.1 for distribution of respondents across the departments of the college). The variety of respondents included in the sample provided sufficient evidence to explain the range of generalisations that emerged from the survey data. But since the questionnaire relied on self-completion, it cannot be considered fully representative; but within the parameters of the study, it is sufficiently representative to enable generalisations to be made.



In-depth Interviews

Using in-depth personal interviews (Cassell, 2009), I gathered detailed data on the lived experiences, motivations, and perceptions of these participants in relation to OER. These followed the survey and targeted purposively selected learners, their teachers, and technical support staff associated with OER usage. In-depth interviews are used when one: requires very detailed information; anticipates the need to probe; plans to ask questions that require lengthy explanations; thinks the topic (like OER) is complex or confusing to participants; and when studying processes (Bryman, 2012; Miller & Glassner, 1997). This study qualified of all these counts. Much more intimately than the survey questionnaire could, personal interviews enabled me to explore the perceptions and feelings of the participants and to probe the 'how?' and 'why?' questions through an open-ended, semi-structured format. I thus added flesh to the generalised survey data.

Learners, teachers, and non-teaching staff were interviewed using protocols prepared earlier for this purpose. All the three semi-structured interview protocols (see Appendices 5, 6 and 7) were crafted around the themes and with the aim of probing deeper into the form that learner engagement with OER at Makerere takes; how learners find their way to and around OER; how and why teachers' use of OER influences learner engagement with OER; the institutional context to learner uptake of OER; how and why community engagement influences OER uptake among learners; and, ultimately what drives or hinders learner utilisation of OER at

Makerere. Variations in the questions depended on whether the interviewee was a learner, a teacher or non-teaching staff; a user or non-user of OER. During the interview, I probed individual experiences for specific relevant information addressing these themes.

Interviews were conducted with 10 of the undergraduate students who filled the questionnaire and indicated willingness to participate in the second phase of the study. I also interviewed teaching and non-teaching staff whom the students said played significant roles in their engagement with OER. Given gender responsiveness to technology adoption (Broos, 2005; Maluwa-Banda, 2004), I targeted both male and female participants in each of the categories interviewed so as to give voice to both genders in the study findings. Although I targeted three male and two female with equal representation in the non-user category from three undergraduate and all graduate programmes and two of each gender and in the user and non-user categories of teaching and non-teaching staff, the non-user category later demonstrated less willingness to take the interview. At the last minute, two female undergraduate student non-users withdrew. Because their programmes require more independent study, graduate student non-users were harder to come by. Of those surveyed, only one male graduate student was not-engaged-with-OER in a significant way. Therefore the interviewees represent a few more males than females and more users than non-users of OER.

The distribution of interviewees is as presented in table 4.2. A total of 14 students, five teaching staff and three non-teaching staff were interviewed. However, being mainly qualitative, this part of the research did not need to be statistically representative of the wider population.

Table 4.2: Showing Participants in the Interviews by Categories

	Sex	**Undergraduate Students**	**Graduates Students**	**Teaching Staff**	**Non-Teaching Staff**	**Total**
OER Users	Male	3	1	2	2	**8**
	Female	3	2	2	1	**8**
OER Non-Users	Male	3	1	0	0	**4**
	Female	1	0	1	0	**2**
	Total	**10**	**4**	**5**	**3**	**22**

To ensure confidentiality, in this report, I have used pseudonyms to represent participant whereby 'Ma-Undergrad1', for instance, is the pseudonym for the first male undergraduate student participant; 'Fe-Gradstu1' is the first female graduate student participant; 'Ma-Teacher3' is the third male teacher participant, and 'Fe-Nonteacher1' is the first female non-teacher participant. Snapshot portraits of the interviewees are attached at Appendix 8. Other pseudonyms like SR123 refer to survey respondents by serial number.

Although the interview protocols were provided in advance to the participants to facilitate their preparation, their administration was more conversational and followed leads to probe for details. Permission was sought and granted for me to digitally record the interviews for later transcription, validation, and analysis. I also kept field notes that captured my personal impressions during the interview, including verbal and non-verbal cues from the participants. Besides facilitating probes, the notes enabled me to scrutinise the interview transcripts for different interpretations of what was or was not said. Most of the interviews lasted one hour as anticipated. The privacy of the personal interviews nurtured the confidence that encouraged reflective, in-depth self-expression.

But as Blackstone (2012 "Conducting Qualitative Interviews", para. 3) noted, "It takes a skilled interviewer to be able to ask questions; actually *listen* to respondents; and pick up on cues about when to follow up, when to move on, and when to simply let the participant speak without guidance or interruption." One obvious weakness I had to deal with was that, whenever participants sought clarification on particular issues, I caught myself expressing opinions that could influence participants' subsequent responses. In addition, I had to learn to avoid confrontational or leading questions when probing. Generally, the process of administering, transcribing, and analysing interview data was time consuming and required skills some of which I had to develop as I went along.

Interview data came with participants' biases that influenced their perception and interpretation of factual information. For instance, it was clear that teachers' perceptions of learners influenced their reports on how learners engaged with OER. One teacher who labelled undergraduates as immature and unwilling to explore e-resources independently did not see them engaging productively with OER; while

another teacher who perceived the same learners as inquisitive and enterprising with technology, witnessed them innovate and use OER in their presentations. Triangulation of data from various sources helped surface such biases.

The qualitative data generated through interviews was analysed using thematic analysis methods (Cohen et al., 2013) to provide a deeper understanding of the role of human agency in OER adoption. I used Atlas/ti software to code and analyse the data. Themes were derived from analysis of content and context in the interview transcripts, field notes, and other documentary evidence. Atlas/ti software was used to capture the frequency of occurrence and to collate themes, subthemes and to connect them. I preferred a computer-aided qualitative data analysis tool to manual analysis because of the advantages in data processing speed and consistency that the former has over the latter. Atlas/ti was particularly user friendly and flexible when coding, annotating using memos, linking, searching, retrieving, displaying and graphically editing data. The software thus made it possible for me to personally code the data, build conceptual networks, and retrieve the data generated from these processes in various formats as and when I needed to.

The nine-step iterative model for qualitative data analysis highlighted by Spencer, Ritchie, and O'Connor (2003, p. 212) – that is, identifying initial themes or concepts from the raw data; labelling or tagging data by concept or theme; sorting data by theme or concept (in cross-sectional analysis); summarising or synthesising data; identifying elements and dimensions, refining categories, and classifying data; establishing typologies; detecting patterns (associative analysis and identification of clustering); developing explanations (answering *how* and *why* questions); and seeking application to wider theory or policy strategies – were competently handled using Atlas/ti. By helping me capture, archive and manipulate the raw data, then describe and explain it, the software served as an effective analytical support. Themes derived from this inductive process were then deductively linked to variables drawn from my reflective experiences as an insider-researcher and from extant literature (Spencer et al., 2003). Data from the various methods was summarised in descriptive accounts, categorically analysed, triangulated and synthesised through a CoP theory prism (Lave & Wenger, 1991; Wenger, 1998, 2008). Thematic analysis was done to arrive at conclusions that shed light on the research questions. The use of logic models, pattern matching, explanation building and addressing rival

explanations of findings helped build internal validity of the study and triangulation of data from these multiple sources ensured the construct validity (Yin, 2009).

Although quantitative approach came first in sequence, the qualitative approach played a more significant role in both the data collection and analysis. The integration of methods came with challenges of additional time lags, additional costs, and inadequate skills especially for analysing, interpreting and reporting on the volume and variety of data accruing therefrom (McKim, 2017). The integration happened in two stages: the first stage was when the survey data was used to identify suitable candidates for the in-depth interviews and to inform the probes during the execution of the semi-structured in-depth interviews. The second stage occurred at the stage of sense-making during data analysis and reporting as I sought to answer the research questions as stated in section 1.1 of this thesis.

Dependence of self-reporting is a pitfall of both the survey and the in-depth interviews (Blackstone, 2012). If time was sufficient, these methods could have been supplemented by observation. In addition, the interviews were labour intensive, time consuming, costly and emotionally draining (Cohen et al., 2013). However, the results were rewarding.

4.3 Access Issues

Given that I was studying phenomena in my workplace and perceptions of our learners and fellow teachers towards these phenomena, one would have expected access to be automatic, but it was not. Since colleges, schools and departments are discipline-based, units other than the one to which I belong did not wish to expose their operations to an ‘outsider’ for fear that it may affect their public image. Once ethical clearance had been obtained from the University of Liverpool, I sought formal clearance from an accredited Institutional Review Board at Makerere, from the Uganda National Council for Science and Technology (UNCST) and from the gatekeepers at Makerere. The key gatekeepers to the research site are the College Principal, School Deans, Department Chairs and Programme Coordinators who helped me access the students. With the help of Programme Coordinators, I also accessed the teaching staff I interviewed. Using the contact information provided by

the gatekeepers, I personally contacted all the potential participants first through their e-mails and then by telephone or in person in a non-threatening manner.

The willingness of individuals to participate was affected by research fatigue and expectations of financial rewards. These were addressed through PIS and Consent Forms. Pointers to the likely benefits of enhancing personal awareness of and the likelihood of using OER more as a result of participating in the discussions, coupled with the long-term benefits of the study to the institution and its stakeholders, motivated a number to participate. Unwilling participants were replaced.

4.4 Issues Arising in Relation to the Implementation of the Methods Employed

This research project has made me more conscious of my surroundings and how they impact on research. Things that could previously pass unnoticed now have greater significance than before. Greenland and Kwansah-Aidoo (2012) highlighted the unique challenges encountered in conducting market research (and may I add, quality research of any kind?) in SSA and proposed ways of overcoming some of these challenges. They categorise the interrelated challenges as: “[1] political and economic; [2] legislative; [3] environmental; [4] sociocultural; and [5] infrastructure”, noting that: “Overcoming these challenges invariably has significant impact upon research methodology design, project management processes, as well as associated project costs and duration” (p. 20). In my experience, the challenges that have stood out and are likely to affect the research process and output included:

Fragile ICT infrastructure that could not let me take full advantage of technology for data collection as I had initially planned. The intermittent Internet ensured that it took days to download required software and upload the survey tool. When I tried to use e-mails for the pretesting of tools, I found out that participants preferred not to use their official email addresses because they had very limited storage space.

I was advised by researchers with more experience in this context to avoid online tools because potential participants tend to ignore them, a contextual difference with the Western world where technology plays a greater role in data collection (Greenland & Kwansah-Aidoo, 2012). Some participants too indicated that they did not trust the confidentiality of data submitted online. The adjustment from

email to print-based questionnaires had logistical and cost implications. For instance, it became difficult to build in sufficient time lags between providing information about the project, obtaining consent, and responding to the questionnaire. If the participant gave time to me to explain the study, studied the information sheet, gave their consent to participate in the study, and decided to immediately fill out the questionnaire and 'get it done with' immediately, I could not insist on giving them more time to think through their decision. Those who needed time were given; but the response rates dropped significantly in such cases. It took many reminders over a twenty-day period on average to obtain a 20 percent response rate in such instances.

Although there was no open conflict warranting worry, the low level politico-economic attrition affects everyday life in a subtle way that was only noticeable when it negatively and consistently affected my research activities. The 'strike while the iron is still hot' stance is promoted by the uncertain environment characterised by instability and conflict. No one seemed to be certain what tomorrow would bring.

Fragile research infrastructure manifested in the scanty regulatory framework that is still being developed. At the time I applied for local ethical clearance, the policy to accredit and empower Institutional Review Boards to supervise research on behalf of the UNCST was less than six months old, explaining the reason for the delays. In a case of the one-eyed becoming king in a country of the blind, Zielinski et al. (2014) presents a gloomy picture of ethics policies and practices in health research institutions in SSA. But that is where I had to turn for ethics review since there was no approved Institutional Review Board for Humanities in the whole country. Out of the 10 constituent colleges of Makerere University, only the College of Health Sciences had four of the UNCST-accredited Institutional Review Boards at the time. Technical personnel to support quality research operations are also in short supply. Providers of data processing services were more willing to provide data processing services than train me to do it for myself, which they apparently feared would turn me into a competitor. In the course of the project, the ICT technician for my department was hired by an international oil company and the college one by a better paying private company. They could not be replaced immediately.

Differing cultural expectations between UoL and my research site were apparent. Despite the expected sophistication of university students and teachers who were my research participants, the oral African culture predominates over the written or digital, making certain research methods more or less appropriate for this setting. Because research practices are not seen the same way across the two cultures, insisting on UoL good practices sometimes caused unhealthy tensions. Akin to the Ethiopian experience reported by Asgedom and Ridley (2015), most gatekeepers hesitated to give written authorisation fearing that I would use it to coerce participants since I had been 'authorised by the big man'. And yet keepers of official records would not provide me with information without this formal approval. Behind all this was an obvious sense of insecurity, which may result into being given unreliable data.

Being an insider, officials were apparently not sure what else I could use the information for – my stated position on confidentiality notwithstanding. Some participants did not mind filling out the questionnaire but saw no reason to sign Consent Forms because they did not want their names to appear anywhere.

Accustomed to the practices of some international organisations and NGOs that pay them, participants often audibly asked me 'what was in it' for them as individuals. Others expressed the hope that, since I was registered in a UK university, they would participate in the study if I could link them to scholarships and jobs in the UK. Coordinators and student leaders also expected 'facilitation'. Failure to meet their expectations affected their willingness to participate in subsequent phases of the study. Standardized research approaches and procedures therefore required customization for such an environment.

Social tensions resulting from economic and political conflicts are common all over SSA (Greenland & Kwansah-Aidoo, 2012). Student unrest related to changes in fees policies and vigilante politics were the main culprits. Altogether, Makerere students were involved in not less than four strikes in the six months of data collection, some of them quite violent. These strikes grossly affected the schedules of the project. Appointments were often rescheduled to keep participants and myself out of harm's way. Besides, teachers were treated as 'enemies' if they are not seen to support student strike actions. Going to them to seek information at such moments

was ill advised. Staff also keep away from their offices at such times, making it difficult to access them. Such social tensions may influence the quality of responses one gets. Often, I was forced to give time for emotions to thaw before I resumed data collection. When the country entered the presidential and parliamentary campaigns, the situation became even more volatile.

Addressing these challenges impacted on research methodology, design, project management processes, and associated costs.

4.5 Ethical Issues

This section highlights the key ethical issues encountered in the process of this study and how they were resolved. Among these were the power relations arising from the fact that I was researching on the organisation in which I work. Like all other research studies, I also needed to protect the identity of my participants during and after the study. Ethical issues also arose from the handling of the data generated by the study, the accuracy of data, and other risks posed to participants in the study. Of particular interest were cross-cultural ethical expectations related to my conducting reseerch in a SSA context for a UK university qualification. Below, I address each of these ethical issues and how I dealt with them.

Power Relations Accruing to Insider Research

Cohen et al. (2013) intimated that the researcher's greatest dilemma is in how to balance the pursuit of truth with the need to protect the rights of the participants in the study. Given that I am a teacher seeking the opinions of students and fellow teachers in the same university, I expected ethical challenges accruing to insider research (Williams, 2009), and concerns about power relations, to arise. I minimised these by ensuring that participation in the study was voluntary and based on informed consent. Except in the pilot sample where students from the College of Education and External Studies were unintentionally included in the sample, students and staff from my college were intentionally excluded from the main sample for the study. The one-week time lags built into the research process to allow for information in the invitation to participate in the study were digested before consent was given were harder to observe with consistency given the volatile socio-political context.

Confidentiality and Anonymity

Interviews were held in quiet, neutral, non-threatening environments, free of eavesdroppers, and mutually agreed upon with the participants. Confidentiality and anonymity were ensured through non-disclosure of participants' identities or affiliation in as far as was practicable. Data for reporting and dissemination was aggregated and anonymised using codes in place of the real names and institutional affiliations of participants. Only I have access to the raw data, which will be destroyed in 2020, five years after the study.

Data Storage and Handling

During data collection, analysis and reporting, hard copies of data were stored in secure filing cabinets in my office, while digital data were password protected and stored on Makerere University's secure data back-up server. Digital back-up copies were stored on an external hard drive which was also password protected and stored under lock-and-key in my office. No digital data was stored on laptops, mobile devises, and office or family computers. Whenever raw data had to be transmitted to the supervisor electronically, the data and the password were sent in separate e-mails.

Accuracy of Data

Participants were invited to review transcripts to check for accuracy and fairness of data from their interviews and therefore had opportunity to amend those transcripts in order to check for fairness.

Risk to Participants

No psychological stress beyond what participants experience when carrying out everyday tasks was expected from their participation. The risk that their disclosures may hurt social relationships was minimised by the fact that the data was aggregated and reported anonymously; the raw data is only accessed by me and my supervisors who are both required to abide by the UoL's code of ethics, which demands they respect the participants' confidentiality. Legal risks that may arise from disclosing official information were handled by the researcher and the College Principal from whom authorisation had been obtained. Participants were also free to withdraw any information provided without having to explain why.

Chapter Summary

While the cross-sectional survey was used to map the field, the in-depth interviews probed for rich explanatory data were used to validate the preliminary conclusions before the final report was produced. The product hopefully represents a comprehensive understanding of enablers and hindrances to learner engagement with OER at Makerere. I also hope that the detailed descriptions this mixed methods approach has generated engender credibility and relatability of the study in similar contexts. I hope that the assurances of confidentiality and the opportunity to cross-check interview transcripts prior to their inclusion in the report with the added right to withdraw information already provided, encouraged free participation in the study.

5. Findings 1: Drivers for OER Adoption

This chapter presents the findings from the analysis of the quantitative and qualitative data on what drives learner engagement with OER. Together with the next chapter, they best demonstrate the tensions of duality – participation-reification, designed-emergent, local-global, identification-negotiation, online-face-to-face, and coherence-diversity – inherent in CoPs (Barab, 2003; Wenger, 1998). Drivers are factors that positively influenced learner adoption of OER. They included people, knowledge and skills, and contextual issues. All in all, motivation, awareness of and engagement with OER, the influence of teachers, and social capital featured prominently as drivers. These themes and related sub-themes form the structure of this chapter.

5.1 Motivation for Engagement

Participants described both extrinsic (external) and intrinsic (internal) factors motivating them to engage with OER. The need to prepare for assessment was paramount. Study requirements for supplementary reading and projects, preparation for class presentations, out-of-class interests, career-related pursuits, and preparing for future needs were also cited. Motivation as a driver in learning is evident in the literature on learning (Ardichvili et al., 2003; Dweck, 1986, 2000; Fang & Neufeld, 2009; Svinicki, 1999).

Required reading for assessment tasks

Formative and summative assessment are core components of Makerere programmes. It was therefore not surprising that some learners reported engaging with OER only if it contributed to improving assessment results. While most learners did not link the use of OER to examinations per se, the link to formative assessment was obvious. Nearly all the students interviewed said they use OER for formative assessment:

> “Most of our books can easily be accessed online. [B]ecause there is constant assessment, you have to really, really read.” (Fe-Gradstu1)

> “You can’t do an assignment without working with OER.” (Ma-Undergrad1)

That may explain why 90.4 percent of the survey respondents cited assessment as their main motivation for using OER, and why graduate students came to the librarian for assistance to access OER "after they've been given an assignment" (Fe-Nonteacher1). Some teachers opined that learners tended to focus on assignment topics at the expense of the rest of the syllabus. Since some examinations were a repeat of formative assessment tasks, learners intensively employed OER during formative assessment in the hope that the final examinations would feature the same topics. If this strategy worked, it tended to encourage the use of OER.

Cauley and McMillan (2010) noted that, in conformity with constructivist theories of learning and motivation, learners used formative assessment feedback to adjust their current learning strategies. The feedback may emanate from self-assessment, or assessment by peers, teachers, or other members of the CoP (Heywood, 2000). Feedback that took into account the use of OER by checking on the learners' use of referenced materials, for instance, tended to encourage or discourage their use (Spector, 2014; Wakeham & Garfield, 2005). It therefore mattered how individual teachers at Makerere used OER in their instruction and formative assessment procedures.

Cauley and McMillan (2010) intimated that varying assessments; making them informal and spontaneous; attracting feedback from learners, teachers and other members of the community; purposefully delaying or providing immediate feedback during learning; and encouraging extensive, informal, trusting, and honest interactions among learners and mentors tended to enhance intrinsic motivation in the learners. Focusing OER on summative assessment, an extrinsic factor, may explain why many learners remained at the periphery of the Co(OER)P. However, linking OER to formative assessment may have helped introduce it to learners at a critical stage in their intellectual professional development and nurtured a habit that is internalised with practice (Lally, Van Jaarsveld, Potts, & Wardle, 2010; Wood & Neal, 2007). In competent hands, OER incorporated into formative assessment could play a role along this educational value chain.

Supplementary reading for classwork and projects

Besides assessment, learners needed resources for learning. The survey established that 87.4 percent of the students turn to OER for supplementary reading,

which ranked second to completing assessment tasks. Learners reported using OER singly or in groups, especially when preparing for class discussions, group assignments, and seminar presentations. While some groups were formal learning groups, others were voluntary CoPs formed to facilitate formal learning activities. Class assignments provided opportunities for developing belongingness as learners made their contribution to the cooperative or collaborative knowledge creation enterprise (Lave & Wenger, 1991). OER became a helpful tool for learning and creating artefacts to be shared by members of the CoP as they worked towards common goals. The following quotation demonstrates how learners used OER to move from the periphery of the Co(OER)P:

> "I was tasked by my group members to find out about forecasted financial statements and for sure I didn't know what forecasted financial statements were. But from these OER, I was able to see a sample and read through a number of texts and really got to know what forecasted financial statements were." (Ma-Undergrad2)

The student was learning the language of his trade as he transitioned from the periphery towards the core of the CoP.

Student projects provided another opportunity to exploit OER. Given that the data for this study was collected in the final semester and that final-year undergraduates formed the bulk of interviewees, their preoccupation with the final-year projects as motivators for engagement with OER was expected. Research projects are a requirement for some undergraduate and all graduate programmes in the sampled college. Each learner carried out a major research project for which he/she produced a scholarly report. Learners turned to OER for literature review. For their practical projects, learners used online instructional videos to visualise how theories were translated into practice. Learners reported using OER:

> "To get what I can't find in books and with my teacher." (SR324)
>
> "To learn more on how to integrate the theory into practice." (SR349)
>
> "For my project I am designing and constructing [a] machine. I get the different video clips and compare how different people did it; and how am I going to develop my machine differently?" (Ma-Undergrad3)

In addition to enhancing the sense of belonging while performing everyday classroom tasks (Bourdieu & Passeron, 1990), while using OER, the more reflective learners drew links between OER and their professional and personal development and lifelong learning needs (Dinevski, 2008 documented a similar development in India). The intrinsic motivation thus cultivated tended to create deeper engagement with OER by learners than external drivers did. Community belonging is thus engendered through participation in the local and global communities using OER.

The challenge of accessing enough quality, up-to-date teaching and learning resources in African university libraries is well documented (Mulimila, 2000; Rosenberg, 1997). A number of interviewees highlighted the educational advantages accruing from the ubiquity of e-resources. The cost of universal access to e-resources for all teachers and learners was however perceived as prohibitive, a view echoing that of Tarus, Gichoya, and Muumbo (2015) on the Kenyan HE context. Therefore learners, motivated to do further research, scoured the Internet for whatever 'free' material they could find (Bliss et al., 2013). The variable quality of 'free' resources required that learners are equipped with skills to critically assess them, which was not always the case. Respondents noted that since digital OER carries more current information than textbooks and is available anywhere, anytime, it helped them answer difficult questions in class. Some learners cross-checked with e-resources on mobile devices even during lectures.

Broadening interest beyond class coverage

The data indicates that leaners are motivated to engage with OER as a means of reaching the wider institution- and workplace-based CoPs and to address other out-of-class interests. Learning theories have long established that learners with a clear picture of the future value of their current learning are better motivated learners (Fang & Neufeld, 2009; Leondari, 2007). While use of OER for personal development, lifelong learning, career and job-related pursuits seemed to resonate with many of the survey respondents, use of OER for on-job training and CPD featured prominently among interviewees. Interviewees noted the potential of OER in bridging classroom and field experiences, trainees and practitioners. They perceived OER as the knowledge base of the future without which survival in a knowledge society will be difficult (McAndrew et al., 2010). Ma-Undergrad1

observed that, through OER, they could access practitioners' knowledge and skills, which were not available in class. Fe-Undergrad2 also saw a continuum of learning from class to the Co(OER)P. According to Ma-Teacher3, OER became reference materials for graduates too. The use of OER in class thus placed OER at the core of CPD and lifelong learning by introducing learners to how they can use OER to benefit their future professions and callings. These sentiments were encapsulated in statements like:

> "I expect to use OER to solve my daily tasks at work." (SR198)
>
> "for developing my career skills." (SR337)
>
> "in disseminating development information to farmers." (SR051)
>
> "in developing my experience to speed up my work and produce high quality results." (SR162)
>
> "When you want to know how to present; when you want to know how to do this and that – the 'know-how' that is not taught in class. I do other personal things online. I actually learned to do business from there. You can actually teach yourself to do something and be able to do it well." (Fe-Gradstu1)

Fe-Gradstu1 epitomised learners who already use OER for self-development and lifelong learning.

Use of OER during field attachment, designed to provide experiential learning opportunities for all undergraduates (Makerere University, n.d.), enabled learners to extend their intellectual curiosity and participate in off-campus, field-based CoPs. Interviewed teachers noted that coupling OER with field attachment promoted critical thinking, reflection and problem-solving skills among the learners, echoing Wright and Reju (2012) on the role of OER in enhancing 21st century skills. They noted that reflecting on lived experiences enabled learners to relate theory to practice and to apply that knowledge in addressing real-life challenges, a key aspect of Situated Learning (Lave & Wenger, 1991). This articulates with the sixth tenet in Coates' scale of measuring learner engagement – that is, work-integrated learning (Trowler, 2010). Thus OER was shown to bring the real-world into the classroom, enrich the learning experience, and prepare learners to engage with the real world. The OER

learners created as reports from their field experience benefitted other CoP members in terms of feedback, thus enhancing the learners' belongingness, albeit at the periphery of the CoP.

Reporting on his experiences with OER in two contrasting workplaces where he was attached for internship, Ma-Undergrad6 noted that engineers in a government ministry used online resources to prepare technical reports. The second workplace – a technologically low intensity, medium-scale, private firm – was "more manual" and wanted "things to work" without bothering about the science. The two workplaces contrasted in their perceived and actual need for OER. Given that the majority of businesses in Uganda are small- and medium-scale, their impact on the motivation of learners to adopt OER for future use is thus predictable. A learner anticipating to work in such an environment is less motivated to engage with OER (Leondari, 2007).

5.2 Awareness of and Engagement with OER

From extant literature (Oliver & Goerke, 2008; Pawlowski, 2012), awareness of OER is one of the drivers of adoption. In this study, the respondents extensively used OER without calling it that. My interaction with them gave most members their first opportunity to define what they were already working with. While I proposed the UNESCO definition of OER (UNESCO, 2012) in the PIS, most participants put forward more inclusive definitions similar to: "Any digital resource which can be freely accessed and used for educational purposes" (Pawlowski & Hoel, 2012), which definition takes into account the financial and social aspects of OER but ignores the technical and legal aspects. Whatever educational resources participants could freely access and use was deemed 'open'. That is why teacher-made resources, resources in the public domain, and even proprietary databases subscribed to by the university were deemed 'open' by most participants. This local-global duality in defining OER created a challenge to belonging and fully participating in the global Co(OER)P, and yet this misunderstanding could only be ironed out through participation and reification, another duality in CoP theory (Barab, MaKinster, & Scheckler, 2003).

Awareness of OER

Although *awareness* and *definition* of OER mean different things, engaging in OER while unable to clearly define it hampered participation, especially beyond the local CoP. McKerlich, Ives, and McGreal (2013) related awareness to familiarity with or knowledge about OER. As noted earlier (section 4.3.2), I purposively sampled this college for study on the assumption that its involvement in OER-related projects predisposed its learners to greater exposure to OER than their counterparts in sister colleges. This assumption is borne out by the 66 percent of the survey respondents who indicated that they were aware of the college's involvement in collaborative projects promoting the development and use of OER, and the 72 percent who said they had played a role in the development of the said materials – a higher-than-expected figure probably arising from the loose definition of OER. However, most of the students interviewed could not specifically name any OER-related project that produced the resources they used. Perhaps they were never told or saw no need to know. And yet Ma-Teacher2, Fe-Teacher2 and Ma-Nonteacher1 all reported on participating in several international projects that produced or adapted OER for local use on both undergraduate and graduate programmes. Fe-Nonteacher1 also participated in library projects that provided access to both proprietary and OA journals and open textbooks. There were projects that promoted local authorship and hosting of OER as well. Specific mention was made of MIT-OCW, OER-Africa, Teacher Education in SSA (TESSA), PERI, Strengthening Research Knowledge Systems, Author-Aid, Regional Universities Forum for Capacity Building in Agriculture, Integrated Watershed Management Master Programme, AgShare, and Partnership for HE in Africa (PHEA). Individual staff had also engaged with international partners in the production and dissemination of OER.

However, many participants did not take into account the copyright regime when defining OER; once a resource was freely available, it was deemed to be in the public domain and therefore ‘open’. Ironically, both learners and teachers regarded some proprietary resources as ‘open’ because the university paid for them and users accessed them free of charge. Examples of OER repositories cited by respondents also included proprietary databases like AGORA, Springer, Elsevier, and search engines like Google Scholar and Google Books.

The different levels of awareness of and engagement with OER by learners in the same cohort points to the fact that although the core curriculum played an important role in learner engagement with OER, a learner's personal initiative played a pivotal role in extending and deepening that engagement. Learners who valued their initial exposure to information literacy, critical reading, and OER transferred that knowledge and skills to other learning situations and developed higher competence in using e-resources for learning. For instance, Ma-Gradstu1 valued and made the most of Makerere's ICT infrastructure because he had been exposed to OER as an undergraduate student in a less endowed institution. He demonstrated commitment by his willingness and ability to invest in a personal laptop, a smartphone, and in procuring Internet access to augment the limited institutional provision. He was thus able to engage with Co(OER)Ps within and beyond the confines of the university. The effect of this difference in exposure is evident in the different rates of adoption of OER within and across the programmes.

Different learner cohorts engaged differently with OER. A case in point were the Agricultural Engineering students – a class that was introduced to e-resources in their first year and were encouraged to always use OER in their studies. OER became a core component of their CoPs; their first port-of-call whenever they were challenged, as demonstrated here:

> "Yeah, we use OER for many things. Whenever we come across a challenge in any course unit, the first thing we have to do is go into Google and start checking. We use it in our daily lives. You may be arguing about something and you don't agree, put in and see what is there." (Ma-Undergrad6)

Similarly, a survey respondent said she uses OER,

> "… for problem solving, generation of ideas, knowing new information, completing assignments, knowing what other people have done on some research works." (SR114)

YouTube instructional videos were the most frequently cited OER in the public domain, followed by Google Books, SlideShare and ResearchGate. Students used YouTube videos to view demonstrations of abstract concepts. Other resources reported include: "Blogs and online farmers' fora on tested agricultural practices on

their farms" (SR268) and non-digital resources freely available in the university libraries and book-banks.

However, learner attitudes to contextual challenges exerted influence during learner engagement with OER. Ma-Gradstu2, a foreign graduate student challenged with coping in a strange environment without adequate information supports, developed a personal databank of printed journal articles that he used in place of OER. Although, like the rest of his class, he had received basic training in computer applications and information literacy, he did not engage much with e-resources because accessing institutional ICT tools in this foreign environment was challenging. Although he was aware of the opportunities inherent in using e-resources, the alternative he had adopted could adequately support him. This resonated with findings by Bagarukayo, Weide, Mbarika, and Kim (2012) that there was no significant difference in the learners' higher order cognitive skills when multimedia and print materials were used, thus minimising this learner's perceived need for digital OER. Likewise, Ma-Undergrad4 preferred to use the department's book-bank and to consult his teachers and experienced farmers face-to-face. Unlike Ma-Gradstu2 who avoided the hassles of finding e-resources, Ma-Undergrad4 believed that online resources could corrupt his morals, a case of local-global duality in values negatively affecting OER uptake. He therefore used his recently acquired smartphone to basically access official information.

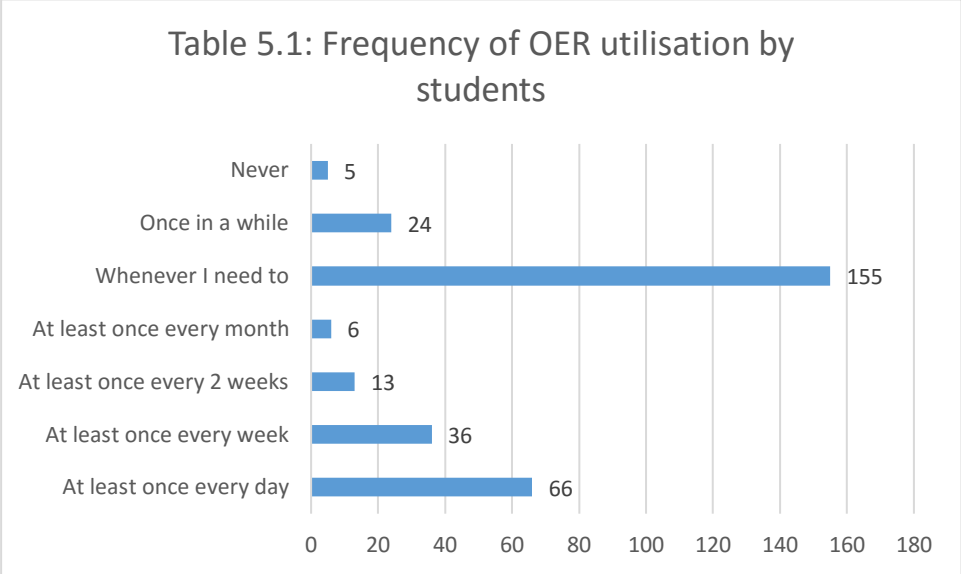
Involvement in OER-producing projects (including publishing)

Cultivating a learner's interest to shift from OER knowledge consumption to OER knowledge production is a novel stage in engagement with OER; I would regard it as a shift towards the core of the CoP. The identification-negotiation duality featured in the divergent views regarding publishing in and using articles from OA journals. Fe-Teacher2 who was introduced to OA publishing by an international co-author and who then presented the article to be promoted on the job, now encourages graduate students to publish in good quality OA journals. Like her, Ma-Teacher2 encourages his mentees to publish in OA journals but cautions them against exploitative, dishonest journal publishers. As a consequence, Ma-Undergrad5 was looking forward to posting his dissertation on an open platform. Ma-Gradstu2 looked forward to giving back to society by publishing his research

findings in OA journals, Ma-Gradstu1, who co-authored an article with his undergraduate supervisor, now looked forward to publishing his graduate research in OA journals in preparation for an academic career. Hodgkinson-Williams and Paskevicius (2012) contend that it is such formal and informal collaborations among learners, and between learners and teachers, in knowledge creation, and not OER content per se, that will transform leaning and thus enhance OER utilisation.

Frequency of engagement

Frequency of use could indicate the value derived from using OER. It is however apparent that challenges associated with accessing digital OER at Makerere curtailed frequency of use. Table 5.1 indicates the survey results in response to how often learners engaged with OER.



More than half (57.8 percent) of the learners indicated that they engage with OER whenever they needed to or 'once in a while'. A total of 30 percent engaged with it between once every day and once every week. About 20 respondents engaged with it once or twice a month. Limited computer skills, lack of timely information and the faulty ICT infrastructure were mentioned as the reasons for infrequent use of OER. One student concluded saying,

> "So, for me, instead of going through those hassles, I just use the material that I already had." (Ma-Gradstu2)

What he had were print journal articles that were probably outdated. On the contrary, other learners used OER quite extensively. It is therefore apparent that challenges

of ICT infrastructural alone may not explain the extent of learner engagement with OER. Self-drive, community engagement, mastery of basic computer skills, mentorship by teachers and alternatives available for survival influenced frequency of engagement with OER.

Engagement with teachers and mentors

Mentors play a pivotal role in any CoP (Ardichvili et al., 2003; Borzillo, Aznar, & Schmitt, 2011). As Fe-Gradstu1 noted, when you are stuck,

> "You ask your friends; you ask your colleagues in case you need to know. You ask your supervisors."

Whether all the categories of people mentioned are in her Co(OER)P or in other groups, she moves from friends, to colleagues and then supervisors as if picturing levels of mastery in a CoP. Friends may be at more-or-less the same level of mastery, some colleagues may achieve higher mastery, and supervisors are expected to be at the highest level of mastery. The highest level of engagement in mentorship is when a mentor supports a mentee in creating OER. As one graduate student noted:

> "But it [the writing of the journal article] was also because of my supervisor. He was good, he was serious, he wanted me to learn, so we did it together. All what I know about writing is from him. I learned a lot from him. Whenever I write and somebody appreciates, I just remember him." (Ma-Gradstu1)

Engagement with fellow learners

Most students turn to fellow students first whenever they need help or advice. The class assignments had a bearing on how learners engaged with OER. Whenever they had to look up references online and they got stranded, they turned to fellow students for help before referring the matter to computer laboratory attendants, librarians, and other support staff. Consultations among students were private and personal because most coursework assignments required individual responses. Consultations thus depended on the individual learner's social capital. Sometimes students formed CoPs to discuss the coursework assignment but still wrote separate submissions. A more formal scenario was when the coursework

assignment required that students find and discuss a particular OER on which they later base a group submission. This was however rare in the experience of the learners interviewed.

Fe-Gradstu2 intimated that learners know who to turn to among fellow learners when faced with how to search the Net for information; how to solve technical glitches; and how to resolve software challenges and virus attacks. That is why learners like Ma-Undergrad4 who did not participate in any CoP with his colleagues found it more difficult to adopt e-resources.

Engagement outside class

Work-integrated learning, the sixth tenet in Coates' scale of measuring learner engagement (Trowler, 2010), provides fertile ground for engaging with OER as well. Compulsory field attachment for all undergraduates was instituted by Makerere to extend learning beyond the university walls:

> "… so that students can engage with other people, with experiences outside, for the purpose of learning." (Ma-Teacher2)

Although field attachment encouraged engagement with the CoP, use of OER in this process was still limited. However, participants saw in OER the possibility of bridging the gap between the classroom and the world of work:

> "There is a lot of engagement between the students, the community and the professionals and that engagement generates a lot of experiences and learning which the OER would be vital to facilitate or enhance; and even documenting what learning is coming out of that engagement." (Ma-Teacher2)

In consonance with Fe-Teacher2 who lamented that: "We enjoy accessing free resources from other countries, but we are not giving back", Ma-Teacher2 envisaged capturing student learning from field attachment as OER that could then be shared with the rest of the world. This would leapfrog Makerere's engagement with OER from first to third generation – where learners are actively engaged in openly creating and sharing resources for their learning. Failure to exploit OER to augment the benefits of the field attachment did not stop leaners from engaging with Co(OER)P outside class. While some learners used the opportunity to extend and deepen their

class learning, others used it to learn what was not taught in class, or to connect with the world of work. As a driver, the wish to contribute local resources to the wider global basket from which they have been gleaning is akin to what Wenger (1998) termed global-local duality, because it comes with its tensions.

5.3 Teachers' Influence

Learners needed teacher guidance on OER selection and utilisation. At 74.5 percent, teachers ranked second to Internet surfing as the commonest factor influencing choice of OER. Over 61 percent of the learners said they were introduced to e-resources by their teachers. Since teachers occupy a position of trust in the CoP, even in a constructivist learning environment, learners depended on teachers for guidance (Ehlers, 2011). Innovative teachers took advantage of seminars, symposia, and official noticeboards to draw the attention to particular OER. Fe-Gradstu1 identified the Research Methods course, Graduate Seminars and student discussion groups as arenas where guidance is given. As one teacher noted,

> "My work is maybe to help them learn how to select what is good and be able to apply it." (Ma-Teacher3)

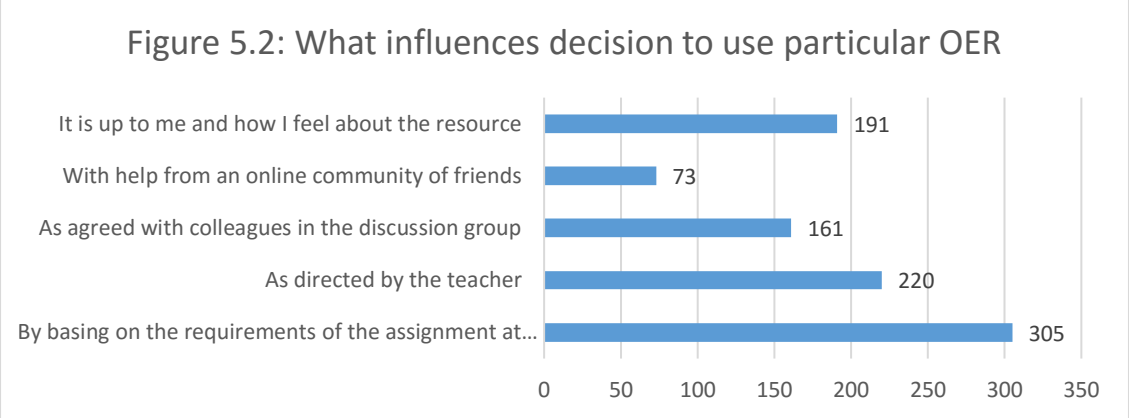
The following statements that recurred during the interviews underscored the role teachers played in OER uptake:

> "[M]ost of the OER I've used have been recommended by teachers. The teacher comes, gives you some work, maybe you don't understand it and then gives you a website [and] tells you, 'You go try this website. Go download this'." (Ma-Undergrad6)

> "[My teachers are] supportive of online resources but they emphasise that you shouldn't rely on them 100 percent. You should read your notes, attend class, and maybe use online resources for further learning." (Fe-Undergrad2)

Figure 5.2 was generated from data indicating the two biggest influences on learner choice of OER. Most learners' decisions on which particular OER to use depended on the assignment and the teacher's guidance. Teachers also influenced learners through inclusion of OER among the references in formal course outlines,

through use of OER when teaching, guiding learners on how to select and use OER, providing space for learners to develop autonomy in the use of OER, and linking e-resources to assessment so that learners take them seriously.



Preferential use of locally developed OER is widely discussed in studies examining the use of OER (McAndrew & Farrow, 2013; Olcott Jr, 2012). In a scenario similar to one reported by Wright and Reju (2012), learners in my study reported that some teachers discouraged OER usage because it competed against their publications targeting the same students as potential buyers. Wright and Reju noted that:

> Requiring personnel at educational institutions to release their learning and instructional materials with an open copyright license can be a challenge to implement in countries where teachers are paid poorly. In these countries, teachers may sell compulsory handouts or their lecture notes to students in order to earn extra income, thereby significantly increasing the cost of education to learners.

Over 78 percent of the survey respondents reported using various forms of teacher-made course materials. Teachers preparing learning materials for publishing would pilot them on learners. Other teacher-made materials included those specifically developed for distance learners and others developed through collaborative projects. These were locally-developed, course-specific resources distributed in digital formats through Makerere University eLearning Environment, through class listserves, or through book-banks as printed copies. These modes of circulation however did not fully exploit 'openness'. Sometimes teachers downloaded materials and e-mailed them to the learners. It was an enactment of the tension between online and face-to-face modes of provision.

Although Makerere University eLearning Environment helped pave the way for the adoption of digital OER, limiting it to posting notes, assignments and occasional announcements robbed learners of the opportunity to learn to engage in online discussion forums, an opportunity availed by many OER platforms. The form in which distance learning materials were distributed also curtailed opportunities of learning to engage in a more versatile way. Dualities within the CoP (Lave & Wenger, 1991) centring on the old versus the new ways of learning, the local versus the global resources, are thus visibly at play in this situation and helping to propel OER adoption.

Both the learners and teachers reported other cases of OER deployment. Isolated, individual or single-course OER initiatives, not centrally coordinated or supported were common: 1) Fe-Teacher1 who used an OER tool developed for a foreign institution to teach a practical skill but could not modify it to suit local specifications, mainly because she had limited ICT skills and was not aware of the open license. 2) Fe-Undergrad2 whose class, to deepen their learning, based discussions on a locally made instructional video. 3) Ma-Teacher1 who downloaded YouTube videos and shared them with learners to vary presentation and enhance learning opportunities. 4) Ma-Teacher3 who, besides the class mailing lists, also used YouTube clips to generate discussions in class. He obtained immediate feedback on whether the e-resources were effective. He found learners emulating him in using SlideShare. Through this, learners developed autonomy in their use of OER. The quality of work learners produced as a result often surprised him.

These anecdotes illustrate how, in the absence of a unifying policy and opportunity to learn from one another, efforts to deploy OER in class are fragmented and ineffective. A definite system of monitoring and evaluating the learning resulting from these strategies was missing. Some students indicated dissatisfaction with how much guidance they received from their teachers. As a result, some participants said they trusted whatever was copyrighted and took what was most popular whenever opinions were divided. Unlike Fe-Gradstu2 who also lamented that she was not adequately guided, Fe-Undergrad2 coped by transferring learning from one course to another:

> "We were guided. We did a course on Social Research in which they taught us how you do research; how you use other people's information; which information you should consider; and also you have to consider the authors of the information." (Fe-Undergrad2)

Although some staff agreed that they did not adequately guide their students towards autonomy in selecting resources, others said what was being done could be improved upon. Creating an atmosphere that encouraged the formation of CoPs was another way out.

Even when learners ventured into producing OER, they depended on their teachers to guide them to the right journals to channel their articles through. The one student who had ever authored an article in an OA journal co-authored it with his teacher-mentor. Learners also expected their teachers to model being analytical and critical.

A fully developed member of a CoP is an independent learner capable of supporting fellow learners within the CoP (P. M. King & Kitchener, 1994; Simpson, 2008). This promotes their agency within the CoP. An effective strategy should therefore help learners develop autonomy in the utilisation of OER. The following statement are indicative of this desired outcome:

> "[W]hen somebody gives you an assignment, it is up to you to know which one [resource] you can use and which one you can leave out." (Ma-Undergrad1)

> "[O]ur PhD students know how to use these resources. They find resources and even let us know. I have seen them sharing links…." (Fe-Teacher2)

However, excessive, assessment-centred support hindered the development of learner autonomy. Fe-Teacher2 blamed failure to develop learner autonomy on large class sizes, immature learners, teachers' ignorance about OER, and lack of time to engage with students' work. She also noted that teachers "have not given [students] opportunities to go out and look for the resources", thus underscoring the need to develop autonomy through learner-centred strategies, which were sometimes difficult to employ. Opportunities to share experiences as a CoP were lacking.

Besides the teachers, librarians and computer laboratory attendants also provide information and technical support to learners. But these support staff were also dependent on teachers. Both learners and support staff expected teachers to champion sensitisation and community awareness of OER. As one participant put it,

> "[I]f you have a lecturer who is knowledgeable about these resources, he or she will be the right person to work with the librarian to promote the use of these resources." (Fe-Nonteacher1)

Ma-Teacher1 intimated that library staff were also involved in sensitizing students on what e-resources were available and how to access them. They noted that OER awareness was not yet included in learner orientation and staff induction programmes. Besides the initial introduction to OER, continued support throughout one's studies was required. There is therefore need for convergence of efforts. Teaching and non-teaching staff have to play their role; learners too have to play theirs. Sife et al. (2007) pointed out that: "Appropriate strategies should be in place to ensure that integration of ICTs in teaching and learning process goes together with the recruitment, training, retaining and retention of required staff" (p. 14).

In traditional settings without access to OER, teachers served as sole champions and mentors. Constructivist learning theories on which most OER are designed have however assigned teachers the role of mentors (J. Baker et al., 2009; O'Donnell & Tobbell, 2007). At Makerere, the tension between the two traditions influences learner utilisation of OER. Although a few learners blamed their traditionally-minded teachers and fellow learners for discouraging the use of OER, the majority (61.5 percent) said their teachers promoted OER. A closer scrutiny however revealed that some of the promoters of OER still used OER to support the instructivist learning paradigm. An effective strategy for addressing the online/face-to-face duality in blended learning contexts needed to be designed and implemented for this setting.

5.4 Social Capital

Daniel, Schwier, and McCalla (2003) defined social capital as a "common social resource that facilitates information exchange, knowledge sharing, and knowledge construction through continuous interaction, built on trust and maintained through

shared understanding." The place of social capital in a CoP is therefore clear. The importance of social capital in temporal and virtual learning communities and distributed CoPs that these authors highlighted is significant for this study. It was extensively reported by the research participants that they each depended on social capital of one form or another to cope with the demands of OER use in particular and e-resources in general. Ma-Teacher3 found digital e-resources a viable tool for bridging this gap and extending it beyond the boundaries of the country. In this lay the seeds of using OER for CPD and lifelong learning. By linking up this way using OER, learners met one strategic goal of the Makerere University Strategic Plan: learning to learn as part of a CoP and thus becoming lifelong learners and global citizens (Makerere University, 2007b).

Explaining a typical knowledge-sharing scenario a learner observed that, besides the teachers:

> "Even our colleagues encourage us. If somebody gets some good information about a particular topic or assignment, he tells you, 'Man, what you do, check here, check here.' As you're checking you get a better one." (Ma-Undergrad3)

If it is true that "most people don't know how to search for the good materials" (Fe-Gradstu2), one with better skills of searching gains value in the CoP. Advanced computer skills enabled some learners to circumvent policy restrictions, thus enhancing their social value within the CoP. While a number of participants acknowledged the educational value they derived from YouTube videos, for instance, many pointed out the limitation of the policy that restricted access during peak periods. Innovative learners who could not access YouTube found alternative videos that the system did not block.

Trust among students grew when they shared what they knew within their CoPs and thus grew their shared knowledge and social capital. Ma-Undergrad4 who preferred not to share what he knew faltered in his engagement with OER. The textbooks he preferred to read, the off-campus practitioners he preferred to consult, and the teachers he consulted once in a while did not give him adequate opportunities to practice using OER. Since he shared no mutual trust with his classmates, they learned nothing from him and he learned nothing from them.

Ma-Undergrad3 reported on a collaborative project that demonstrated the deployment of social capital in learning using e-resources. The work did not only benefit the two students who collaborated across two colleges in an end-of-programme project, but it enabled those who were connected to either of them through social networks to see the possible application of their training:

> "A fellow student was developing a bird-chasing machine which had to use computer programming. Well, we too did computer programming but the CIT students are more specialized in it. That student completed his project last year, but that project exposed most of us to ICT, whereby the programming we'd studied was now being put into use. That Agricultural Engineering student collaborated with an ICT student, they joined efforts, incorporated the Agricultural Engineering and ICT. They had to come up with the codes which the machine used to chase the birds away using different sounds." (Ma-Undergrad3)

Since the learners surveyed are face-to-face students, their interactions around OER were more temporal than virtual. Students of Agricultural Engineering worked more closely with students of Mechanical Engineering because they were classmates for two years and had cultivated close relationships:

> "You go direct and ask; you can send an email, but that person may take long to give you a reply. You have to be with a colleague who knows somebody. You can't go there directly and say, 'Anybody who can do this?' They can look at you as if you were crazy. But a colleague connects you to a colleague." (Ma-Undergrad3)

This helps to explain the essence of technical know-who as social capital in this context.

Learning from more experienced learners helped learners engage with OER. Fe-Gradstu2 explained how dependent she was on friends in her engagement with OER. Asked who she went to whenever she needed help to access e-resources, she said, "a colleague". If her computer was attacked by a virus, she had a friend who assists her with that. When friends downloaded relevant resources, she did not have to go to the Internet. Such was the social capital around her that she survived on it. Her experience contrasted with the international student Ma-Gradstu2 who did

not undertake the orientation which would have helped him plug into the local social networks. Many of the challenges faced by isolated learners could have been resolved by social networks, but they did not tap into this resource.

Gender too has a bearing on social capital. Technology in general and ICT in particular are still male dominated fields universally (Broos, 2005; Farrell, 2007) and in Makerere (Nsibirano, 2009). Male students are therefore more likely than their female counterparts to find peers and mentors to inspire and support them in digital OER ventures. In a case of adaptive preferences (Buskens, 2010; Khader, 2012), ICT was perceived by female respondents too as a men's domain and that is why "some ladies are not into Internet" (Fe-Teacher1). They perceived women as less ambitious and therefore less interested in discovering new things. They claimed that multiple social roles played by working women made it difficult for them to cope with the extra time and effort required to find and use digital OER. This cultural burden, they noted, made women teachers poor models for OER uptake. Add to this the fear of sexual exploitation by peers and mentors, especially during the remote hours when and locations where Internet is more easily accessible, female students at Makerere were perceived as doubly disadvantaged when using social capital for OER uptake within CoPs.

Chapter Summary

This chapter has focused on the factors that drove the adoption of OER at this college. An analysis of the survey data revealed that a sizeable proportion of students at the sampled college of Makerere engaged with OER. The exact extent of their engagement is however tempered by the variant understandings of the term OER. The high proportion of OER users at this college may therefore not hold in the face of a more conservative definition of OER. In this study, the drivers were grouped under four major themes: Motivation for Engagement, Awareness of and Engaging with OER, Teachers' Influence, and Social Capital. Individual participants and particular groups are shown to have varying motivations for engaging or not engaging with OER. This motivation is mediated by awareness and actual opportunities accorded for learners to engage with OER. Teachers and other stakeholders catalysed the process. The next chapter discusses the hindrances to OER adoption at Makerere University.

6. Findings 2: Hindrances to OER Adoption

Having considered OER enablers in the previous chapter, this chapter discusses the challenges to OER adoption. Hindrances are contextual or personal factors that inhibit OER adoption (Caswell et al., 2008, p. 1). Extant literature catalogues context-specific, development-stage and purpose-related challenges to OER adoption. Kursun, Cagiltay, and Can (2014) listed many barriers, including:

> … lack of awareness of copyright issues, existing copyright laws, quality assurance, quality assessment and enhancement, sustainability, interoperability, lack of technological innovation and tools, cultural and language barriers, lack of institutional policies and incentives for educators, high costs of content development and maintenance, resistance from faculty, and lack of connectivity and computers for re-use.

While the above list brought together all reported barriers to OER utilisation, this study isolated barriers affecting learners in Makerere. A study by Richter et al. (2014) focused on barriers from the teachers' point of view. While Hodgkinson-Williams (2010) examined OER challenges in HE, Conole (2012a) and Ngimwa (2006) reflected on OER adoption in Africa. However, they too covered a wider scope than barriers to learner uptake of OER. Closest to these are the barriers that surfaced in a study by Tarus et al. (2015) in Kenyan universities. In another study conducted in a developed context, Prasad and Usagawa (2014, p. 4) further elaborated barriers to OER adoption thus:

> … inadequate training on OER, insufficient multimedia skills to use OER, uncertainties over copyright-related practices, and difficulties with finding appropriate and quality OER. …. [L]ack of instructional design support and incentives to use OER. Lack of OER policies, insufficient support from management, lack of role models, and lack of quality OER ….

By means of content analysis, the following themed challenges were inductively derived from the field data and deductively compared to those in the literature: deficient ICT infrastructure for OER; deficient ICT skills; copyright issues; and defective institutional policies and practices. Let me now explore each theme and its subthemes to some depth.

6.1 Deficient ICT Infrastructure for OER

Extant literature highlighted computing and communication infrastructure as a challenge to OER adoption, especially in SSA (see Ehlers, 2011; Hodgkinson-Williams, 2010; Wright & Reju, 2012). Sife et al. (2007) identified a range of new technologies used in teaching and learning. Citing Coppola (2005), they underscore the relative inflexibility of proprietary software as compared to OSS which can be adapted to accommodate "institutional culture, teaching practices, and disciplinary uniqueness" (p. 6). Since this would require competent technical support, often unavailable to African HEIs, equipping learners with basic troubleshooting skills becomes necessary. Participants' experiences with ICT infrastructure varied from: the few who saw it as excellent; some who saw it as fair; and the majority who saw it as a stumbling block in the path to OER adoption. Viewed through the Diffusion of Innovations theoretical lenses (Rogers, 2010), this scenario with fewer early adopters is not unique to Makerere. This theory suggests that individuals are predisposed to adopt new technological innovations at different rates in the following proportions: innovators (2.5%), early adapters (13.5%), early majority (34%), late majority (34%), and laggards (16%). The ICT infrastructure considered essential for accessing digital OER included personal and institutional equipment and accessories, reliable Internet, and accessible computer laboratories.

Equipment and accessories

Although individual perceptions of the state of ICT equipment and accessories were varied, it was apparent that perceptions affected and influenced learner utilisation of OER. At one extreme of the spectrum were participants who believed that, owing to end-user ignorance, the available equipment and accessories were underutilised; at the other extreme were the majority who believed the equipment was inadequate. The quotation below summed up the prevailing perception:

> "[W]e still have a challenge with our ICT infrastructure. Yes, we have computers … but they're not enough. And I know there're students who have their laptops, but not everyone has." (Fe-Nonteacher1)

However, OER enthusiasts tended to see more opportunities than challenges:

> "[T]he environment is supportive to OER. There is free access to Internet, free computers, the teachers are supportive … even the students themselves learn from others …." (Fe-Undergrad2)

Fe-Teacher2's description of the state of equipment at the college as "very, very old; very slow; and can't download certain things" echoed the sentiments of the many. Learners pointed out that fibre cable network connectors were rarely replaced and the wireless network was ineffective. Ma-Undergrad5 cited his 700-students-strong programme that shared a 20-computers laboratory with other students:

> "You have to wait for two hours for them to log out. That's when you can access a computer [in the Library]. Even if you go to the faculties, still you will find other people waiting." (Fe-Undergrad3)

The public Internet too was crowded during peak hours. A technical staff, Ma-Nonteacher2, reported that the available bandwidth was a third of what was required. This tallies with the findings of Tarus et al. (2015, p. 13) on Kenyan public universities which established that "the cost of Internet bandwidth is still high, hence currently universities cannot afford to procure adequate internet bandwidths". Besides, at Makerere, the Internet was on-and-off and sometimes completely down. This was blamed on failure to carry out regular maintenance. These conditions affected the utilisation of e-resources and OER in particular.

Students who had personal laptops, modems and smartphones were better equipped to use OER. However, Ma-Undergrad6 noted that "most of the students don't have the personal gadgets. Even the university have few gadgets." The contrasting experiences of the 'haves' and 'have-nots' is summed up by this laptop owner with the means to privately pay for Internet services:

> "[I]f they give us an assignment to go and research a certain topic, I do my work fast, while some people wait for computer labs to open. Sometimes computer labs are closed during weekends and in the evenings after 5:00pm. But for me, anytime I can research for my assignments." (Fe-Undergrad1)

Some learners' experiences lay somewhere in between. Noting that students could access OER only because the university paid for Internet and for online journals, Fe-Gradstu2 did not look beyond what was given for possible alternatives. She

exploited OER within the limits imposed by the institutional infrastructure and policies.

Teachers' perceptions of learner access to ICT and Internet also indirectly influenced OER uptake. While some learners reported that teachers expected them to use OER for 80 percent of their learning, Fe-Teacher1 thought it outrageous "[to] expect students to rely on Internet resources say for 60 percent of my course delivery" when they could not access computers and Internet equally. Therefore, in the interest of equity, like-minded teachers avoided giving assignments that relied much on OER. The tension was between online and face-to-face learning, and the perceptions of the teacher mattered.

Awareness of the in-country and between-countries digital divide (Mutula, 2005; Wright & Reju, 2012) seemed to affect how learners perceived and engaged with OER. Participants who came from less endowed institutions found the ICT environment at Makerere much better and therefore appreciated it more than those exposed to even better facilities in foreign HEIs. Learners who had not been elsewhere reported learning about other better endowed HEIs from colleagues. Their respective attitudes however had divergent bearings on their engagement with OER. The quadrant below best illustrates the effect of this local-global duality (Barab et al., 2003) that was at play here.

A. Exposed to comparative local experience and opted for OER	B. Exposed to comparative global experience and opted for OER
C. Exposed to comparative local experience and opted out of OER	D. Exposed to comparative global experience and opted out of OER

While Ma-Gradstu1 (illustrating Group A) from a less endowed local background perceived Makerere e-resources as a "godsend", similarly trained Fe-Gradstu1 (illustrating Group C) was less enthusiastic; she only used them when she had to. Ma-Gradstu1's exposure to a more privileged foreign university (illustrating Group D) did not compromise his appreciation for what Makerere could provide under

challenging circumstances. Both of them however lacked the required ICT skills to effectively engage. The more globally exposed group also reacted divergently. While Ma-Gradstu2 (illustrating Group B) made the most of the available e-resources and then demanded for more, Ma-Gradstu1 and Fe-Gradstu2 (illustrating Group D) did not engage that much because they believed that the available facilities could not adequately support their efforts.

Internet access

In their global overview of challenges facing OER adoption Atkins et al. (2007) enumerated hindrances relating to the creation and utilisation of OER making particular mention of the digital divide between and within nations. Participants' perceptions of whether or not access to Internet was a hindrance to OER adoption varied depending on the expectations of the users and their ability to circumvent the challenges posed by the existing infrastructure. While the majority of participants had issues with Internet access, those who had found solutions complained less. The variance in perception between Ma-Gradstu1 and Fe-Gradstu1, for instance, arose from differences in expectation. While one had a scholarly inclination, the other preferred to use OER to develop her business acumen instead. To each of them, Internet access was only as good as it served to meet their particular needs.

While pragmatic students valued the opportunities the limited Internet connectivity afforded them and also acknowledged challenges posed by the old, poorly maintained infrastructure catering to a ballooning population, idealistic students focused on the daunting challenges and did not see the opportunities presented by the situation. Foregoing lunch to buy Internet bundles, Fe-Undergrad1 innovatively used her Internet modem to download lighter documents during peak times, and MakAir (the institutional wireless network) to download videos at off-peak times, indicating that, used intelligently, the existing infrastructure could go a long way in meeting the current need. On the other hand, the less innovative Ma-Undergrad4, equipped with a smartphone, disregarded MakAir at all times and, working in isolation, procured Internet bundles that he used ineffectively for official communication only.

The mismatch was evident between the rate at which ICT was advancing globally and that at which Makerere was replenishing it locally. Some learners had

more modern personal equipment than was available at Makerere. Although this gave them easier access to global resources using more current equipment and software, they faced challenges in accessing institutional resources housed on older equipment using outdated software. Those who perceived the Internet as the only alternative at their disposal had to make it work for them. Others, like Ma-Undergrad4 and Ma-Gradstu2, opted for print materials instead.

Computer laboratories

Although participants seemed satisfied with the number of computer laboratories in the college, the age and state of equipment and accessories, policies governing their opening and closing hours, the large clientele served by the laboratories, and the lack of competent technicians to assist students with technical challenges featured prominently among the hindrances to OER adoption. However, not everyone saw the state of the computer laboratories as a hindrance. Each of the Masters programmes had a dedicated computer laboratory managed by the students themselves. The Main Library also had computer laboratories reserved for graduate students. Although the equipment was in a state of disrepair, most of the graduate students had personal laptops and other accessories which they used in the laboratories, which also served as discussion rooms for their CoPs. Given that graduate students were fewer than the undergraduates, this arrangement helped guarantee greater flexibility and access for the graduate students.

This was not the case for undergraduate students whose laboratories were managed by technicians and shared by many programmes, some with large student numbers. Each of the three schools had a computer laboratory and one at college level to cater for all undergraduate students. Undergraduates could use any of the school computer laboratories, the college laboratory and the undergraduate computer laboratory in the Main Library. It was however apparent that most of these laboratories were too small for the large number of undergraduates and were inadequately equipped.

Regarding policies that governed the use of existing laboratories, participants noted that the two-hours-per-day time limit enforced in the Main Library undergraduate computer laboratory was too limiting. Given the slow Internet, the time would run out before the students were done. The opposite was true of

laboratories with no time limits; like Ma-Undergrad2 observed, "[Y]ou can even spend there a full day if you have the time", but by this act one would deny other users access to the few computers available. Dependence on computer laboratory attendants meant that:

> "Some people wait for computer labs to open. Sometimes computer labs are closed during weekends and in the evenings after 5:00pm." (Fe-Undergrad1)

The Laboratory Technicians were the only technical personnel available to the learners in the computer laboratories. There were no personnel equipped with library skills to help end-users cope with OER challenges. Engaging Library Assistants to assist end-users in computer laboratories outside of the University Library System was deemed costly. Fe-Nonteacher1 proposed remote e-support as an option; but this would require reliable Internet and skilling of end-users. The range of technical personnel required for successful implementation of web-based learning highlighted by Sife et al. (2007) is instructive for massive OER uptake as well. The understaffing, the deficiency in technical skills among current staff, and the cost of employing appropriate staff was therefore a hindrance to OER adoption at Makerere.

Considering all the above factors, Ma-Undergrad5 concluded that "the infrastructure does not favour the use of OER". Wright and Reju (2012, p. 3) pointed out that:

> The successful development, distribution, and utilisation of OERs depend on access to reliable electrical power, reasonably priced Internet services, and appropriate hardware and software.

These factors cannot be taken for granted in a developing country context. But since Makerere is located in the capital city, it enjoys a fairly well developed ICT infrastructure and a sizeable middleclass elite that take advantage of the public infrastructure or privately sponsor additional services from the budding telecommunications sector. However, as Atkins et al. (2007) noted, the digital divide affects learners from urban elite families differently from those from the rural areas and the poor urban slums, thus influencing their engagement with OER differently. For a medium that was developed to address social inequalities in accessing quality

educational resources (Atkins et al., 2007; Wright & Reju, 2012), this ICT infrastructure challenge cannot be glossed over. ICT infrastructure aside, the requisite skills among end-users were also lacking.

6.2 Deficient ICT Skills

Utilisation of digital OER calls for mastery of basic ICT skills. Besides the basic skills required by the individual learners to perform in a technology-enhanced learning environment, the learners would benefit from having skilled technical personnel within their reach (Sife et al., 2007). It was apparent from the interviews that the less ICT-competent participants tended to use OER less. Three attitudinal tendencies towards ICT stood out: (1) the enthusiasts, (2) the reluctant users, and (3) the disinterested. These typologies are derived from the typical behaviour exhibited by the individuals studied (Zawacki-Richter, Müskens, Krause, Alturki, & Aldraiweesh, 2015).

Enthusiasts

ICT enthusiasts like Fe-Undergrad2, Ma-Teacher1, Ma-Teacher3, Ma-Nonteacher1, Fe-Nonteacher1 and Ma-Nonteacher2 were deeply involved with OER. They were drawn from both sexes and across the age spectrum. While some were students, others were teaching and non-teaching staff. An academic staff noted that:

> "If you are working with undergraduates of these days who are now keen on technology, they have smartphones and things like that, you can see that the level of appreciation is much higher."
> (Ma-Teacher1)

Although this generalisation may not hold true for all undergraduates, it is clear that successive generations use ICTs more and more in their daily life and studies (Hodgkinson-Williams & Paskevicius, 2012). It is also important to note that enthusiasm is not merely an age issue. Fe-Teacher1 was on the verge of retirement and yet definitely more enthusiastic about ICT than the much younger Fe-Teacher2. While the former went out of her way using her limited ICT skills to access and even develop OER for use in her classes, the latter stopped at encouraging her students to go out and look up these resources. Fe-Teacher1 reported that her students were fascinated by the few OER she brought to class. She was also excited about her

own participation in writing and reviewing articles for an OA journal. Her experience, however, demonstrated that enthusiasm without skills cannot take one far. Her limited ICT knowledge curtailed the effectiveness of her enthusiasm for OER. ICT enthusiasts are self-driven in their use of ICT in pursuit of learning and other interests (Sniehotta, 2009; Straub, 2009; Surry & Farquhar, 1997).

Reluctant users

As Ma-Undergrad1 noted, learners who were not exposed to computers feared to even touch them. At university, learners were offered one introductory course in Computer Applications in the first semester of their first year. This was insufficient for those without pre-university exposure to computers to cope with digital learning. This kind of ICT user is typified by a learner who, when she was asked whether she had any complaint about Makerere as an enabling environment for OER adoption, retorted:

> "No; reason being that I'm not so much in the Net; I go there when I need it. So I have a minimum threshold. I don't expect a lot." (Fe-Gradstu1)

These are target users of e-resources. Although they knew the value of OER, they limited engagement to the barest minimum. Asked to explain why she was not keen, she retorted:

> "It's not my interest, really (*laughter*). I go online when I've a need. I don't go just to search. When I want to learn how to do something, I go there. When I've not understood something, I go there. When I want a book, I go there." (Fe-Gradstu1)

Reluctance was sometimes because the user lacked the requisite skills. Despite his insistence that he knew about and often used e-resources, the only experiences that Ma-Undergrad5 retold were those of his friends. He could not tell the difference between commonly-used computer programmes, indicating that he lacked first-hand experience with them. He dressed up his lack of ICT skills as 'dislike' for videos. This learner stuck to print.

Learners who felt less inclined or disadvantaged in the use of e-resources turned to available alternatives to meet their learning goals. They also kept away

from Co(OER)P either because they feared to expose their weakness, or because other members of the CoP shunned them. This attitude hinders universal uptake of digital OER.

Disinterested users

Disinterested people prefer not to use ICT, if they can avoid it (Anderson & Elloumi, 2008; Brown, 2013; Dembo, Junge, & Lynch, 2006). In my study, such people could not explain whether they did this by choice or by default. While most non-users avoided the interviews, those who participated gave other excuses for their non-engagement with OER, although one could see that they had serious challenges with ICT. When asked how often they used OER, they provided incoherent responses that betrayed uncertainty about ICTs. Ma-Undergrad4 fitted this category. Although he previously owned a laptop and had freshly acquired a smartphone, he lacked skills in manipulating either of them. Because he believed the Internet exposed users to immoral influences, he avoided using it and associating with those who used it.

One interviewee summed up the challenge faced by this group:

> "Some of us might only know how to open and close [Microsoft] Word. Some people think Internet is for e-mail and that's it." (Fe-Teacher2)

Unless this group which lay at the extreme end of the spectrum was forced to use ICT for learning, they were unlikely to take it up voluntarily. Where alternatives were available, they settled for the alternatives. Their resistance was possibly reinforced by the fact that they had realised that media choice did not negatively affect their assessment scores (Bagarukayo et al., 2012). Ultimately, their disinterest inhibits uptake of digital OER.

6.3 Copyright Issues

Knowledge of legal issues around OER was generally low among the learners and the teachers in this study. Wright and Reju (2012, p. 19) pinpointed copyright as "one of the main reasons that educational resources are inaccessible to and/or expensive for learners and teachers in Africa." Kursun et al. (2014) noted that the copyright barrier is common in OER adoption literature (see also Fang & Neufeld,

2009; Hawkridge, Armellini, Nikoi, Rowlett, & Witthaus, 2010; Hylén, 2006). Even in Tufts University where attempts were made to sensitize staff on copyright issues and how they relate to OER, staff remained suspicious. Kursun et al. (2014) noted the tension among Tufts University staff regarding traditionally copyrighted materials versus openly licensed materials. Many staff felt that excluding copyrighted materials from OER lowered their quality and thus put the authors' reputations at risk. They also felt open licenses amounted to loss of control over their work. This lowered uptake of OER in the institution.

In most jurisdictions, the traditional copyright laws prohibit teachers and learners from reproducing copies of study materials, making any modifications on the materials to suit their needs, or sharing those resources with other members of their CoP. On the other hand, "Open copyright licenses [under which OER are protected] enable others to use, replicate, adapt, and remix resources without seeking permission or paying a royalty fee" (Wright & Reju, 2012, p. 21). Limited awareness of these distinguishing features affected OER uptake. As Richter et al. (2014, p. 9), observed,

> [M]any potential users still are uncertain if their activities are fully legal. As a consequence, some potential users generally avoid the situation and do not use OERs. Others entirely ignore the licensing problem because they do not care what happens with their own resources and simply use any learning resources as long as they are available for download. In return, they upload their self-produced learning resources for public reuse without attaching licenses and understand these as fully open learning resources….

However, unlike in the developed world where awareness of copyright law influenced OER uptake negatively, at Makerere, it was the lack of awareness that had a similar effect. While some participants in this study were not aware of copyright issues and what they mean for OER adoption, many more were carefree, others had very limited knowledge, and a few others were revisionists who opposed the traditional view of copyright. Each attitude exhibited influenced OER uptake in a particular way. Ignorance of copyright regulations, ignoring them, misrepresenting them, or disregarding them, all led to unwarranted fears, translating into limited utilisation, creation and sharing of OER.

6.4 Defective Institutional Policies and Practices

Institutional policies and practices form the environment within which OER thrives or fails (Porter, Graham, Bodily, & Sandberg, 2016). Ehlers (2011) aptly noted that OER policies ought to go beyond promoting equity and access by enabling OER to transform learning experiences and contribute to the institution's value chain. The institutional ICT policies and strategies, the teaching and assessment strategies, lack of student evaluation of staff and their use of instructional materials, uncoordinated CPD, and weak reward systems for staff were some of the policies and practices that influenced OER uptake at Makerere. Key among the practices is dependence on projects as a channel for introducing OER.

Reliance on projects

Extant literature indicates that consuming locally developed OER leads to higher levels of uptake (Das, 2011; Tarus et al., 2015; Wright & Reju, 2012). The personal and institutional commitment required to prepare and utilise quality resources is normally higher than when supporting an external partnership (Cooper & Mitsunaga, 2010; Forte & Lampe, 2013; Howes, 2006). By relying totally on external collaborations for the development of OER at Makerere, the institution has failed to sustainably support OER uptake.

Remarking on the muddle and discontinuity created by multiple, externally-funded OER projects at Makerere, Ma-Teacher1 noted that:

> "We work in an environment which picks this from here and picks that from there. So, there is no clarity; so, there is a little bit of confusion." (Ma-Teacher1)

As observed by Kaguhangire-Barifaijo and Namara (2012), this multiplicity of disjointed ICT-related projects creates dependency on more developed partner institutions for funding and for technical advice. Some of the OER used at Makerere were generated by projects not hosted at Makerere but engaging staff and students of Makerere. Often, digital resources from such projects were also externally hosted on closed repositories belonging to partner institutions or on project websites. When such projects wound up, Makerere could not access those resources anymore. No wonder, even the most engaged staff remained unfamiliar with many aspects of OER

and continuously depended on collaborating colleagues for guidance. OER projects that were not grounded in the local institutional practices thus inhibited OER uptake.

Despite the litany of projects, locally funded and ideologically localised OER projects were conspicuously missing. However, Fe-Nonteacher1 and Ma-Nonteacher2 reported on projects deliberately pursuing sustainability strategies, including CPD, and supporting locals to take over responsibilities previously handled by external partners. One of the projects had attracted state funding, a missing link in the OER projects in developing countries (Atkins et al., 2007). Most of the OER developed and used across Kenyan public universities also resulted from externally funded projects (Tarus et al., 2015), signalling lack of meso-level budget prioritization for this activity.

Another unintended effect of projects is in the staff time. Since projects provide additional income to the poorly remunerated staff, staff tended to give more attention to projects at the expense of university core functions. As one teacher noted:

> "… learner-centred approaches need a lot of time to prepare and we don't have that time. Some people are participating on four or five projects. In which case, teaching becomes a lesser priority. So, someone will take an approach that consumes the least time." (Fe-Teacher2)

Learners were generally unaware of ongoing projects at their departments, schools, or college. Teachers too reported on only those projects in which they participated. This was because projects were so personalised that even the heads of units lacked basic information on the projects within their jurisdiction. In such circumstances, sharing OER outputs with colleagues outside those projects was hard. This atmosphere hindered OER adoption.

ICT policies and strategies

The IT Policy for Uganda (Republic of Uganda, 2012) focuses on ICT for education, laying a firm foundation for infrastructure and policy initiatives that have helped support OER uptake. Anchoring it are institutional ICT policies and implementation strategies (Makerere University, 2016b). The challenge lies in implementation. Although restrictions on accessing YouTube during peak working hours was the one practice most commented on by both teachers and students,

Makerere had other ICT policies and strategies which also affected learner utilisation of OER. The prioritisation of OSS in the university ICT policy could have boosted the 'open movement' and consequently, OER; but it was not implemented systematically; proprietary software was still prevalent. Other policies and practices governed access to ICT infrastructure and equipment. For instance, some resources on local servers were not accessible outside of the Makerere Local Area Network (LAN). The university has also had to balance between ICT policies and strategies that promote universal free access to the OER used by the university, and managing the user-base to maximise benefits for their primary target groups. Access to resources on Makerere University eLearning Environment was therefore restricted. These restrictions however limit the learning communities to the students registered on the course and their teachers. Other people in the Co(OER)Ps who could have enriched the groups are left out.

The strategy of availing locally produced materials (students' thesis, dissertations, and staff pre-print publications) through the Institutional Repository (DSpace) was commended for promoting OER usage. However, not all the resources posted were open. Ma-Gradstu2 and Fe-Nonteacher1 also observed that some postings were of poor quality. These issues put off some would-be OER users.

Policies on laboratory access and use of personal gadgets to access the university network affected OER utilisation by learners. Restrictions on who could use or not use a particular computer laboratory and for how long, were highlighted as hindrances. Unlike graduate students who managed their own computer laboratories, allowing for more flexible access times and therefore greater engagement with OER at individual and group levels, undergraduate laboratories were managed by attendants, providing less opportunities for OER engagement and uptake. While wireless access advantaged learners who brought their own devices, students who depended on institutional computers had to operate within laboratory opening hours, thus hindering OER uptake. Unrestricted access to the institutional wireless network (MakAir) slowed down the Internet and thus hindered OER adoption.

The Intellectual Property Management Policy (Makerere University, 2016c) was silent on OER. So was the Policy on Appointment and Promotion of Academic Staff (Makerere University, 2016a). Hodgkinson-Williams and Gray (2009) intimated that such a policy position could discourage Open Educational Practices (OEPs). Since there was no compulsion for staff and students to engage with e-resources, some institutional initiatives went unattended to, thus reducing the chances for learner engagement with OER. Even the compulsory computer courses for undergraduate students (Makerere University, 2016d) were not universally implemented across the University. The absence of a systematic CPD programme, the failure to implement an Information Literacy programme for both staff and students, and the absence of a system of incentives and sanctions for staff and students who engage with e-resources helped fuel this apathy.

Teaching strategy

Despite the progressive Learning and Teaching Policy (Makerere University, 2016d) based on the principle of 'intentional learning' and encouraging innovative use of ICT in teaching, Makerere teachers commonly employed the lecture method, with slight variations. This teaching strategy that portrays teachers as fountains of knowledge contrasts with the 21st century pedagogy aligned with OEPs (Beetham & Sharpe, 2013; Ehlers, 2011; Sife et al., 2007). Dependence on teachers curtails the intellectual curiosity required for creative engagement with OER. Ma-Undergrad5's complaint that "[the teacher] says, 'Go look for this,' but he doesn't guide you about it", represented such dependency. Learners who looked to their teachers for direction on where to find what resources to use for a particular task tended not to advance smoothly towards the core of their Co(OER)P.

Besides the formal course outlines, some teachers gave extra notes to students. Some even downloaded and printed out the additional readings. As a result, most undergraduate students restricted their reading to what was prescribed by the teacher. This affected the spirit of exploration required for using OER to create new knowledge. Participants blamed this on lack of a systematic programme for orienting staff in how to facilitate learning:

> "Everybody just teaches the way they were taught. I remember in our Department [identifier removed] we had tried to institute

> learner-centred teaching, but because we were never trained to do student-centred learning or PBL, we ended up going back to teaching the way our teachers taught us. Some of us have learned to teach better because of the short staff development courses we attend once in a while, here and there." (Fe-Teacher2)

As indicated here, though, there were exceptions among teachers. These took advantage of the few CPD opportunities to improve their teaching.

However, the teaching strategy for graduate students was slightly different and so was their engagement with OER. Learners were expected to craft their own notes based on class presentations and discussions. The anecdote below illustrates how a change in teaching strategy led to greater engagement with OER. In this approach, which the student said "is used extensively in coursework", the teacher asked learners to find and bring OER to class for use in collaborative learning:

> "Our lecturer asked for a journal article; we gave her; and then she set questions about it. So we're going to critique the title, abstract … then we develop a poster for it. So as a group, we'll be sharing from such an article. And it's from OA." (Ma-Gradstu1)

Besides teachers who champion such innovative teaching strategies, Ma-Teacher1 argued for the need to coordinate, finance, technically support, improve policy implementation, ensure quality, enhance information literacy skills, and incentivise these efforts if they were to achieve a sustainable critical mass. Makerere does not provide this enabling environment for OER uptake. The laissez-faire stance adopted by the university towards teaching and learning strategies made it hard for innovations like OER to take off.

For OER uptake to be effective, the implementation needs to take care of the tension between OER design and OER deployment (that is, the design-emergent duality as detailed by Barab et al., 2003). Tension persists between the established instructivist curriculum and pedagogic practices, and the demands of the constructivist OEPs. Alongside this is the tension between online and face-to-face learning for this blended learning cohort. As Wright and Reju (2012, p. 10) noted, the flipped classroom model could advance OER usage, thus:

> If students have access to OERs, then face-to-face instructional time can be focused on discussion, debate, and practical applications. These types of engaging activities promote the development of 21st-century skills such as critical thinking, creativity, and problem solving.

Such a shift in paradigm would call for a change in attitude and development of appropriate skills by teachers, learners and institutional managers. Ehlers (2011) pictures the resulting alternative pedagogical scenarios as degrees of openness. He notes that one-way, instructive, regurgitative, teacher-centred approaches result into low degrees of openness; use of dialogic learning based on pre-set objectives leads to medium degrees of openness; and learner-driven pedagogies result into higher degrees of openness. And thus teaching strategies influence OER uptake.

Assessment strategies

As noted earlier by survey respondents (section 5.1), preparation for assessment was one of the key functions OER played in their studies. The assessment strategies were seen to influence the use of OER. The following quotations are revealing:

> "You do not need to go for OER if you can pass some course units by reading the teacher's notes". (Ma-Undergrad5)

> "If I want them to read [an OER], I tell them that I'll examine them about its contents." (Fe-Teacher2)

Rigid examination formats curtailed the flexibility required for OER uptake. Amidst such assessment practices, learners lacked the incentive to read broadly, especially using OER.

The common practice for individual students to prepare and submit assessment tasks directly to their teachers was seen to cut out creative group activities that could serve as beginning steps in nurturing a nascent OER co-creation and versioning tradition. How teachers score and grade learners' work also encouraged or discouraged OER usage. If evidence for broad reading was not rewarded, learners did what they needed to do to pass the examinations. Ma-Undergrad1 insisted that if the assignments given required one to use OER and evidence of this was made part of the assessment rubric, then students would take OER more seriously. Scholtz

(2007, p. 2) traced this to "tensions concerning validity and reliability between the behaviourist-informed measurement community and the authentic assessment practices of the social constructivist community" resulting in the use of formative and summative assessment results as the basis for promoting, certifying and employing graduates, which works against adoption of OEPs. Like White and Nitkin (2014) observed, an education system that focuses on grades rather than long-term learning will not value or adopt OEPs.

Student evaluation of staff

Makerere has a policy on learner evaluation of teachers (Makerere University, 2016d), but it is hardly implemented. Three of the interviewees observed that failure to put in place a systematic process of learner assessment of their teachers, including the resources used for teaching, negatively affected the deployment of OER at Makerere. By comparing the local situation with assessment strategies used elsewhere, Fe-Teacher2 noted that "Our colleagues in developed countries are evaluated by their students on how they've improved teaching materials", which is not the case at Makerere. Without critical assessment of the resources used for teaching, "we assume that what has been given is good and square" (Ma-Nonteacher1) and so OER-related initiatives yield less than they could have. Linking student assessment results to staff incentives like promotion or recognition would encourage OER uptake.

Continuous Professional Development (CPD)

In an environment where CPD is unsystematic, innovations like OER become erratic. CPD has to be deliberate, continuous and reiterative if we are to avoid "going back to teaching the way our teachers taught us" (Fe-Teacher2). However, in the absence of a CPD policy for teaching staff,

> "we jump from the lecture theatre to class and continue to perpetuate the same traditions [as our own teachers]." (Fe-Teacher2)

Besides deficiencies in teaching, staff have gaps in ICT and Information Literacy, among others. This was not because CPD opportunities were not there; they were just not systematic and mandatory for everyone. Those who were keen took advantage of them to learn. A case in point was Ma-Teacher2 who credited the

training they were undertaking for building "our capacity as a team in Makerere to prepare those materials and make them available." CPD is required because capacity gaps will always be there and re-tooling will be needed. As Ma-Gradstu2 noted, CPD could "boost the confidence of the instructors to let their students use online resources" in general and OER in particular. In support of the need for CPD as an enabler for OER uptake, Ma-Teacher1 argued that "it requires people to be trained that if you will successfully handle this then you need to prepare it in this way". He believed that CPD could stem the prevalent ad hoc deployment of OER at Makerere. Emphasising the need to build the capacity of the teacher through CPD, Ma-Teacher3 noted that:

> "If we're not capacitated to facilitate the autonomy of the learners to learn on their own, and may be utilize materials, or even to develop the materials we are talking about, it becomes a challenge." (Ma-Teacher3)

Reward systems

Reporting on a study by OECD (2007), Kursun et al. (2014) noted that 58 percent of the teachers and staff surveyed attributed non-engagement with OER to lack of a reward system. It is apparent that when macro- and meso-level policies do not explicitly favour the development and utilisation of OER, micro-level praxis is likely to follow suit (Sife et al., 2007). Hindrances mutually reinforce one another, complicating OER adoption. By giving little recognition to teaching and development of OER, the Makerere reward systems hinder OER uptake. Participants proposed rewards ranging from official recognition to promotions and monetary rewards.. Although Makerere has a Distinguished Teacher Award policy (Makerere University, 2016d), it has never been implemented. Ma-Nonteacher1 castigated Makerere for maintaining a traditional stance by recognising only printed works and face-to-face teaching hours, thus failing to update its incentives to encourage staff engagement with digital OER.

Fe-Teacher2 contended that OER activities leading to "increased visibility" which in turn "leads to other new projects, new opportunities, and new networks" are rewarding in themselves. She asked: "why struggle with an innovation … when nobody is going to appreciate my work?" and suggested that students too need a

reward system to encourage them embrace OER. Although Ma-Teacher1 encouraged his first-time-author mentees to publish in OA journals, he said he personally avoided publishing in them because presenting such articles to be recognised for promotion in the university service still raised questions of reputation. Fe-Teacher1 reported that mentors cautioned graduate students who were also academic staff at the university to ensure that their papers were published in "reputable journals". Fe-Teacher2 only overcame her scepticism about OA journals after her article was recognised as evidence for promotion. Hodgkinson-Williams and Gray (2009, p. 14) acknowledged this barrier to OER adoption when they observed that:

> the new 'culture of contribution' [is] often contrary to policy directives within universities that both privilege research over teaching and learning activities and value copyrighted ideas in journal articles and in patents rather than the production of shareable teaching resources.

A learning environment that supports learner engagement has to be deliberately planned to provide "opportunities, incentives, and reinforcements for [personal] growth and development" (Strange & Banning, 2001, p. 201). Each stakeholder – learner, teacher, academic administrator, student support manager, et cetera – has a role to play in realising, sustaining and utilising the supportive learning environment for the achievement of the educational goals. The dominant educational philosophy or ideology driving the curriculum delivery also contributes to the effectiveness of the learning environment. Trowler (2010, p. 41), itemised "Traditionalism", "Progressivism", "Social constructionism" and "Enterprise" as the predominant ideologies influencing HE institutions and systems. The ideology may be national or institutional, and may be influenced by how the education is funded, how students are assessed, and the quality assurance mechanisms in place.

Chapter Summary

This study established that the opportunities inherent in OER adoption come with challenges that are context specific. The use of digital OER and e-resources in general is dependent upon availability of reliable ICT infrastructure and accessories, and the requisite skills to manipulate computers (Wiley, 2007). While computer

hardware and technical skills were not perceived as significant barriers to OER uptake in Turkey (Kursun et al., 2014), for instance, they featured prominently as barriers in other East African studies as well (Farrell, 2007; Kahiigi, Ekenberg, Hanson, et al., 2008; Lwoga, 2014; Mtebe & Raphael, 2013; Tarus et al., 2015). ICT skills too were found to be inadequate in the study population. Institutional policies and practices had a significant influence on the operational environment. Ma-Teacher2 sums up the hindrances to OER adoption in this statement on requirements for OER uptake at Makerere:

> "[T]here should be some incentives; there should also be some broader orientation of staff on how staff can make use of these resources; there should be some regular monitoring. I'd expect [the Quality Assurance Directorate] to be really following up how teachers and students are engaging, what mechanisms they are using, what resources they use, so that you can see how to inculcate this into the whole system to make it more efficient. I'm sure many people, once they come to learn about it, they will appreciate it later." (Ma-Teacher2)

In spite of these challenges, it is evident that personal disposition played an indisputable role in whether or not, and how deeply the individual learner engaged with Co(OER)Ps. In a nutshell, OER adoption would benefit from an overhaul of the way HE is planned, managed and organised with the aim of integrating ICTs in teaching and learning (Sife et al., 2007).

In the next chapter, I will discuss how these findings address the research questions that guided this study.

7. Discussion

Evidence from the study demonstrated that despite the various enablers and hindrances encountered by learners in their engagement with OER, personal agency within Co(OER)Ps played a pivotal role. It determined whether or not, and how deeply, the learner took up OER as a tool for knowledge acquisition, knowledge generation and knowledge sharing. Beyond the academic community to which learners already belonged by virtue of their formal admission into the university, Co(OER)Ps were informal voluntary groupings that afforded learners opportunities to participate in making sense of what they were learning and clarifying their identity and position in the CoP (Wenger, 2008). CoP theory provided a versatile framework for analysing this informal learning in a formal institution.

At Makerere, OER adoption and diffusion found enablers and hindrances at micro, meso, and macro levels. Personal agency was exercised through LPP in the Co(OER)Ps by confronting issues that supported or militated against OER adoption. Personal agency was exercised within an institutional context and within a global e-environment.

In an attempt to answer the research questions raised in section 1.1 of this thesis, this chapter examines how individual learners took advantage of the enablers and navigated the hurdles to move or fail to move through the Co[OER]Ps to attain full membership. In so doing, they became or failed to become accomplished OER users and producers (Lave & Wenger, 1991). First, I identify the CoPs and differentiate them from other groups in the academic community; then I discuss personal agency and its relevance to CoPs; I examine the LPP of learners moving from the periphery; and finally, I examine the lack of LPP of those who fail or refuse to move from the periphery the Co(OER)Ps.

7.1 Identifying the CoPs

Lave and Wenger (1991) defined CoPs as informal activity systems bringing together individuals working towards a common goal that is meaningful to them and to the broader community to which they belong. CoP members generate and share knowledge as they engage in solving their work-related challenges. Eraut (2002) differentiates between a *learning community* – a formal setting where opportunities

are created for learning to take place – and a *community of practice (CoP)*, which is informal and may locate itself within the formal institution or grow beyond its formal groupings within and outside the institutional structures. In the Makerere context, Co(OER)Ps consisted of those who understood their shared enterprise to include use of OER in their learning, partnered with other committed users to mutually participate in generating, deploying and utilising OER, and shared OER ethos and practices with other members of the CoP.

From the study, it is evident that the Makerere institutional policies and pedagogic practices were not fully attuned to the promotion of OER production and use. Although learners had varying degrees of freedom to engage with OER within this policy and practice environment, the degree to which they engaged in the Co(OER)Ps was considerably constrained. This study therefore sought to establish how OER-friendly the Makerere environment was (Camilleri, Ehlers, & Pawlowski, 2014). In the absence of a policy that directly addresses the production and use of OER, let alone promoting OEP, OER usage was practiced in isolated pockets or islands operating as CoPs.

Since the sample for this study were mainly on-campus students, their knowledge-sharing activities were carried out in both the physical and the virtual environments. Although CoPs are normally not formal creations, for these learners, over time, the formal arrangements for study led them to sometimes form informal groupings to support them in their learning. Some of the formations were triggered by teachers who used group activities for collaborative learning. Ma-Gradstu1, for instance, reported on a common practice of group assignments that required them to find OA journal and study specific aspects and then report on them. This helped the class to discover one another's competences in OER usage and possibly collaborate on other learning tasks. Fe-Gradstu2 testified to totally depending on her Co(OER)P for access to OER and all the troubleshooting she may require along the way. Her case illustrates how the formal and the informal groupings often overlapped.

At Makerere, learners tended to form transitional CoPs around common learning challenges. Learners collaborated with course mates or across programmes, institutions or even internationally depending on the nature of learning or assessment challenge they sought to resolve. These informal groupings

eventually took on the form of longer-term Co(OER)Ps through which members learned to support one another in their use of OER. The learning challenge formed the domain of interest around which the CoP gravitated. The duration of association thus depended on the nature of task and whether there was need to continue collaborating on other tasks. That is why, in this study, Agricultural Engineering students from different cohorts continued collaborating with Mechanical Engineering students on final-year projects years after the two programmes had gone their separate ways. Ma-Undergrad2 noted how his CoP were reminded of the Computer Programming by a joint final-year project between an Agricultural Engineering student and a Computing and Information Science student who crafted a machine to scare birds away using computer programmed sounds. Although the joint project was formally between the two finalists, other members of the CoP took advantage of it to learn how to apply computer programming to agricultural mechanization. The CoP employed OER, among other resources.

It was echoed over and over again by interviewees that, besides the infrastructural and policy challenges that affected the whole institution, the predominant examination-centred curriculum and the competitive assessment methods hindered the full blossoming of the collaboration entailed in OEP (Camilleri et al., 2014). Innovative teachers like Ma-Teacher1 and Ma-Teacher3, and students like Fe-Undergrad2 and Ma-Gradstu1 however managed to work around these limits to create ‘some islands of OEP’ across the sampled college. This was true for individual courses within programmes and for individual programmes within departments. Out of the three programmes selected for in-depth study, one from each school of the college, it was evident that the Agricultural Engineering students were the most engaged with OER. They had had a more solid introduction to e-learning in their first year when they shared courses with Mechanical Engineering students. All their first year engineering courses had a presence on Makerere University eLearning Environment. The students had a dedicated computer laboratory and a practical curriculum that required them to research online. With the encouragement and support of their teachers, the learners on this programme engaged deeply with fellow students, with their teachers and with external collaborators in Co(OER)Ps.

The same cannot be said of the other two undergraduate programmes mainly because the two had relatively more learners in each class and lacked a solid foundation in using ICT for learning. However, the Agriculture and Rural Innovations programme had a few more Co(OER)Ps than the Tourism programme. The two programmes had large students-to-computers ratios in the laboratories they could access. The few Co(OER)P therefore depended on the individual teacher's innovativeness and the learner's willingness to push beyond the environmental limitations. Bandura (2001) argues that the influence between social structure and human agency is bidirectional. Therefore, while individual participants affected the learning environment by their actions in the CoPs, the learning environment too influenced the nature of their participation in the CoPs.

Interviewees concurred that OER could contribute to the dialogue across CoPs; but deficiencies in ICT infrastructure and skills on- and off-campus often stood in the way. In the cases where practitioners are not technical and the technicians are not practical, learners failed to know who to engage with for holistic learning. As one participant put it:

> "Even if the association was created to link up with field practitioners, almost all the people in the field do not know how to use the computers. He is operating a machine but if you ask him this and this, he doesn't know anything about that. As for the engineers, sometimes they are not engaged in the real work." (Ma-Undergrad1)

The policy on field attachment created an environment that could support the growth of CoPs through which knowledge and skills would be shared with learners, teachers and field-based practitioners. Many participants acknowledged that integrating OER in the implementation of this policy would help bring field experiences to the mainly theoretical classes while also opening up dialogue with practitioners (Tenywa & Fungo, 2007). Besides Fe-Undergrad2 whose teacher video recorded field practical lessons and later used them in class; Ma-Gradstu2 who used OER book chapters piloted by his teachers; distance learning materials developers whose students used locally developed resources for most of their learning; and Ma-Teacher1 and Ma-Teacher3 who shared OER from different projects with their classes as and when there were opportunities, there was

apparently no systematic institutional strategy to enhance the field attachment experience with OER. Individual teachers introduced the OER to their learners who then decided how much of it to take up and alongside which of their classmates and off- and on-line mentors, on- and off-campus, thus creating and sustaining Co(OER)Ps in and out of the college.

7.2 Personal Agency and the CoPs

Although Situated Learning holds that learning is participatory (Lave & Wenger, 1991), individual learners came to it with the freedom to negotiate how to engage with other members of the CoP. The older members also had the liberty to accept or reject the new comer's contribution to and membership of the CoP. The concept of LPP explains the pull-and-push factors that influence personal agency in a social learning context. Bandura (2001) defined an agent as one who *intentionally* makes things happen by his or her *actions*. D. Scott and Morrison (2007, p. 8) in turn defined agency as "the active and intentional role of the individual in the construction and re-construction of social life". Human agency is therefore a wilful act by an individual, alone or in concert with other individuals, with the aim of achieving a given goal. It may take the form of direct personal agency, proxy agency (where one may not have direct control over the social forces controlling the situation and so they rely on influencing those with the power), or collective agency (where likeminded people join forces to effect the desired action) (Bandura, 2001). In my study, while some participants explored OER as individuals and others indirectly through their teachers, the majority engaged collectively in Co(OER)Ps.

In Situated Learning, personal agency is exercised within a learning group (Martin, 2004). Ardichvili et al. (2003, p. 64) noted that "members' motivation to actively participate in community knowledge generation and sharing activities" is a critical determinant in the success of CoPs. Motivation is what drives a learner to engage or not to engage in a certain way with a given learning opportunity. Dweck (1986, p. 1040) defines motivation as "psychological factors, other than ability, that determine how effectively the individual acquires and uses skills".

Although engagement with OER among learners at Makerere was mainly extrinsically motivated, individuals' reactions to the challenges and opportunities OER presented depended on whether they came to OER with a fixed or growth

mind-set. Dweck (2000) defined people with fixed mind-sets as those who believed that their success is premised on their fixed abilities or talents. On the contrary, those with a growth mind-set consciously developed their abilities and talents through dedication and hard-work. The individual learner's beliefs in how much control they had over their learning (self-efficacy) affected their motivation and hence their engagement with Co(OER)Ps.

Both mental dispositions are evident in the sample for this study. While Ma-Undergrad5 typified the insecurity of a naturally endowed learner with social advantage and a fixed mind-set that stunted his engagement with Co(OER)P, Fe-Undergrad2, a course mate with a growth mind-set, reflected openly on what she was learning from her teachers and fellow learners, engaged with Co(OER)P and could clearly project the role OER would play in her professional future. Rather than focusing on the hindrances to OER utilisation like their colleagues with fixed mind-sets, learners with growth mind-sets worked around the challenges to ensure that they met their personal learning goals using whatever means at their disposal, including engaging with Co(OER)Ps.

In an environment like Makerere where OER is an emerging phenomenon and where existing institutional policies and structures predate the emergence of OER, it was not surprising that the policies and structures did not support OER utilisation. Personal agency within Co(OER)Ps became the key driver in OER adoption. For instance, while Ma-Undergrad2 acknowledged the policy and infrastructural challenges to accessing e-resources, he still engaged significantly in various Co(OER)Ps alongside fellow learners and teachers. From Co(OER)P membership he enhanced his learning and contributed to the learning of other members of the Co(OER)P. Ma-Undergrad5, on the other hand, despite his privileged socio-economic position, opted for more traditional, print-based resources and individualised study; he did not meaningfully participate in Co(OER)Ps. Because his long established approach to learning yielded good results, he saw no need to adopt OER through LPP in a CoP (Wenger, 2011).

Motivation drives personal agency; it is what drives individuals and groups of individuals to engage or not engage with others in a knowledge enterprise of any kind (Bandura, 2001), including Co(OER)Ps. Lynch and Dembo (2004) noted that

learner success in learning using technology was premised upon motivation, which includes self-efficacy and intrinsic goal orientation; technological self-efficacy resulting from built-up confidence in using computers and associated accessories for learning; effective management of study time and the study environment; and knowing where, when, how and from whom to seek assistance. A case in point is Fe-Undergrad2 who mindfully participates in various Co(OER)Ps by drawing knowledge, experiences and personal contacts across disciplines to enrich her learning and enhance her value within the CoPs. She credits her successful integration of OER in her learning to the solid foundation laid by her mentors in the various disciplines and to the social and technological enablers in the institution.

Ryan and Deci (2000) explain the role of motivation in personal agency in learning. In my study, participants' engagement with Co(OER)Ps was seen to positively correlate with types and levels of motivation. As learners' self-motivation tended to range from amotivation through the various stages of extrinsic motivation to intrinsic motivation, so did the tendency to engage in Co(OER)Ps (see Figure 3.4 for detailed plot). The data shows that participants from varying age-groups, different academic programmes, different academic levels and positions, engaged with OER differently depending on their personal motivation. The externally regulated category included teacher Fe-Teacher2 who, despite having had international exposure and opportunities to produce OER alongside colleagues but maintained an impersonal attitude to OER. Two of her fellow teachers with similar backgrounds, Ma-Teacher1 and Ma-Teacher2, were among those who had fully internalised OER ethos and were mentoring members of their respective Co(OER)Ps.

In the same externally regulated category as Fe-Teacher2 was Ma-Undergrad5, a student on the same study programme with Fe-Undergrad3 and Ma-Undergrad6 who had internalised OER into their personal value systems and ranked among the most accomplished users of OER. The prolific users of OER also exhibited the characteristic future-time perspective on OER. They did not only see it as a tool for tackling current challenges, but also for tackling professional and lifelong learning challenges. This forethoughtfulness motivated them to engage with Co(OER)P (Trowler, 2010).

By consciously valuing OER and relating it to their learning goals, Fe-Teacher1, Ma-Undergrad2, Fe-Undergrad1, Ma-Undergrad3, and Ma-Undergrad6 personally identified with OER and were willing to pay the cost of engaging with it. Their resilience paid off when they could relate OER to their personal lifelong learning goals. This group fitted the self-reactive and self-reflective (self-efficacy) traits characteristic of effective personal agency (Bandura, 2001). This characteristic was evident in the teaching and non-teaching staff who positively influenced learners to adopt OER through Co(OER)Ps.

7.3 Examining the LPP of those Moving from the Periphery to the Centre

In this study, LPP was exhibited by the participants depending on how, how often, and alongside who they engaged with OER (Clarke & Thomas, 2011; O'Donnell & Tobbell, 2007). Since OER was not the main domain of interest for these learners, their participation in Co(OER)P was tangential and supportive of their other educational and professional pursuits (Lea et al., 2005). That is why Ma-Undergrad6 felt pride in belonging to the engineering profession after participating in an online Co(OER)P for engineers and engineering students. Although he was not seeking to be an OER practitioner, the Co(OER)P became a means to legitimately participating in the engineering profession alongside practicing engineers.

Learners with limited knowledge and skills were forced to operate within the e-environment imposed on them by the university and by their teachers. Like Fe-Undergrad1 noted, besides the resources in the public domain (some of which were OER), they were limited to the resources that were procured by the university, which they could only access using the LAN. Through LPP in Co(OER)P, those like Ma-Undergrad7 and Fe-Undergrad2 who learned of alternative sources of resources from their teachers and colleagues discovered quality OER from which they could freely select what suited their needs. While Fe-Gradstu1 used OER for self-development, learners like Ma-Undergard6 and Ma-Gradstu1 who went further to discover OER discussion forums created and shared ideas beyond the confines of Makerere. This gave them a sense of belonging to a larger Co(OER)P.

Awareness of OA journals as a channel of creative self-expression was widespread especially among graduate students and their teachers but not yet well

utilised. Although among the learners only Ma-Gradstu1 was credited with publishing in an OA journal, Ma-Undergrad5 and Ma-Gradstu2, among others, were preparing to publish their research findings as OER. This was after teacher-mentors like Ma-Teacher1, Ma-Teacher2 and Fe-teacher1 sensitised them through their respective Co(OER)Ps.

Over time, the OER innovation appeared to be taking root among learners and staff of Makerere. Like his fellow final year students, postgraduate students, their teachers and mentors who formed the population for this study, Ma-Undergrad6 was in a transitory stage between training and professional work. He was therefore expected to, and indeed exhibited, affinity for sharing knowledge and experiences with members of the profession for which he was being trained (unlike most graduate students who were already engaged professionally), with professional and personal development as his ultimate goal. Ma-Undergrad6's sense of belongingness to the engineering profession was sharpened through LPP in the local learners' Co(OER)P; but more so during field attachment when he witnessed professional engineers using OER to address professional concerns in their work-based CoP. He was motivated to join an online Co(OER)P bringing together professional engineers and engineering students. He confessed that LPP in this international online Co(OER)P made him "feel like an engineer".

The individual participants in the three undergraduate programmes selected for in-depth interviews – Agricultural Engineering, Bachelor of Agriculture and Rural Innovation, and Tourism – demonstrated varying levels of engagement with their professional CoPs. Since learning was at the core of these CoPs, OER played a key role in their engagement. Individuals like Ma-Undergrad6, Fe-Undergrad2, Ma-Gradstu1, Ma-Teacher1, and Ma-Nonteacher2 who were most engaged in the practice of the Co(OER)Ps exhibited the highest enthusiasm and mastery of the domain of knowledge that brought the CoP together in the first place. Besides what was shared in class, the other major source of this shared repertoire of knowledge were OER of various kinds. Given that the population of this study were co-located in face-to-face training programmes which included field attachment training opportunities, OER were used to cement professional development within these physical settings as well. Ma-Teacher3 confessed to learning so much from his students who, participating in CoPs, used OER to surface much new knowledge.

Mastery in the Co(OER)Ps did not necessarily correlate with one's status in the institution, therefore.

Besides Ma-Undergrad6, Ma-Teacher1 and Ma-Teacher3 who engaged in collaborative programmes and who were reported to have formed virtual CoPs (Daniel et al., 2003), the rest of the students and staff participated minimally in virtual Co(OER)Ps, although Fe-Teacher2 and Ma-Gradastu2, among others, applauded their potential for extending learning beyond formal institutional boundaries. However, Fe-Teacher2, Fe-Undergrad1, and Fe-Gradstu2, among others, blamed this on the inadequate bandwidth and the demand this extra virtual interaction placed on the stringent requirements for assessment and the limited time for study. For learners like Ma-Undergrad4, Ma-Undergrad5, and Fe-Gradstu3, unless the virtual interaction formed a part of the class and assessment requirements, there was little motivation to engage in it. So they stayed on the periphery of the CoP(s). However, learners like Ma-Undergrad3 and Ma-Gradstu1 who engaged with virtual CoPs were excited about belonging to and learning from global CoPs in their chosen profession (Daniel et al., 2003; Gannon-Leary & Fontainha, 2007).

It is evident that learners with a growth mind-set (Dweck, 2015) were freely and willingly engaging with and learning from their fellow learners and from their teachers in Co(OER)Ps. Ma-Gradstu1 engaged with OER alongside his fellow learners and had co-authored an article in an OA journal with his teacher. He had seen his potential develop and credited it to his co-author-teacher-mentor. His self-efficacy within the Co(OER)P was considerably high; he viewed himself as a future academic who should engage with other members of the CoP in developing free knowledge. He saw this engagement in producing and consuming OER as his future trajectory and embraced it enthusiastically.

Like him, Fe-Undergrad2 was aware of the challenges learners faced in accessing OER. She was also aware of the available opportunities to access and extensively use OER alone, in groups and in response to tasks assigned by her teachers. She demonstrated competence in transferring knowledge and skills from one course to another and in developing her capacity to master the use of OER across the CoP. On her part, Fe-Undergrad3 engaged with OER without involving her fellow students that much. And Ma-Undergrad6 had found ways to use OER

alone, with fellow learners and in the wider community where he served as a youth leader. It is therefore evident that this category of participants engaged with CoP outside their immediate classes and therefore looked forward to a lifelong engagement with OER as members of their professional and social CoPs. They had reflectively come to adopt the Co(OER)P language and ethos into their personal value systems and looked to OER as viable tools in their professional and lifelong learning endeavours.

Although Ma-Gradstu1, Ma-Teacher2, Fe-Undergrad2, Fe-Undergrad3, and Ma-Undergrad6 were still extrinsically motivated in their use of OER, they integrated it into their personal value systems through self-regulation and self-reflection so much so that their motivation is more-or-less intrinsic. Since they had the will to deploy OER, they found conducive ways to do so now and looked forward to doing so in future as productive members of Co(OER)Ps.

Although OER knowledge generation within the study population was not as pronounced as OER knowledge sharing, the little that there was was apparently motivated by the desire for recognition within the community (Ardichvili et al., 2003). Recognition often brought consultancy opportunities and promotion for teachers. This extrinsic motivation encouraged them and enabled them to engage with the CoP(s). Where recognition was not assured, teachers with lower motivation tended to shy away from such activities.

Teachers like Ma-Teacher2 and Fe-Teacher2 who developed study materials and availed them to learners using various channels free of charge were motivated by a desire to receive feedback so as to improve on their stock of teaching/learning resources. Others did so to ease the burden of routine activities and to facilitate delegation in case they asked a colleague to stand in for them.

Learners who were entering the knowledge-creation arena for the first time were apparently motivated to use OA journals as the channel for introducing themselves to their respective professional CoPs. To ensure that their credibility is not doubted, academically ambitious students were encouraged to mind the quality of OA journals they published in.

The intrinsic motivation that classical theory attributes greater intensity and learning achievement to, featured in two teachers and three non-teaching staff

whose job descriptions included supporting OER adoption by teachers and learners. These included: Ma-Teacher1 and Ma-Teacher3, Ma-Nonteacher1, Fe-Nonteacher1, and Ma-Nonteacher2. These mentors were closest to the core of the Co(OER)Ps.

7.4 Examining the Lack of LPP of those who fail or refuse to Move from the Periphery

Bandura (2001) suggests that the social environment is not monolithic; it consists of the imposed environment, the selected environment and the constructed environment. The relative flexibility of these differing environments places varying constraints on human agency. The electronic environment in which OER reside manifests these varying levels of flexibility (Atkins, 2007; Bliss, 2013; Butcher, 2011). A learner will benefit from and benefit the Co[OER]P differently depending on the technology and the technical knowledge and skills at the learner's disposal. Noting why it is important to consider technology adoption and diffusion in such a scenario, Straub (2009, p. 626) observed that:

> (a) technology adoption is a complex, inherently social, developmental process;
> (b) individuals construct unique (but malleable) perceptions of technology that influence the adoption process; and
> (c) successfully facilitating a technology adoption needs to address cognitive, emotional, and contextual concerns.

Since learning with OER is an innovation using another innovation, ICTs, as a channel, the adoption of OER by individual learners and the diffusion of OER usage to the CoP presents multiple hurdles to the learners and their teachers (Rogers, 2010).

As noted in section 7.2 above, human agency is sometimes collective (Bandura, 2001). Highlighting the importance of intentionality in collective human agency, Bandura (2001, p. 7) noted that:

> [M]ost human pursuits involve other participating agents. Such joint activities require commitment to a shared intention and coordination of interdependent plans of action. The challenge in collaborative activities is to meld diverse self-interests in the service of common goals and intentions collectively pursued in concert.

Dweck (2000) had earlier contended that a learner with a growth mind-set will more willingly support other learners because he or she expects to learn through this challenge. Conversely, a learner with a fixed mind-set will fear to expose their weaknesses to competition and so refrain from CoP participation.

The study population exhibited limited mastery of the requisite knowledge and skills to take advantage of the existing institutional and personal technologies to fully exploit the opportunities proffered by OER. Although Ma-Undergrad4 and Ma-Undergrad5 presented different excuses for not engaging with Co(OER)Ps, limited mastery of ICT skills was the real cause of their refusal to move from the periphery of the Co(OER)P. Even Fe-Teacher1 and Fe-Undergrad1 who had a positive disposition towards OER failed to move from the periphery of the Co(OER)P owing to deficiency in critical ICT skills.

While technical support staff like Ma-Nonteacher1, Ma-Nonteacher2 and Fe-Nonteacher1 were aware of the inherent potential in the available technologies and made the most of it for their self-development and work, only the few staff and students who consulted them formally and informally got to know what they could do with the existing technologies. In the absence of systematic orientation for learners and induction programmes for teachers, OER awareness and ICT skills gaps continued to undermine the effective utilisation of the e-environment. Ma-Gradstu2, Ma-Undergrad4 and Ma-Undergrad5 who settled for print-based solutions are cases in point. However, Co(OER)P provided informal forums for the sharing of knowledge and development of skills for the majority of participants. Knowledgeable and skilled teaching and non-teaching staff, and fellow learners helped mentor novices in the use of digital OER. Ma-Undergrad4, Ma-Undergrad5, and Ma-Gradstu2 who opted to isolate themselves from Co(OER)P failed to meaningfully engage with OER.

Before adopting a technological innovation, “potential adopters of an innovation must learn about the innovation, be persuaded as to the merits of the innovation, decide to adopt, implement the innovation, and confirm (reaffirm or reject) the decision to adopt the innovation” (Surry & Farquhar, 1997, p. 24). From this study, it is evident that groups of learners who were formally introduced to use of online resources in general and OER and its merits in particular by their mentors tended to engage more with OER than those who had to find their way to OER unaided. For

instance, Agricultural Engineering undergraduate students who had a good foundation in e-learning and the use of online resources looked at them as a first-place-of-call whenever they wanted to learn something new or resolve an issue in the CoPs. These early adapters (Rogers, 2010) saw the relative advantage of OER over more traditional sources of information, saw its compatibility with their immediate and long-term needs and interests, learned to cope with the technological challenges it posed, and appreciated the impact OER showed in their work and the work of others in their CoPs.

However, not all who became aware of OER and its merits adopted it. Some were not persuaded to, because they did not consider it a better alternative to existing options. A case in point is the international graduate student, Ma-Gradstu2 who depended on old printed journal articles and the draft book chapters piloted by his teachers because, for long, he was not aware of the institutional ICT resources that could have helped him more easily access OER. However, even after he found out, because the choice of the print medium did not affect his learning achievement (Bagarukayo et al., 2012), he saw no need to adopt digital OER. Besides the class groups and the professional association with which he interacted face-to-face, he did not participate in Co(OER)Ps. Out of fear for negative cultural influences or out of failure to cope with the technology and its demands, Ma-Undergrad4 and Ma-Undergrd5 also retained the printed sources and direct human contact with mentors as a viable and reliable alternative CoPs.

Creation and repurposing of OER for use by teachers and learners at Makerere was limited to course materials on Makerere University eLearning Environment, collaborative OER project outputs, and a few articles in OA journals, which are still treated with scepticism, as Ma-Teacher1 and other teachers intimated. Teachers like Fe-Teacher1 and Ma-Teacher1 learned to create and repurpose OER through formal trainings on OER projects. But while Fe-Teacher1 limited her participation to the formal process and did not therefore develop her skills much further, Ma-Teacher1 engaged with various Co(OER)Ps locally alongside his students and internationally with other OER enthusiasts. He was thus able to expand his utilisation of OER through LPP while Fe-Teacher1, despite her personal enthusiasm for OER, remained peripheral. Although these partnerships helped introduce OER

and OEP to Makerere, the lack of an OER policy and strategy for the university made these innovations shaky and unsustainable.

Other institutional policies and practices that came under scrutiny included the examination-centred curriculum that did not encourage broad exploration, thus proscribing the extensive use of OER; the ambivalent attitude to OER in the Academic Staff Appointments and Promotions policy of the university and its effect on publishing in OA journals; the general lack of staff induction and CPD programmes for teaching and non-teaching staff, which could systematically expose them to innovations like OER; laxity in the implementation of cross-cutting ICT courses on the undergraduate curriculum, limiting the ICT skills required for digital exploration; overreliance on disjointed, externally-funded projects to introduce OER and to sustain ICT infrastructure at the university, among others.

Other low scale student users of OER were Fe-Gradstu2 and Ma-Undergrad5, both of whom interacted with Co(OER)Ps minimally. Rather than go out of her way to search for and bring resources to her Co(OER)P for discussion, Fe-Gradstu2 waited for her teachers and fellow students to bring what they had found and she would then take and use that, ostensibly because she feared viruses would attack her personal computing device if she set out to indiscriminately hunt for OER on the Internet. However, when it came to pursuing her pet hobbies, which centred on self-help business training, she did not hesitate to go online, and all by herself, ostensibly because she knew nobody else who was interested in another person's hobby. Despite her great potential, she remained isolated from Co(OER)Ps and a minimal user of OER.

Despite being a student leader, Ma-Undergrad5 too was separatist when it came to studying. His self-confidence as a gifted achiever was tinged with evident anxiety about failure. It is clear that he had developed his own strategy on how to appear intellectually invincible and did not want to expose his fears to those he considered intellectually subordinate. (Outside the recorded interview, he expressed deep anxiety about failing to maintain the excellent academic performance record he had joined the programme with, and which he had maintained by some 'secret' methods that were now failing him.) So he did not participate with other students in what he sarcastically called "watching online videos", no matter their content. As a

result, he could not tell the difference between YouTube and Skype, for instance; things he had heard about but had not bothered to explore further within Co(OER)Ps. He believed he had the natural endowment and methods of study that had proved effective before; he was therefore not motivated to adopt new methods whose efficacy he had not tested and proved. However, behind this façade were inadequate ICT skills he feared to display.

Bandura (2001) flagged intentionality as a driver of motivation. Having no intention of engaging with OER, for instance, Ma-Undergrad4, was the least motivated and least engaged in Co(OER)Ps. He did not consider OER as the 'right stuff' for him at that point in time. He therefore did not bother to develop the requisite skills to engage with it, preferring the familiar world of printed books and directly consulting his mentors. He considered his classmates 'unserious' and so he did not work closely with them in their CoPs. Whatever his natural endowments, his worldview stood in the way of self-regulation owing to a fixed mind-set. He did not benefit from the utilisation of OER in partnership with others as a Co(OER)Ps.

In the externally regulated category were: Fe-Teacher2 (with extensive local and international exposure to OER), Fe-Gradstu2 (with access to personal equipment, teachers and friends to learn from), and Ma-Undergrad5 (with the personal resources to access the Net and all the supportive social networks). Despite their privileged circumstance, these three chose not to engage with Co(OER)Ps. Apparently, they did not wish to strain to do what they could get along without doing. Engaging with OER was something they did only when they were pushed to by external demands. Similarly, Fe-Gradstu1 and Ma-Undergrad1 (both from relatively disadvantaged social backgrounds) and Ma-Gradstu2 (a foreign student lacking adequate social capital) lacked strong, goal-oriented, self-motivation to engage with Co(OER)Ps. They blamed their failure on the formal system rather than taking advantage of Co(OER)Ps and learning to make the most of their circumstances.

Besides those who loved OER as a novel source of learning resources for general enhancement of life, others were target users who turned to OER to meet particular performance goals. The OER created by third parties and shared among participants was commonly used to address external demands: to prepare for class

presentations; to respond to progressive assessment tasks; and to meet project requirements. Rarely would the latter category use OER to extend learning beyond meeting assessment needs; to reach out beyond the 'local' Co(OER)P and to project into future career or job-related pursuits, which would have served as indicators that their engagement with Co(OER)Ps was driven by internalised extrinsic motivation or intrinsic motivation. This analysis resonates with the words of Dweck (2000, p. 1): "The hallmark of successful individuals is that they love learning, they seek challenges, they value effort and they persist in the face of challenges."

Chapter Summary

The findings pointed to learner motivation as a key driver of engagement with Co(OER)Ps. Motivation in turn influences and is influenced by Co(OER)Ps participation. Teachers are shown to play a significant role in motivating learners. Institutional structures and policies pose environmental enablers as well as challenges, but learner attitudes remain key in surmounting these challenges in the bid to adopt OER usage. In the absence of binding institutional policies and structures designed to promote OER engagement, learner motivation to engage with the local and international Co(OER)Ps appears the most instrumental way to promote OER usage in the Makerere context.

8. Conclusions and Recommendations

This last chapter summarises the major outputs of the study and also points to the policy implications and the directions future research may take. To form a basis for the conclusion and recommendations, I summarise the major findings of the study, draw out the possible empirical answers to the questions posed in section 1.1, highlight the limitations encountered in executing the study, the possible implications of this study to the policies and practice of HE in this particular context, and finally make some recommendations for future application of what has surfaced in the course of this study.

8.1 Summary of Findings

An analysis of the survey data revealed that over 90 percent of the learners at the sampled college engaged with OER for various reasons. However, the number is inflated by the loose definition of OER they typically applied in their practice. Enacting the global-local dualism tension (Barab et al., 2003), the study participants adopted a more inclusive definition (akin to the one proposed by Downes (2007)) that covered any resources they accessed without having to pay. They included teacher-made learning materials in Makerere University eLearning Environment and those circulated through class e-mails; resources developed through collaborative projects; proprietary databases to which the university subscribed; and library textbooks. If the UNESCO-COL definition (UNESCO, 2012) was strictly followed, the extent of OER usage in the sampled population would be much less.

8.2 Possible Answers to the Research Questions

The research questions on which this study was based are the focus of the subsequent discussion.

What drives OER uptake by learners at Makerere?

The major drivers for OER adoption at Makerere featured under four major themes: motivation for engagement, awareness of and engagement with OER, teachers' influence, and social capital. Individual participants and particular groups were shown to have varying levels of motivation for engaging with OER. Motivation

is mediated by awareness and actual opportunities accorded for learners to engage with OER through CoP. Teachers and other mentors catalysed the process.

Findings from the survey and the follow-up interviews indicated that the motivation for learners to engage with Co(OER)P depended on the strength of the drivers. Using the Taxonomy of Human Motivation (Ryan & Deci, 2000), it was established that as the learners' motivation varied from amotivation through the various stages of extrinsic motivation to intrinsic motivation, so did their depth of engagement with OER. In an examination-oriented education system, assessments was the main extrinsic driver for engagement in Co(OER)P. Presentations and projects that required learners to research drove them to Internet in search of OER. A few of the learners engaged with OER as a way of reaching out beyond the local community and for their future-time value.

Intrinsically motivated learners like Fe-Undergrad2 saw in OER wider personal, professional and societal benefits. To Ma-Gradstu1, OER was providing opportunities for extended field attachment and authentic learning that could result into immediate personal growth and lifelong learning. LPP in OER production in online forums and OA journals was motivated by the need for belonging.

The majority of learners indicated teachers' guidance as the greatest influence on their choice of OER. Mentoring was both formal and informal; face-to-face and online. Teachers' own OER creations helped introduce learners to OER. Others learned from the physical and virtual Co(OER)Ps. As mentors, teachers encouraged OER uptake through the tasks they set for students and the assessment standards they communicated to the learners. Those students who took the ultimate step to engage in OER production also benefited from teachers' encouragement and modelling.

Through LPP in the Co(OER)Ps, a few teachers learned to effectively use OER. It became apparent to some that providing reading lists and even downloading OER for learners were not effective. Teacher Fe-Teacher2, for instance, found out that if she coupled OER with class assignments and summative assessment, learners engaged more intimately with the resources. Teacher Ma-Teacher3 was pleasantly surprised whenever he asked undergraduate students to find and use additional resources in their class assignments, which served as proof that OER worked well

with activity-based, learner-centred teaching strategies. Apparently, rather than spoon-feed them, creating an OER-friendly, enabling environment and training learners to learn to fend for themselves and support each other through Co(OER)Ps yielded better results in the short- and long-run.

What hinders OER uptake by learners at Makerere?

Caswell et al. (2008) defined hindrances as contextual or personal factors that inhibit learners from adopting OER. However, the findings of this study indicate that there is an intricate interplay between the context and the attitude of the learner to that context. Although highlighted hindrances centred on deficiencies in the ICT infrastructure and institutional policies, human agency played a role in determining how these hindrances affected engagement with OER. While some learners perceived these as insurmountable barriers, others saw them as manageable challenges.

Learners like Ma-Gradstu2, Ma-Undergrad4 and Ma-Undergrad5 felt they had other ways of successfully attaining the same learning objectives did not engage with OER that much. They instead used the more traditional modes of print and direct contact with their peers and mentors to obtain the information they needed and to maintain the necessary social contacts within their physical CoPs. OER played a minimal role in their private learning and CoPs.

The tangible ICT infrastructure and the intangible institutional policies and practices made up the institutional context that negatively influenced OER uptake. Learner perceptions of environmental factors ranged from enthusiastic users of e-resources like Fe-Undergrad2 who was satisfied with the available infrastructure; to less enthusiastic Fe-Nonteacher1, who appreciated the infrastructural layout but also noted that these did not match the number of learners; and to the many more who indicated that the poor state of ICT equipment and accessories, the inadequate Internet bandwidth, the crammed computer laboratories, and the retrogressive policies that governed their use were major hindrances to full adoption of OER at Makerere.

Engagement with virtual Co(OER)P was constrained by limited bandwidth and the teachers' failure to integrate it into the learning and assessment. Only learners with strong self-drive went beyond the limits of the class to engage virtually with

international Co(OER)P. As Wright and Reju (2012) put it, the bottom line is that: "Whatever technology is used, it must be affordable to the population who will use it, it must be supported and maintained, and people must learn how to use it." In a nutshell therefore, poor ICT infrastructure and deficiency in ICT skills, the examination-centred curricula that did not engender extensive reading, and unsupportive policies and practices at the university minimised OER usage.

How does LPP in Co(OER)P enable learners to take advantage of the drivers of OER uptake at Makerere?

Given that OER were introduced and practiced at Makerere without any formal policy to promote them, OER uptake was based on LPP in the CoPs. The required technical know-how to sustain OER adoption was propagated through technical know-who. At the centre of the Co(OER)P were the mentors who had had earlier exposure to the production and use of OER. These inducted new comers into the Co(OER)Ps. But since the mentors were few and not always available to the learners, the more knowledgeable learners helped acculturate the less knowledgeable within their CoPs.

For OER uptake to take place, it mattered who knew what and who knew who in the social network (Daniel et al., 2003; Israel, Beaulieu, & Hartless, 2001). In this semi-formal environment, learners who wisely used their social capital benefitted the most from OER. Female students were particularly disadvantaged by lack of female models among OER champions, and by social norms that denied them equal participation in CoPs. Co(OER)P helped propel OER to cover knowledge creation and knowledge sharing across a wide range of stakeholders in the professional CoP, including teachers, mentors, fellow learners and the wider community beyond class. The potential of Co(OER)Ps was however not fully exploited.

While explaining the responsibility of every teacher in introducing OER to learners, Ma-Teacher3 noted that "it's up to the individual lecturer to know which websites to refer students to or which resources are useful". While most teachers used e-resources in their teaching and thus encouraged their learners to use them, the majority did not consciously distinguish between OER and other learning materials. They could therefore not model for or provide specific guidance to their learners in how best to engage with OER.

Teachers like Ma-Teacher1 and Ma-Teacher2 knew a little more about OER because they had participated in international collaborative projects geared towards the creation of OER, among other things. They then deployed these resources during their teaching and guided their learners to these resources in an *ad hoc* manner. Since these teachers were never systematically inducted into OER usage, they could neither harness the full benefits of OER for themselves nor guide their learners effectively.

Teachers like Ma-Teacher1 and Ma-Teacher3 motivated learners to engage with OER by setting learning tasks that required them to seek information and by providing the initial guidance to sources. They also encouraged formation of groups to tackle learning tasks. At this point, the teacher's awareness of OER became pivotal in whether or not the learners took up OER. Limited awareness of the open license and negative attitudes towards 'free things' constrained the agency of teachers like Fe-Teacher1 and Fe-Teacher2 in promoting OER especially as channels of creating and sharing learning resources.

Engaging with fellow learners was seen to enhance OER usage. Learners like Ma-Gradstu1 and Fe-Undergrad1 with a growth mid-set (Dweck, 2000) tended to support one another through CoPs as they accessed and utilised OER. A few like Ma-Undergrad6 who had internalised OER into their personal value systems were engaging with it in online CoPs outside class and looking forward to using OER for lifelong learning and professional engagement. In light of the evidence, contextual challenges alone could not explain the extent of learner engagement with OER. Individual learners' self-drive, community engagement, mastery of basic computer skills, mentorship by teachers, and the alternative sources of learning resources available to the learner, influenced the depth of LPP within the Co(OER)P. These institutional factors interacted with personal and collective agency to breed the varying levels of engagement with OER across the spectrum of learners, courses, departments and schools in the sampled college.

How does LPP in Co(OER)P enable learners to circumvent the inhibitors of OER uptake at Makerere?

In the absence of binding institutional policies and structures designed to promote OER engagement, learner motivation to engage with the local and

international community of lifelong learners appears the most instrumental way to promote OER usage in the Makerere context. The diffusion of OEP at Makerere is however hampered by policies like the Intellectual Property Management policy and the Academic Staff Appointments and Promotions policy which are silent about OER; the absence of incentives that would motivate staff to create and deploy OER; and the lack of a staff induction and CPD programmes that would flag innovations like OER and how best to take advantage of them. Overarching all these is the examination-centred curriculum that does not encourage collaborative learning and extensive exploration by learners. Another layer of constraints is exerted by the wider e-environment within which digital OER operate. Deficiencies in technological investment and mastery made OER penetration among learners at Makerere less effective.

Seen through the theoretical lens of CoP (Lave & Wenger, 1991), the findings pointed to personal agency as the key driver for OER uptake. In a CoP whose main task was learning in preparation for professional service, personal agency influenced and was in turn influenced by engagement in Co(OER)P. Since personal agency is intentional and bidirectional (D. Scott & Morrison, 2007), the nature and extent of collaboration within the Co(OER)P depended on how the individuals and groups involved perceived the learning task at hand and the alternative resources and approaches available to them.

Faced with the same challenges, learners reacted very differently depending on their mental disposition. Although the context was characterised by deficient ICT infrastructure and defective institutional policies and practices, some learners found a way to thrive as OER users in this context while others failed to cope. Although knowledge and skills in handling ICT and copyright issues was a contextual challenge, it was also personal. Those who succeeded in adopting OER amidst these same challenges had mental dispositions and social capital that enabled them reach their goals. Conversely, those who failed to adopt OER failed because of their mental disposition and failure to learn from the Co(OER)Ps.

Adoption of OER presents technological, technical, managerial, financial, legal and pedagogical challenges for institutions that choose to engage in them (Downes, 2007). Makerere institutional structures and policies pose environmental enablers as

well as challenges, but learner attitudes remained key in surmounting these challenges. In an environment where ICT infrastructure and computer skills were wanting, engagement called for a fairly high degree of self-efficacy and intrinsic goal orientation from the learners. Learners who were confident users of computers and computer accessories found these skills handy when using OER for learning. Those who had lower ICT competencies needed higher social capital to bring them in contact with those who had them, hence the importance of Co(OER)P. Learning with OER was evidently a social enterprise that placed considerable demand on the learners to secure their positions in the CoPs or risk underperforming.

8.3 Limitations of the Study

During the conduct of the study, limitations were evident at various levels including: the study design, the kind of data collected, and the implications of these two on the research outputs.

The fact that I teach at Makerere made me an 'insider-researcher'. This came with challenges of power relations and experience biases (Denzin & Lincoln, 1994). These challenges were ameliorated by situating the study in a college other than the one in which I teach. My insider status helped me identify a research problem relevant to our practice as a university, enabling me to persist amidst challenges. The currency of the research problem elicited questions that were pertinent to the institution's current needs.

Although I still had to deal with teaching and administrative staff with whom I had had earlier or on-going dealings, none of the students, who were the core population for the study, was directly under my tutelage. I also did not have any supervisory role over the staff, which would have raised ethical issues (Smyth & Holian, 2008). Although I was an 'insider' to the university, I was an 'outsider' to the college where the study was sited. That compromise put me 'in the middle' (Breen, 2007). As a university 'insider', I was at home with the general institutional culture and politics; this made accessing participants and information in the research site easier. Where I had closer collegial ties, fellow staff helped me access those who did not know me well as well as the students under their charge. I could fit in fairly naturally with the students and staff participants. Similar advantages of 'insider-researcher are well documented by Sikes and Potts (2008). However, this familiarity

may have created assumptions that led to biases in my interpretation of data. These biases were partly resolved by triangulating data from multiple sources.

I also had to deal with the challenge of role duality (DeLyser, 2001) while collecting data from students of the university and fellow members of staff who knew I was a teacher in the same university and not just a researcher. Some of the responses and emotive feedback I received during data collection were definitely politically influenced by this underlying identity conflict. Collecting data at a time when industrial action by non-teaching staff had polarised the university population, pitting non-teaching staff against teaching staff and students, I sometimes had to wait for tempers to calm before proceeding with data collection. I avoided being drawn into speaking for or against the constituency that I was deemed to represent so as to maintain focus on the study.

While being an 'outsider' to the research site gave me some distance and lessened my power over the research participants, it could have denied me access to information that members of the sister college would rather not share with an 'outsider' from a rival college. Given the well established reputation of the research site as a flagship college, there was evident effort by staff, especially in administrative positions, to protect the image of their college from this prying 'outsider'. Some administrative offices also avoided releasing facts that could be used to disadvantage them socially, politically or economically as individuals or groups. Even when formal authority was sought and obtained, the information provided was incomplete or incoherent. This could have affected the completeness of some of the data on which the analysis was based. To address this, I triangulated information from various sources to arrive at the most credible data.

Basing the study on one out of the 10 constituent colleges limited the opportunity to contrast college environments, cultures and their impact on learner adoption of OER. The findings may therefore not be as generalizable to the whole university as the title suggests. The one constituent college however generated sufficient data to form a justifiable case. Nevertheless, the transferability of findings across the university and to other sites needs to take this context into account.

8.4 Contribution of the Study

Given the gaping challenges that OER was meant to address and the uncoordinated response it has garnered from learners at Makerere, the findings of this study may move Makerere closer to addressing the shortage of up-to-date learning resources amidst a growing student population and a thinning resource envelop. In light of the above research questions and the conclusions generated from the findings, this study has implications for learner engagement with OER at Makerere and in similar contexts. Given what we now know about how and why learners engage with OER, it would be advisable for teachers to link the use of OER to assessment as a learning strategy and an adoption strategy for OER. If learning and assessment were linked to the authentic work environment, the OER and OEP would become the natural vehicle to take learners to their desired destination. Local and international cases, fellow learners and practitioners could be linked through OER and OEP. Broader university goals like producing self-driven, professionally connected, lifelong learners could thus be achieved with the help of OER and OEP.

It is clear from the findings of this study that learners choose (not) to engage and to what extent initially for utilitarian reasons and ultimately for intrinsic reasons. Those whose motivation is extrinsic limit the use OER to meet their immediate learning goals and to address their immediate challenges. The challenge for institutions of higher learning is how to elevate learner perceptions of the future-time value of OER. Linking OER to field attachment and student-practitioners continuous engagement could be one way of awakening learner awareness of OER as a possible tool for their future professional and lifelong learning. But how much choice do the learners really have given the environmental and institutional challenges?

Environmental hurdles such as the poor ICT infrastructure, an examination-centred curriculum and some ill-conceived university policies presented a challenge for OER adoption and should therefore be addressed. However, learners with a growth mind-set were able to circumvent all these hurdles and to meaningfully engage with OER. It is evident that those who had the privileged status that could afford them access to OER but lacked the requisite mind-set performed worse at engaging with OER than their less privileged counterparts who had it. The challenge is in how to cultivate this mind-set in more of the learners (Dweck, 2015).

Given that teachers play a significant role in directing their students to the OER, a strategy for the mass adoption of OER by learners should begin with sensitising their teachers on what OER are out there and what they can do with them. Teachers also serve model producer and users of OER. A mandatory induction programme for newly recruited teachers and a CPD programme for long-serving teachers that adequately covers OER and OEP would serve as a good starting point. Local and international CoP could then take up the challenge of sustaining this initiative. Learner orientation to library use should also have an OER component. Establishing a database for Makerere generated OER would help promote OER uptake.

Apart from being motivated by self-drive, their teachers and other mentors, learners are seen to be motivated by fellow learners. Therefore, besides orienting all learners to the value and use of OER, effort should be made to leverage learner collaboration and cooperation in learning using OER. Teachers and mentors need to learn to utilise students groups in project work, learning and assessment using OER. Becoming a member of a learning community is a step towards becoming a member of a professional CoP and a lifelong learner.

The institutional environment that impacts on OER adoption includes physical and social infrastructure, policies and practices. These were seen to vary across the units studied and to consequently influence OER adoption. A well-developed physical environment and a productive social learning environment would promote OEP, encompassing OER. Policies that govern teaching and learning, including assessment; staff recruitment and promotion; ICT and library usage could all be revisited with a view to aligning them to the adoption of OEP.

8.5 Recommendations of the Study

The recommendations emerging from the findings of this study are in three categories: (1) recommendations for policy, (2) recommendations for practice, and (3) recommendations for further research.

Recommendations for Policy

At Makerere, there is need to deliberately flag OER as reliable resources for teaching and learning. The recently developed ICT policy and masterplan (Makerere University, 2016b) make passing reference to OER but do not adequately address it.

A specific policy on OER development and utilisation would help guide administrators, staff and students, define roles and provide incentives and sanctions. The policy should call for inclusion of OER in programmes for induction of teaching staff and orientation of new students. For inclusiveness, the policy should provide for OER in alternative media to cater for learners who may not be competent to work with digital resources.

If more teachers are to be encouraged to produce OER and to mentor learners in their use, the Intellectual Property Management Policy (Makerere University, 2016c) should be revised to include Open Licenses to protect developers of OER for the proposed repository. Related policies should also be reviewed to guarantee equal recognition of Open Licensed material with traditionally copyrighted materials in the promotion and reward systems of the university. So as to enhance the reputation of OER, Makerere and the National Council for HE need to establish quality assurance mechanisms for OER to incorporate collaborative development and peer review (Camilleri et al., 2014).

Given the role Co(OER)Ps play in the recruitment and acculturation of learners into OEPs, opportunities should be created within Makerere for emergence of CoPs to help informally support the spread of OER. Institutional strategies on teaching, learning and assessment should be reviewed and revised to align with the OEP-focus with a view to inculcating 21st century skills, improving the employability of graduates and their lifelong learning aspirations. Other relevant policies should also be recrafted so as to create “opportunities, incentives, and reinforcements for growth and development” (Strange & Banning, 2001, p. 201) of OER in pursuit of specific strategic goals. Techers’ mentorship role in CoPs need to be recognised and encouraged. Recruitment, promotion and reward policies for teacher-mentors need to reflect the culture of openness.

Given the centrality of computers in OER utilisation, financing policies should prioritise the ICT backbone. With increasing computer equipment options and falling costs (Muyinda et al., 2010), learners should be encouraged to bring their own devices. To take full advantage of OER, learners need to know about and frequently engage with them. OER awareness should therefore feature in the mandatory

learner orientation and staff induction policies of the university. Copyright issues should also feature.

If OER are to be fully exploited for the benefit of the learners at Makerere, it is important that the successor Strategic Plan of Makerere University (2018/19 – 2028/29) reflects OEPs in its vision. With additional advocacy, this could be extended to the national and regional strategies for HE.

Recommendations for Practice

If the university community are to engage widely and gainfully with OER as envisaged by the Paris OER Declaration (UNESCO, 2012), a strategy to develop and enact an enabling policy that identifies OER as viable alternatives in all related arenas of decision making needs to be implemented; coupled with deliberate efforts foster awareness and use of OER among all staff and students of the university. Given that existing policies and practices were not developed with OER in mind, aligning them with OEP is necessary. Unique institutional situations may then require home-grown policy and practice innovations; and these will arise from commitment to share OER experiences in local and broader Communities of OER Practice. This can be done using formal and informal channels, on- and offline. The strategy adopted should build upon OER potential to address equity issues (UNESCO, 2001) and also address fears regarding its quality (Bliss et al., 2013; Clements & Pawlowski, 2012).

Besides the policy environment, broadening OER utilisation at Makerere calls for improvements in the enabling physical infrastructure, including: reliable electricity, broadband wireless Internet access, and affordable and accessible end-user devices (Wright & Reju, 2012). All future infrastructural developments ought to take into account OER utilisation requirements. For mutual benefit and to enhance the sense of ownership in the community (Pawlowski, 2012), while the enabling infrastructure is used to raise the level of OER literacy among all stakeholders, OER can be used to train stakeholders in the use and maintenance of that infrastructure (Pawlowski & Hoel, 2012). The strategy should also ensure that the software installed facilitates easy finding, retrieval and sharing of OER products and that the teaching and learning materials developed and equipment procured with public funding run on OSS to enhance interoperability and accessibility of OER (Wright & Reju, 2012).

Given the centrality of open licensing in the operations of OER and the fact that it is ill-understood and a source of hesitation to embrace OER among staff and students at Makerere, it is advisable to enforce its appreciation and use among stakeholders. This is one sure way to address the anxieties associated with the freedoms and rights of producers and users of OER (Hodgkinson-Williams & Paskevicius, 2012; Kursun et al., 2014). There is therefore need to harmonise existing intellectual property policies with open licensing and to spread this knowledge and practice among stakeholders.

So as to boost OER usage at Makerere in sustainable manner, it is important that Makerere develops its own repository of high quality, culturally appropriate, curriculum-relevant, locally developed or locally adapted OER, benchmarked on international standards. To achieve this, CPD and technical services should be extended to teachers and learners to motivate them to version or develop high quality local content that addresses the diverse local learning needs. This calls for training a critical mass of local developers and users of OER and linking them to international collaborators in their respective fields for professional support. As Olcott (2012) noted, although OER quality is a major concern, it can be addressed through peer review and action research in Co(OER)P some of which are local and others international. As a starting point, existing OER-literacy training materials could be adapted or adopted for local use.

To make these OER initiatives less donor-dependant and more sustainable, local authorities must show their commitment by investing in them directly and/or through private-public partnerships (P. Stacey, 2010). Networking with private publishers, libraries, government departments, technology firms and other educational institutions in this manner may result into strategic partnerships essential for the sustainability of OER initiatives. Such partnerships could nurture Co(OER)P that can then help support and sustain the resource base and the quality of OER at Makerere and beyond.

Besides using the existing research on OER conducted elsewhere, Makerere needs to prioritise and support a local OER research agenda whose products will inform the future growth of OER at Makerere and beyond.

Recommendations for Further Research

This study considered specific elements of OER usage at Makerere. There is need to comprehensively assess the ongoing OER activities at Makerere to establish good practices that can inform policy formulation and future rollout of OER initiatives. Continuously tracking the effect of changing technologies on learning with OER is one possibility. The relative significance of formal and informal learning with OER in SSA HE is another.

Given the centrality of motivation in OER adoption, further research is required in how to motivate more learners to engage more effectively with OER. How can learners be nurtured with the aim of developing personality traits that are amenable to lifelong learning? What teaching and learning strategies can be adopted to motivate and build resilience in the less motivated group of learners and teachers? How can we enhance personal and group motivation to engage with OER?

It is anticipated that learners who collaborate professionally around OER are better prepared for lifelong learning. A follow-up longitudinal study on students who adopted OER at university and those who did not could work as a proof-of-concept and the results ploughed back into advocacy for OER in HE.

Issues in the management of OER adoption include: How to lower the incidental costs of OER utilisation to make it even more accessible; the effect of IPR regimes on OER adoption in SSA; and how policy contradictions affect learning outcomes when using OER.

References

Adam, L. (2003). Information and communication technologies in higher education in Africa: Initiatives and challenges. *Journal of Higher Education in Africa, 1*(1), 195-221.

Ally, M., & Samaka, M. (2013). Open education resources and mobile technology to narrow the learning divide. *The International Review of Research in Open and Distance Learning.* Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/1530/2479

Altbach, P. G. (1998). *Comparative higher education: Knowledge, the university and development*. Westport, CT: Greenwood Publishing Group.

Altbach, P. G., Reisberg, L., & Rumbley, L. E. (2009). Trends in global higher education: Tracking an academic revolution: Boston College, Center for International Higher Education.

Altbach, P. G., Reisberg, L., & Rumbley, L. E. (2010). Tracking a global academic revolution. *Change: The Magazine of Higher Learning, 42*(2), 30-39. doi:http://dx.doi.org/10.1080/00091381003590845

Alzouma, G. (2005). Myths of digital technology in Africa leapfrogging development? *Global Media and Communication, 1*(3), 339-356. doi:http://journals.sagepub.com/doi/abs/10.1177/1742766505058128

Anderson, T., & Elloumi, F. (Eds.). (2008). *The theory and practice of online learning*. Edmonton, Canada: Athabasca University Press.

Anderson, T., & Shattuck, J. (2012). Design-based research: A decade of progress in education research? *Educational Researcher, 41*(1), 16-25. doi:http://journals.sagepub.com/doi/abs/10.3102/0013189X11428813

Andrews, R., & Haythornthwaite, C. (Eds.). (2007). *The Sage handbook of e-learning research*. Los Angelles|London|New Delhi|Melborne: Sage Publications, Inc.

Ardichvili, A., Page, V., & Wentling, T. (2003). Motivation and barriers to participation in virtual knowledge-sharing communities of practice. *Journal of knowledge management, 7*(1), 64-77. doi:http://www.emeraldinsight.com/doi/abs/10.1108/13673270310463626

Asgedom, A., & Ridley, B. (2015). 1.1 Historical Narratives in Ethiopia. In P. Smeyers, D. Bridges, N. Burbules, & G. M (Eds.), *International Handbook of Interpretation in Educational Research* (pp. 87-109). Berlin: Springer.

Atkins, D. E., Brown, J. S., & Hammond, A. L. (2007). *A review of the open educational resources (OER) movement: Achievements, challenges, and new opportunities*. San Francisco, CA: Creative Commons.

Bagarukayo, E., Weide, T., Mbarika, V., & Kim, M. (2012). The impact of learning driven constructs on the perceived higher order cognitive skills improvement: Multimedia vs. text. *International Journal of Education and Development using Information and Communication Technology, 8*(2), 120-130.

Baker, E. L., & O'Neil, H. F. (Eds.). (2013). *Evaluating web-based learning environments*. Mahwah, NJ: Routledge.

Baker, J., Thierstein, J., Fletcher, K., Kaur, M., & Emmons, J. (2009). Open textbook proof-of-concept via connexions. *The International Review of Research in Open and Distance Learning, 10*(5). doi:http://dx.doi.org/10.19173/irrodl.v10i5.633

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual review of psychology, 52*(1), 1-26. doi:http://www.annualreviews.org/doi/abs/10.1146/annurev.psych.52.1.1

Barab, S. A. (2003). An introduction to the special issue: Designing for virtual communities in the service of learning. *The Information Society, 19*(3), 197-201. doi:http://dx.doi.org/10.1080/01972240309467

Barab, S. A., & Duffy, T. (2012). From practice fields to communities of practice. In D. Jonassen & S. Land (Eds.), *Theoretical foundations of learning environments* (pp. 25-55). London, UK: Routledge.

Barab, S. A., MaKinster, J. G., & Scheckler, R. (2003). Designing system dualities: Characterizing a web-supported professional development community. *The Information Society, 19*(3), 237-256. doi:http://dx.doi.org/10.1080/01972240309466

Bates, A. T. (2005). *Technology, e-learning and distance education*. London, UK: Routledge.

Beetham, H., & Sharpe, R. (2013). *Rethinking pedagogy for a digital age: Designing for 21st century learning*. London, UK: Routledge.

Blackstone, A. (2012). *Sociological inquiry principles: Qualitative and quantitative methods* Retrieved from https://2012books.lardbucket.org/books/sociological-inquiry-principles-qualitative-and-quantitative-methods/index.html

Bliss, T., Jared Robinson, T., Hilton, J., & Wiley, D. A. (2013). An OER coup: College teacher and student perceptions of open educational resources. *Journal of Interactive Media in Education*. Retrieved from https://www-jime.open.ac.uk/articles/10.5334/2013-04/

Bloom, D. E., Canning, D., & Chan, K. (2006). *Higher education and economic development in Africa*. Washington, DC: World Bank.

Boroughs, D. (2009). Millions log in. *ASEE Prism, 18*(5), 29.

Borzillo, S., Aznar, S., & Schmitt, A. (2011). A journey through communities of practice: How and why members move from the periphery to the core. *European Management Journal, 29*(1), 25-42. doi:https://doi.org/10.1016/j.emj.2010.08.004

Boud, D. (1999). Situating academic development in professional work: Using peer learning. *The International Journal for Academic Development, 4*(1), 3-10. doi:http://dx.doi.org/10.1080/1360144990040102

Bourdieu, P., & Passeron, J.-C. (1990). *Reproduction in education, society and culture* (Vol. 4). Thousand Oaks, CA: Sage Publications, Inc.

Breen, L. J. (2007). The researcher 'in the middle': Negotiating the insider/outsider dichotomy. *The Australian Community Psychologist, 19*(1), 163-174.

Brindesi, H., Monopoli, M., & Kapidakis, S. (2013). Information seeking and searching habits of Greek physicists and astronomers: A case study of undergraduate students. *Procedia - Social and Behavioral Sciences, 73*, 785-793. doi:https://doi.org/10.1016/j.sbspro.2013.02.119

Broos, A. (2005). Gender and information and communication technologies (ICT) anxiety: Male self-assurance and female hesitation. *CyberPsychology & Behavior, 8*(1), 21-31. doi:https://doi.org/10.1089/cpb.2005.8.21

Brown, S. (2013). Large-scale innovation and change in UK higher education. *Research in Learning Technology, 21*, 1-13. doi:http://dx.doi.org/10.3402/rlt.v21i0.22316

Bryman, A. (2012). *Social research methods*: Oxford university press.

Buskens, I. (2010). Agency and reflexivity in ICT4D research: Questioning women's options, poverty, and human development. *Information Technologies & International Development, 6*(Special Edition 2010), 19-24.

Butcher, N., Kanwar, A., & Uvalić-Trumbić, S. (2011). *A basic guide to open educational resources (OER)*. Vancouver, Canada / Paris, France: Commonwealth of Learning / UNESCO.

Camilleri, A. F., Ehlers, U.-D., & Pawlowski, J. (2014). *State of the art review of quality issues related to open educational resources (OER)*. Luxembourg: Publications Office of the European Union.

Cassell, C. (2009). Interviews in organizational research. In D. Buchanan & P. A. Bryman (Eds.), *The Sage Handbook of Organisational Research Methods* (pp. 500-515). London: Sage Publications, Inc.

Caswell, T., Henson, S., Jensen, M., & Wiley, D. (2008). Open content and open educational resources: Enabling universal education. *The International Review of Research in Open and Distance Learning, 9*(1). doi:http://dx.doi.org/10.19173/irrodl.v9i1.469

Cauley, K. M., & McMillan, J. H. (2010). Formative assessment techniques to support student motivation and achievement. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 83*(1), 1-6. doi:http://dx.doi.org/10.1080/00098650903267784

Clark, R. C., & Mayer, R. E. (2016). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning*. Hoboken, NJ: John Wiley & Sons.

Clarke, S., & Thomas, Z. (2011). Health librarians: Developing professional competence through a 'legitimate peripheral participation' model. *Health Information and Libraries Journal, 28*(4), 326-330. doi:10.1111/j.1471-1842.2010.00959.x

Clegg, S., Alison, H., & Steel, J. (2003). The emperor's new clothes: Globalisation and e-learning in higher education. *British Journal of Sociology of Education, 24*(1), 39-53. doi:http://dx.doi.org/10.1080/01425690301914

Clements, K., & Pawlowski, J. M. (2012). User-oriented quality for OER: Understanding teachers' views on re-use, quality, and trust. *Journal of Computer Assisted Learning, 28*(1), 4-14.

Coghlan, D., & Brannick, T. (2014). *Doing action research in your own organization*. Thousand Oaks, CA: Sage Publications, Inc.

Cohen, L., Manion, L., & Morrison, K. (2013). *Research methods in education*. London, UK: Routledge.

Conole, G. (2012a). Fostering social inclusion through open educational resources (OER): Taylor & Francis.

Conole, G. (2012b). Fostering social inclusion through open educational resources (OER). *Distance Education, 33*(2), 131-134. doi:10.1080/01587919.2012.700563

Cooper, J., & Mitsunaga, R. (2010). Faculty perspectives on international education: The nested realities of faculty collaborations. *New Directions for Higher Education, 2010*(150), 69-81. doi:http://onlinelibrary.wiley.com/doi/10.1002/he.391/full

Daniel, B., Schwier, R. A., & McCalla, G. (2003). Social capital in virtual learning communities and distributed communities of practice. *Canadian Journal of Learning and Technology, 29*(3).

Das, A. K. (2011). Emergence of open educational resources (OER) in India and its impact on lifelong learning. *Library Hi Tech News, 28*(5), 10-15. doi:https://doi.org/10.1108/07419051111163848

De Freitas, S., & Oliver, M. (2005). Does e-learning policy drive change in higher education?: A case study relating models of organisational change to e-learning implementation. *Journal of Higher Education Policy and Management, 27*(1), 81-96. doi:http://dx.doi.org/10.1080/13600800500046255

de los Arcos, B., Farrow, R., Perryman, L.-A., Pitt, R., & Weller, M. (2014). OER Evidence Report 2013-2014: Building understanding of Open Education. Retrieved from http://oerresearchhub.org/about-2/reports/

Deacon, A., & Wynsculley, C. (2009). Educators and the Cape Town Open Learning Declaration: Rhetorically reducing distance. *International Journal of Education and Development using ICT, 5*(5), 117-129.

DeLyser, D. (2001). “Do you really live here?” Thoughts on insider research. *Geographical Review, 91*(1-2), 441-453. doi:http://onlinelibrary.wiley.com/doi/10.1111/j.1931-0846.2001.tb00500.x/full

Dembo, M. H., Junge, L., & Lynch, R. (2006). Becoming a self-regulated learner: Implications for web-based education. In H. F. O'Neil & R. S. Perez (Eds.), *Web-based learning: Theory, research, and practice* (pp. 185-202). London, UK: Routledge.

Denzin, N. K., & Lincoln, Y. S. (1994). *Handbook of qualitative research*. Thousand Oaks, CA: Sage Publications, Inc.

Dhlamini, N. (2011). E-content capacity development–RUFORUM network experiences. *Distance Education, 32*(2), 295-302. doi:http://dx.doi.org/10.1080/01587919.2011.584855

Dinevski, D. (2008, June 23-26, 2008). *Open educational resources and lifelong learning.* Paper presented at the 30th International Conference on Information Technology Interfaces, 2008 (ITI 2008) Cavtat / Dubrovnik, Croatia.

Donat, B. N. (2001). International initiatives of the virtual university and other forms of distance learning: The case of the African Virtual University. *Higher Education in Europe, 26*(4), 577-588. doi:http://dx.doi.org/10.1080/03797720220141915

Downes, S. (2005). E-learning 2.0. *Elearn magazine, 2005*(10), 1-7.

Downes, S. (2007). Models for sustainable open educational resources. *Interdisciplinary Journal of Knowledge and Learning Objects, 3*.

Duffy, T. M., & Jonassen, D. H. (1992). Constructivism: New implications for instructional technology. In T. M. Duffy & D. H. Jonassen (Eds.), *Constructivism and the technology of instruction: A conversation* (pp. 1-16). Hove, UK: Psychology Press.

Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist, 41*(10), 1040. doi:http://dx.doi.org/10.1037/0003-066X.41.10.1040

Dweck, C. S. (2000). *Self-theories: Their role in motivation, personality, and development*. Hove, UK: Psychology Press.

Dweck, C. S. (2015). Carol Dweck revisits the 'growth mindset'. *Education Week, 35*(5), 20-24.

Ehlers, U.-D. (2011). Extending the territory: From open educational resources to open educational practices. *Journal of Open, Flexible and Distance Learning, 15*(2), 1-10.

El-Khawas, E. (2006). Accountability and quality assurance: New issues for academic inquiry. In J. Forest & P. Altbach (Eds.), *International handbook of higher education* (Vol. Springer International Handbooks of Education, pp. 23-37). Dordrecht: Springer.

Eraut, M. (2002). *Conceptual analysis and research questions: Do the concepts of "learning community" and "community of practice" provide added value?* Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA. https://eric.ed.gov/?id=ED466030

Fang, Y., & Neufeld, D. (2009). Understanding sustained participation in open source software projects. *Journal of Management Information Systems, 25*(4), 9-50. doi:http://www.tandfonline.com/doi/abs/10.2753/MIS0742-1222250401

Farrell, G. (2007). Survey of ICT and education in Africa: Uganda country report. Retrieved from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Survey+of+ICT+and+education+in+Africa%3A+Uganda+country+report&btnG=

Farrow, R., Pitt, R., Arcos, B., Perryman, L. A., Weller, M., & McAndrew, P. (2015). Impact of OER use on teaching and learning: Data from OER Research Hub (2013–2014). *British Journal of Educational Technology, 46*(5), 972-976. doi:http://onlinelibrary.wiley.com/doi/10.1111/bjet.12310/full

Fitzgerald, B. (2007). *Open content licencing (OCL) for open educational resources*. Paper presented at the OECD Expert Meeting on Open Educational Resources, Malmo, Sweden. http://eprints.qut.edu.au/3621/

Forte, A., & Lampe, C. (2013). Defining, understanding, and supporting open collaboration: Lessons from the literature. *American Behavioral Scientist, 57*(5), 535-547. doi:http://journals.sagepub.com/doi/abs/10.1177/0002764212469362

Gannon-Leary, P., & Fontainha, E. (2007). Communities of Practice and virtual learning communities: benefits, barriers and success factors. *eLearning Papers, 5*.

Garrison, D. R. (2000). Theoretical challenges for distance education in the 21st century: A shift from structural to transactional issues. *The International Review of Research in Open and Distributed Learning, 1*(1). doi:http://dx.doi.org/10.19173/irrodl.v1i1.2

Garrison, D. R. (2011). *E-learning in the 21st century: A framework for research and practice*. Melbourne, Australia: Taylor & Francis Group.

Gilson, J. (2009). Learning to learn and building communities of practice: Non-governmental organisations and examples from mine action in southeast Asia. *Global Society, 23*(3), 269-293. doi:http://dx.doi.org/10.1080/13600820902958055

Glennie, J., Harley, K., Butcher, N., & van Wyk, T. (Eds.). (2012). *Open educational resources and change in higher education: Reflections from practice*. Vancouver, Canada: Commonwealth of Learning.

Greenland, S., & Kwansah-Aidoo, K. (2012). The challenges of market research in emerging markets: A practitioner perspective from Sub-Saharan Africa. *Australasian Journal of Market and Social Research, 20*, 9-22.

Hara, N. (Ed.) (2009). *Communities of practice: Fostering peer-to-peer learning and information knowledge sharing in the work place* (Vol. 13). Berlin: Springer.

Hawkridge, D., Armellini, A., Nikoi, S., Rowlett, T., & Witthaus, G. (2010). Curriculum, intellectual property rights and open educational resources in British universities—and beyond. *Journal of Computing in Higher Education, 22*(3), 162-176. doi:https://doi.org/10.1007/s12528-010-9036-1

Helsper, E. J., & Eynon, R. (2010). Digital natives: Where is the evidence? *British Educational Research Journal, 36*(3), 503-520. doi:10.1080/01411920902989227

Heywood, J. (2000). *Assessment in higher education: Student learning, teaching, programmes and institutions* (Vol. 56). London, UK: Jessica Kingsley Publishers.

Hodgkinson-Williams, C. (2010). *Benefits and challenges of OER for higher education institutions*. Paper presented at the Workshop Discussions at the Open Educational Resources (OER) Workshop for Heads of Commonwealth Universities and the Open Educational Resources (OER) Workshop for Quality Assurance Agencies, Cape Town, South Africa and Windhoek, Namibia. http://www.col.org/SiteCollectionDocuments/OER_BenefitsChallenges_presentation.pdf

Hodgkinson-Williams, C., & Gray, E. (2009). Degrees of openness: The emergence of open educational resources at the University of Cape Town. *International Journal of Education and Development using Information and Communication Technology, 5*(5), 101-116.

Hodgkinson-Williams, C., & Paskevicius, M. (2012). The role of postgraduate students in co-authoring open educational resources to promote social inclusion: A case study at the University of Cape Town. *Distance Education, 33*(2), 253-269. doi:http://dx.doi.org/10.1080/01587919.2012.692052

Howes, M. J. (2006). *Institutional structures that encourage engaged governance.* Paper presented at the Engaged Government Project, Regional Managers Collaboration Network workshop.

Hung, D. W., & Chen, D.-T. (2001). Situated cognition, Vygotskian thought and learning from the communities of practice perspective: Implications for the design of web-based e-learning. *Educational Media International, 38*(1), 3-12. doi:http://www.tandfonline.com/action/showCitFormats?doi=10.1080%2F09523980121818

Hylén, J. (2006). Open educational resources: Opportunities and challenges. *Proceedings of Open Education*, 49-63.

Israel, G. D., Beaulieu, L. J., & Hartless, G. (2001). The influence of family and community social capital on educational achievement. *Rural sociology, 66*(1), 43-68. doi:10.1111/j.1549-0831.2001.tb00054.x

Jarvis, P. (2012). *Towards a comprehensive theory of human learning*. London, UK: Routledge.

Jensen, J. M., & Worth, B. (2014). Valuable knowledge: Students as consumers of critical thinking in the community college classroom. *The Journal of General Education: A Curricular Commons of the Humanities and Sciences, 63*(4), 287-307. doi:10.5325/jgeneeduc.63.4.0287

Johnson, B., & Turner, L. A. (2003). Data collection strategies in mixed methods research. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 297-319). Thousand Oaks, CA: Sage Publications, Inc.

Johnstone, S. M. (2005). Open educational resources serve the world. *Educause Quarterly, 28*(3), 15-18.

Kaguhangire-Barifaijo, M., & Namara, R. B. (2012). International partnerships in educational institutions and their intricacies: Are institutions getting the right “deal” in the partnerships? *Review of Higher Education in Africa, 4*.

Kahiigi, E. K., Ekenberg, L., Hanson, H., Danielson, M., & Tusubira, F. F. (2008). *Explorative study of e-learning in developing countries: A case of the Uganda education system.* Paper presented at the IADIS International Conference e-Learning 2008, Amsterdam, Netherlands.

Kahiigi, E. K., Ekenberg, L., Hansson, H., Tusubira, F., & Danielson, M. (2008). Exploring the e-learning state of art. *Electronic Journal of e-learning, 6*(2).

Kanwar, A., Kodhandaraman, B., & Umar, A. (2010). Toward sustainable open education resources: A perspective from the global south. *The American Journal of Distance Education, 24*(2), 65-80. doi:http://dx.doi.org/10.1080/08923641003696588

Khader, S. J. (2012). Must theorising about adaptive preferences deny women's agency? *Journal of Applied Philosophy, 29*(4), 302-317. doi:10.1111/j.1468-5930.2012.00575.x

Khan, B. H. (2000, April 8-10, 2000). *A framework for open, flexible and distributed learning.* Paper presented at the Proceedings of the Technological Education and National Development Conference, "Crossroads of the New Millennium" - TEND 2000, Abu Dhabi, United Arab Emirates.

King, K., & McGrath, S. (2002). *Globalisation, enterprise and knowledge: Education, training and development in Africa*. Oxford, UK: Symposium Books Ltd.

King, P. M., & Kitchener, K. S. (1994). *Developing reflective judgment: Understanding and promoting intellectual growth and critical thinking in adolescents and adults*. San Francisco, CA: Jossey-Bass Publications Inc.

Kirkwood, A., & Price, L. (2013). Missing: Evidence of a scholarly approach to teaching and learning with technology in higher education. *Teaching in Higher Education, 18*(3), 327-337. doi:http://dx.doi.org/10.1080/13562517.2013.773419

Kursun, E., Cagiltay, K., & Can, G. (2014). An investigation of faculty perspectives on barriers, incentives, and benefits of the OER movement in Turkey. *The International Review of Research in Open and Distributed Learning, 15*(6). doi:http://dx.doi.org/10.19173/irrodl.v15i6.1914

Kwesiga, J. C., & Ssendiwala, E. N. (2006). Gender mainstreaming in the university context: Prospects and challenges at Makerere University, Uganda. *Women's Studies International Forum, 29*(6), 592-605. doi:https://doi.org/10.1016/j.wsif.2006.10.002

Lai, K.-W. (2011). Digital technology and the culture of teaching and learning in higher education. *Australasian Journal of Educational Technology, 27*(8), 1263-1275. doi: https://doi.org/10.14742/ajet.892

Lall, S., & Pietrobelli, C. (2002). *Failing to compete: Technology development and technology systems in Africa*. Cheltenham Glos, UK: Edward Elgar Publishing.

Lally, P., Van Jaarsveld, C. H., Potts, H. W., & Wardle, J. (2010). How are habits formed: Modelling habit formation in the real world. *European Journal of Social Psychology, 40*(6), 998-1009. doi:http://onlinelibrary.wiley.com/doi/10.1002/ejsp.674/full

Lane, A. (2009). The impact of openness on bridging educational digital divides. *The International Review of Research in Open and Distance Learning, 10*(5).

Lave, J., & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge, UK: Cambridge University Press.

Lea, M., Barton, D., & Tusting, K. (2005). Communities of practice in higher education. In D. Barton & K. Tusting (Eds.), *Beyond communities of practice: Language, power and social context* (pp. 180-197). Cambridge, UK: Cambridge University Press.

Lee, S., & Roth, W.-M. (2003). Becoming and belonging: Learning qualitative research through legitimate peripheral participation. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research, 4*(2). doi:http://dx.doi.org/10.17169/fqs-4.2.708

Leondari, A. (2007). Future time perspective, possible selves, and academic achievement. *New Directions for Adult and Continuing Education, 2007*(114), 17-26.

Lindshield, B. L., & Adhikari, K. (2013). Online and campus college students like using an Open Educational Resource instead of a traditional textbook. *Journal of Online Learning & Teaching, 9*(1), 26-38.

Lubega, J. T., Kajura, M. A., & Birevu, M. P. (2014). Adoption of the SAMR model to asses ICT pedagogical adoption: A case of Makerere University. *International Journal of e-Education, e-Business, e-Management and e-Learning, 4*(2), 106. doi:10.7763/IJEEEE.2014.V4.312

Lwoga, E. T. (2014). Critical success factors for adoption of web-based learning management systems in Tanzania. *International Journal of Education and Development using Information and Communication Technology, 10*(1), 4-21.

Lynch, R., & Dembo, M. (2004). The relationship between self-regulation and online learning in a blended learning context. *The International Review of Research in Open and Distributed Learning, 5*(2). doi:http://dx.doi.org/10.19173/irrodl.v5i2.189

Maila, M. (2007). Quality provisioning and accountability in African higher education. *South African Journal of Higher Education, 21*(4), 694-705.

Maila, M., & Awino, J. (2008). Reflections on quality education in African higher education. *Africa Education Review, 5*(2), 239-252. doi:http://dx.doi.org/10.1080/18146620802449464

Makerere University. (2007a). Quality assurance policy framework. Kampala, Uganda: Makerere University.

Makerere University. (2007b). Repositioning Makerere to meet emerging development challenges: Strategic framework: 2007/08-2017/18. Kampala, Uganda: Makerere University.

Makerere University. (2016a). Makerere University policies: Human resources policies. Retrieved from https://policies.mak.ac.ug/policy-category/human-resource-policies

Makerere University. (2016b). Makerere University policies: ICT policies. Retrieved from https://policies.mak.ac.ug/policy-category/ict-policies

Makerere University. (2016c). Makerere University policies: Research policies. Retrieved from https://policies.mak.ac.ug/policy-category/research-policies

Makerere University. (2016d). Makerere University policies: Teaching and learning policies. Retrieved from https://policies.mak.ac.ug/policy-category/teaching-and-learning-policies

Makerere University. (n.d.). Guidelines for field attachment. Retrieved from https://policies.mak.ac.ug/policy/guidelines-field-attachment

Maluwa-Banda, D. (2004). Gender sensitive educational policy and practice: The case of Malawi. *Prospects, 34*(1), 71-84.

Mamdani, M. (2007). *Scholars in the marketplace: The dilemmas of neo-liberal reform at Makerere University 1989-2005*. Dakar, Senegal: CODESRIA.

Martin, J. (2004). Self-regulated learning, social cognitive theory, and agency. *Educational psychologist, 39*(2), 135-145. doi:http://dx.doi.org/10.1207/s15326985ep3902_4

Masterman, L., Wild, J., White, D., Manton, M., Cameron, L., & Dalziel, J. (2011, December 8-9, 2011). *The impact of OER on teaching and learning in UK universities: Implications for Learning Design.* Paper presented at the Proceedings of the 6th International LAMS & Learning Design Conference 2011: Learning design for a changing world, Sydney, Australia.

Materu, P. N. (2007). *Higher education quality assurance in Sub-Saharan Africa: status, challenges, opportunities and promising practices*. Washington: World Bank.

McAndrew, P., & Farrow, R. (2013). *The ecology of sharing: Synthesizing OER research*. Paper presented at the OER 13: Creating a virtuous circle, , Nottingham. http://oro.open.ac.uk/id/eprint/37755

McAndrew, P., Scanlon, E., & Clow, D. (2010). An open future for higher education. *Educause Quarterly, 33*(1).

McGreal, R., Kinuthia, W., Marshall, S., & McNamara, T. (2013). *Open educational resources: Innovation, research and practice*. Vancouver, Canada: Commonwealth of Learning

McKerlich, R. C., Ives, C., & McGreal, R. (2013). Measuring use and creation of open educational resources in higher education. *The International Review of Research in Open and Distributed Learning, 14*(4). doi:http://dx.doi.org/10.19173/irrodl.v14i4.1573

McKim, C. A. (2017). The value of mixed methods research: A mixed methods study. *Journal of Mixed Methods Research, 11*(2), 202-222.

McLaren, P. (1995). *Critical pedagogy and predatory culture: Oppositional politics in a postmodern era*. Hove, UK: Psychology Press.

Middleton, A. (2014). Learning in the open: considering MOOCs, openness and social media for learning. *Student Engagement and Experience Journal, 3*(1), 1-19. doi:10.7190/seej.v3i1.84

Miller, J., & Glassner, B. (1997). The 'inside'and the 'outside': finding realities in interviews. *Qualitative research*, 99-112.

Ministry of Education & Sports - MoES. (2003). *The Strategic Plan for Higher Education 2003-2015*. Kampala, Uganda: MoES.

Moore, M. D., & Daday, J. (2010). Barriers to human capital development: Case studies in Swaziland, Cameroon and Kenya. *Africa Education Review, 7*(2), 283-304. doi:http://dx.doi.org/10.1080/18146627.2010.515418

Morley, L. (2007). Sister-matic: Gender mainstreaming in higher education. *Teaching in Higher Education, 12*(5-6), 607-620. doi:http://srhe.tandfonline.com/doi/abs/10.1080/13562510701595267#.WfcgO3ZLfIU

Moses, J. W., & Knutsen, T. L. (2012). *Ways of knowing: Competing methodologies in social and political research*. Melbourne, Australia: Palgrave Macmillan.

Mosse, D., Nelson, N., & Wright, S. (1995). Local institutions and power: The history and practice of community management of tank irrigation systems in south India. In N. Nelson & S. Wright (Eds.), *Power and participatory development: theory and practice* (pp. 144-156). Bradford, UK: ITDG Publishing.

Mtebe, J. S., & Raphael, C. (2013). Students' experiences and challenges of blended learning at the University of Dar es Salaam, Tanzania. *International Journal of Education and Development using Information and Communication Technology, 9*(3), 124.

Mulder, J. (2008). Knowledge dissemination in sub–Saharan Africa: What role for open educational resources (OER). *Amsterdam: University of Amsterdam*.

Mulimila, R. (2000). Information technology applications in East Africa government-owned university libraries. *Library Review, 49*(4), 186-192. doi:http://www.emeraldinsight.com/doi/abs/10.1108/00242530010325490

Murphy, P., & Wolfenden, F. (2013). Developing a pedagogy of mutuality in a capability approach: Teachers' experiences of using the Open Educational Resources (OER) of the teacher education in sub-Saharan Africa (TESSA) programme. *International journal of educational development, 33*, 263–271. doi:https://doi.org/10.1016/j.ijedudev.2012.09.010

Musisi, N. B., & Muwanga, N. K. (2003). *Makerere University in transition 1993-2000: Opportunities and challenges*. Kampala: Fountain Pblishers Ltd.

Mutula, S. M. (2005). Peculiarities of the digital divide in sub-Saharan Africa. *Program, 39*(2), 122-138. doi:http://www.emeraldinsight.com/doi/abs/10.1108/00330330510595706

Muyinda, P. B., Lubega, J. T., & Lynch, K. (2010). Mobile learning objects deployment and utilization in developing countries. *International Journal of Computing and ICT Research: Special Issue*(4), 37-46.

Ngimwa, P. (2006). An African experience in providing a digital library service: the African Virtual University example. In P. Brophy, J. Craven, & M. Markland (Eds.), *Libraries Without Walls 7: Exploring 'anywhere, Anytime' Delivery of Library Services* (Vol. 5). London: Facet Publishing.

Ngugi, C. N. (2011). OER in Africa's higher education institutions. *Distance Education, 32*(2), 277-287. doi:http://dx.doi.org/10.1080/01587919.2011.584853

Nsibirano, R. (2009). "Him and Her"-gender differentials in ICT uptake: A critical literature review and research agenda. *International Journal of Education and Development using ICT, 5*(5).

Nwagwu, W. E., & Ahmed, A. (2009). Building open access in Africa. *International Journal of Technology Management, 45*(1), 82-101. doi:https://doi.org/10.1504/IJTM.2009.021521

O'Donnell, V. L., & Tobbell, J. (2007). The transition of adult students to higher education: Legitimate peripheral participation in a community of practice? *Adult education quarterly, 57*(4), 312-328. doi:http://journals.sagepub.com/doi/abs/10.1177/0741713607302686

Olcott, D. (2012). OER perspectives: emerging issues for universities. *Distance Education, 33*(2), 283-290. doi:http://dx.doi.org/10.1080/01587919.2012.700561

Olcott Jr, D. (2012). OER perspectives: emerging issues for universities. *Distance Education, 33*(2), 283-290.

Oliver, B., & Goerke, V. (2008). Undergraduate students' adoption of handheld devices and Web 2.0 applications to supplement formal learning experiences: Case studies in Australia, Ethiopia and Malaysia. *International Journal of Education and Development using ICT, 4*(3).

Organisation for Economic Co-operation Development - OECD. (2007). *Giving knowledge for free: The emergence of open educational resources*. Paris, France: OECD Publishing.

Pawlowski, J. M. (2012, 5-7 September 2012). *Emotional ownership as the key to OER adoption: From sharing products and resources to sharing ideas and commitment across borders.* Paper presented at the EFQUEL Innovation Forum 2012, Granada, Spain.

Pawlowski, J. M., & Hoel, T. (2012). Towards a global policy for open educational resources: the Paris OER Declaration and its implications *White Paper, Version 0.2*. Jyväskylä, Finland: Open Scout.

Pegler, C. (2012). Herzberg, hygiene and the motivation to reuse: Towards a three-factor theory to explain motivation to share and use OER. *Journal of Interactive Media in Education, 2012*(1).

Petrides, L., Jimes, C., Middleton-Detzner, C., Walling, J., & Weiss, S. (2011). Open textbook adoption and use: Implications for teachers and learners. *Open Learning, 26*(1), 39-49. doi:http://www.tandfonline.com/doi/abs/10.1080/02680513.2011.538563

Piedra, N., Chicaiza, J., López, J., Tovar, E., & Martínez, O. (2009). *Open educational practices and resources based on social software: UTPL experience.* Paper presented at the Proceedings of the 2009 Euro American Conference on Telematics and Information Systems: New opportunities to increase digital citizenship, Riga, Latvia.

Porter, W. W., Graham, C. R., Bodily, R. G., & Sandberg, D. S. (2016). A qualitative analysis of institutional drivers and barriers to blended learning adoption in higher education. *The Internet and Higher Education, 28*, 17-27. doi:https://doi.org/10.1016/j.iheduc.2015.08.003

Prasad, D., & Usagawa, T. (2014). Towards development of OER derived custom-built open textbooks: A baseline survey of university teachers at the University of the South Pacific. *The International Review of Research in Open and Distributed Learning, 15*(4). doi:http://dx.doi.org/10.19173/irrodl.v15i4.1873

Republic of Uganda. (1992). *The government White Paper on the Education Policy Review Commission report on education for national integration and development*. Kampala: The Republic of Uganda.

Republic of Uganda. (2008). *Revised education sector strategic plan 2007-2015*. Kampala, Uganda Retrieved from http://www.education.go.ug/files/downloads/Revised%20Education%20Sector%20strategic%20plan%202007-2015(1).pdf.

Republic of Uganda. (2012). *Information technology policy for Uganda*. Kampala: Republic of Uganda, Retrieved from https://www.ict.go.ug/policy.

Reynolds, R. (2011). Trends Influencing the Growth of Digital Textbooks in US Higher Education. *Publishing Research Quarterly, 27*(2), 178-187. doi:10.1007/s12109-011-9216-5

Richter, T., Kretschmer, T., Stracke, C. M., Bruce, A., Hoel, T., Megalou, E., . . . Sotirou, S. (2014). Open Educational Resources in the context of school education: Barriers and possible solutions *European Scientific Journal* (Vol. 10). Azores, Portugal: European Scientific Institute (ESI).

Rogers, E. M. (2010). *Diffusion of innovations*. Chicago, IL: Simon and Schuster.

Rosenberg, D. (1997). University libraries in Africa: a review of their current state and future potential.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary educational psychology, 25*(1), 54-67. doi:https://doi.org/10.1006/ceps.1999.1020

Schaffert, S., & Geser, G. (2008). Open educational resources and practices. *eLearning Papers, 7*.

Scholtz, A. (2007). An analysis of the impact of an authentic assessment strategy on student performance in a technology-mediated constructivist classroom: A study revisited. *International Journal of Education and Development using Information and Communication Technology, 3*(4), 42-53.

Schunk, D. H. (1996). *Learning theories* (6th ed.). Boston, MA: Pearson Education, Inc.

Scott, D., & Morrison, M. (2007). *Key ideas in educational research*. London, UK: Continuum International Publishing Group.

Scott, P. (2000). Globalisation and higher education: Challenges for the 21st century. *Journal of studies in international education, 4*(1), 3-10. doi:http://journals.sagepub.com/doi/abs/10.1177/102831530000400102

Sharlene Nagy, H.-B. (2010). *Mixed methods research*. New York: Guilford Press.

Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology, 2*(1), 3-10.

Sife, A., Lwoga, E., & Sanga, C. (2007). New technologies for teaching and learning: Challenges for higher learning institutions in developing countries. *International Journal of Education and Development using ICT, 3*(2).

Sikes, P., & Potts, A. (2008). *Researching education from the inside: Investigations from within*. London, UK: Routledge.

Siminyu, S. N., & Watts, M. (2016). *Building on shifting sands: Examining learner utilisation of OER in an African university*. Paper presented at the OER'16, University of Edinburgh, Scotland, UK.

Simpson, O. (2008). Motivating learners in open and distance learning: Do we need a new theory of learner support? *Open Learning, 23*(3), 159-170. doi:http://www.tandfonline.com/action/showCitFormats?doi=10.1080%2F02680510802419979

Smith, M. K., Wood, W. B., Adams, W. K., Wieman, C., Knight, J. K., Guild, N., & Su, T. T. (2009). Why peer discussion improves student performance on in-class concept questions. *Science, 323*(5910), 122-124. doi:10.1126/science.1165919

Smith, M. S. (2009). Opening education. *Science, 323*(5910), 89-93. doi:10.1126/science.1168018

Smith, M. S., Wang, P. M., & Casserly, C. C. (2006). *The old and the new: A learning revolution*. Retrieved from

Smyth, A., & Holian, R. (2008). Credibility issues in research from within organisations. In P. Sikes & A. Potts (Eds.), *Researching education from the inside* (pp. 33-47). London, UK: Routledge.

Sniehotta, F. F. (2009). Towards a theory of intentional behaviour change: Plans, planning, and self-regulation. *British journal of health psychology, 14*(2), 261-273. doi:http://onlinelibrary.wiley.com/doi/10.1348/135910708X389042/full

Spector, J. M. (2014). Remarks on MOOCS and Mini-MOOCS. *Educational Technology Research and Development*, 1-8. doi:10.1007/s11423-014-9339-4

Spencer, L., Ritchie, J., & O'Connor, W. (2003). Analysis: Practices, principles and processes. In J. Ritchie & J. Lewis (Eds.), *Qualitative research practice: A guide for social science students and researchers* (pp. 199-218). Thousand Oaks, CA: Sage Publications, Inc.

Spiegel, S., Gray, H., Bompani, B., Bardosh, K., & Smith, J. (2016). Decolonising online development studies? Emancipatory aspirations and critical reflections–a case study. *Third World Quarterly*, 1-21. doi:http://dx.doi.org/10.1080/01436597.2016.1256767

Spring, J. (2000). *The universal right to education: Justification, definition, and guidelines*. London, UK: Routledge.

Stacey, E., Smith, P. J., & Barty, K. (2004). Adult learners in the workplace: Online learning and communities of practice. *Distance Education, 25*(1), 107-123. doi:http://dx.doi.org/10.1080/0158791042000212486

Stacey, P. (2010, 10/02/2014). *Foundation funded OER vs. tax payer funded OER-a tale of two mandates.* Paper presented at the Open Ed 2010 Proceedings, Barcelona.

Strange, C. C., & Banning, J. H. (2001). *Education by design: Creating campus learning environments that work*. San Francisco, CA: Jossey-Bass Publications, Inc.

Straub, E. T. (2009). Understanding technology adoption: Theory and future directions for informal learning. *Review of educational research, 79*(2), 625-649. doi:https://doi.org/10.3102/0034654308325896

Surry, D. W., & Farquhar, J. D. (1997). Diffusion theory and instructional technology. *Journal of Instructional Science and Technology, 2*(1), 24-36.

Svinicki, M. D. (1999). New directions in learning and motivation. *New directions for teaching and learning, 1999*(80), 5-27. doi:http://onlinelibrary.wiley.com/doi/10.1002/tl.8001/full

Tam, M. (2000). Constructivism, instructional design, and technology: Implications for transforming distance learning. *Educational Technology & Society, 3*(2), 50-60.

Tarus, J. K., Gichoya, D., & Muumbo, A. (2015). Challenges of implementing e-learning in Kenya: A case of Kenyan public universities. *The International Review of Research in Open and Distributed Learning, 16*(1). doi:http://dx.doi.org/10.19173/irrodl.v16i1.1816

Teferra, D., & Altbach, P. G. (2004). African higher education: Challenges for the 21st century. *Higher education, 47*(1), 21-50. doi:https://doi.org/10.1023/B:HIGH.0000009822.49980.30

Tenywa, M., & Fungo, B. (2007). Status and potential of technology-mediated open and distance learning for agricultural education in Uganda. Vancouver, Canada: Commonwealth of Learning.

Thakrar, J., Wolfenden, F., & Zinn, D. (2009). Harnessing open educational resources to the challenges of teacher education in Sub-Saharan Africa. *The International Review of Research in Open and Distributed Learning, 10*(4). doi: http://dx.doi.org/10.19173/irrodl.v10i4.705

Thompson, A. R. (1981). *Education and development in Africa*. New York: St. Martin's Press.

Trowler, V. (2010). *Student engagement literature review*. York: The Higher Education Academy.

UNDP. (2016). Human Development Reports. Retrieved from http://hdr.undp.org/en/2016-report/download

UNESCO. (2001). Education for All Movement. Retrieved from http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-all/

UNESCO. (2012). *2012 Paris OER Declaration.* Paper presented at the World Open Educational Resources (OER) Congress, June 20-22, 2012, UNECSO, Paris.

Vishwakarma, A. K., & Narayanan, A. (2012, March 15-17, 2012). *E-learning as a service: A new era for academic cloud approach.* Paper presented at the 2012 1st International Conference on Recent Advances in Information Technology (RAIT), Dhanbad, India.

Vygotsky, L. S. (1980). *Mind in society: The development of higher psychological processes*. Cambridge, UK: Harvard University Press.

Wakeham, M., & Garfield, D. (2005). Supporting both learning and research in a UK post-1992 university library: A case study. *Journal of Librarianship and Information Science, 37*(4), 175-186. doi:http://journals.sagepub.com/doi/abs/10.1177/0961000605057849

Wenger, E. C. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge, UK: Cambridge University Press.

Wenger, E. C. (2008). Communities of practice: A social discipline of learning. *Leadership, Innovation and Communities of Practice Event*: South East Leadership Academy, The Open University.

Wenger, E. C. (2011). Communities of practice: A brief introduction. Retrieved from http://hdl.handle.net/1794/11736

White, S. K., & Nitkin, M. R. (2014). Creating a transformational learning experience: Immersing students in an intensive interdisciplinary learning environment. *International Journal for the Scholarship of Teaching and Learning, 8*(2), 3. doi:https://doi.org/10.20429/ijsotl.2014.080203

Wiley, D. (2007). On the sustainability of Open Educational Resource initiatives in higher education. Retrieved from www.oecd.org/edu/oer

Willems, J., & Bossu, C. (2012). Equity considerations for open educational resources in the glocalization of education. *Distance Education, 33*(2), 185-199. doi:http://dx.doi.org/10.1080/01587919.2012.692051

Williams, K. (2009). 'Guilty knowledge': Ethical aporia emergent in the research practice of educational development practitioners. *London Review of Education, 7*(3), 211-221. doi:https://doi.org/10.1080/14748460903290074

Wilson, T. (2008). New ways of mediating learning: Investigating the implications of adopting open educational resources for tertiary education at an institution in the United Kingdom as compared to one in South Africa. *The International Review of Research in Open and Distance Learning, 9*(1). doi:http://dx.doi.org/10.19173/irrodl.v9i1.485

Wilson, T., & Ferreira, G. (2010). *Investigating the use of web 2.0 tools and Open Educational Resources for ICS*. Paper presented at the 11th Annual Conference of the Higher Education Academy Subject Centre for Information and Computer Science, Durham, UK. http://oro.open.ac.uk/24133/

Wolfenden, F. J. (2008). The TESSA OER experience: Building sustainable models of production and user implementation. *Journal of Interactive Media in Education, 2008*(1), Art. 3. doi:http://doi.org/10.5334/2008-3

Wood, W., & Neal, D. T. (2007). A new look at habits and the habit-goal interface. *Psychological review, 114*(4), 843-863. doi:10.1037/0033-295X.114.4.843

Wright, C. R., & Reju, S. A. (2012). Developing and deploying OERs in Sub-Saharan Africa: Building on the present. *International Review of Research in Open and Distance Learning, 13*(2), 181-220. doi:http://dx.doi.org/10.19173/irrodl.v13i2.1185

Yin, R. K. (2009). *Case study research: Design and methods* (Vol. 5). Thousand Oaks, CA: Sage Publications, Inc.

Zawacki-Richter, O., Müskens, W., Krause, U., Alturki, U., & Aldraiweesh, A. (2015). Student media usage patterns and non-traditional learning in higher education. *The International Review of Research in Open and Distributed Learning, 16*(2). doi:http://www.irrodl.org/index.php/irrodl/article/view/1979/3265

Zielinski, C., Kebede, D., Mbondji, P. E., Sanou, I., Kouvividila, W., & Lusamba-Dikassa, P.-S. (2014). Research ethics policies and practices in health research institutions in sub-Saharan African countries: Results of a questionnaire-based survey. *Journal of the Royal Society of Medicine, 107*(1_suppl), 70-76. doi:http://journals.sagepub.com/doi/full/10.1177/0141076813517679

Appendices

Appendix 1: Ethical Clearance Certificate (UoL)

UNIVERSITY OF LIVERPOOL | ONLINE PROGRAMMES

Dear Sam

I am pleased to inform you that the EdD. Virtual Programme Research Ethics Committee (VPREC) has approved your application for ethical approval for your study. Details and conditions of the approval can be found below.

Sub-Committee:	EdD. Virtual Programme Research Ethics Committee (VPREC)
Review type:	Expedited
PI:	
School:	Lifelong Learning
Title:	
First Reviewer:	Prof. Morag A. Gray
Second Reviewer:	Dr. Lucilla Crosta
Other members of the Committee	Dr. Baaska Anderson; Kathleen Kelm

Date of Approval: 17th October 2014

The application was APPROVED subject to the following conditions:

Conditions

1	Mandatory	M: All serious adverse events must be reported to the VPREC within 24 hours of their occurrence, via the EdD Thesis Primary Supervisor.

UNIVERSITY OF LIVERPOOL | ONLINE PROGRAMMES

This approval applies for the duration of the research. If it is proposed to extend the duration of the study as specified in the application form, the Sub-Committee should be notified. If it is proposed to make an amendment to the research, you should notify the Sub-Committee by following the Notice of Amendment procedure outlined at http://www.liv.ac.uk/media/livacuk/researchethics/notice%20of%20amendment.doc.

Where your research includes elements that are not conducted in the UK, approval to proceed is further conditional upon a thorough risk assessment of the site and local permission to carry out the research, including, where such a body exists, local research ethics committee approval. No documentation of local permission is required (a) if the researcher will simply be asking organizations to distribute research invitations on the researcher's behalf, or (b) if the researcher is using only public means to identify/contact participants. When medical, educational, or business records are analysed or used to identify potential research participants, the site needs to explicitly approve access to data for research purposes (even if the researcher normally has access to that data to perform his or her job).

Please note that the approval to proceed depends also on research proposal approval.

Kind regards,

Morag Gray

Chair, EdD. VPREC

Appendix 2: Ethical Clearance Certificate (Makerere University)

MAKERERE UNIVERSITY
P.O. Box 7072 Kampala Uganda
Website: www.musph.ac.ug
Tel: 256 414 532207/543872/543437
Fax: 256 414 531807

COLLEGE OF HEALTH SCIENCES
SCHOOL OF PUBLIC HEALTH
HIGHER DEGREES, RESEARCH AND ETHICS COMMITTEE

11th December, 2014

Samuel Ndeda Siminyu
Principal Investigator, Protocol (269)
Makerere University/ University of Liverpool

Expedited review
Re: Approval of Proposal titled: Open educational resources utilization among learners at Makerere University: A multilevel case study

This is to inform you that, the Higher Degrees, Research and Ethics Committee (HDREC) has granted approval to the above referenced study, the HDREC reviewed the proposal and made some suggestions and comments which you have adequately incorporated:

Note that the initial approval date for your proposal by HDREC is 11th/12/2014, and therefore approval expires at every annual anniversary of this approval date. The current approval is therefore valid until: **10th/12/2015**.

Continued approval is conditional upon your compliance with the following requirements:

1) No other consent form(s), questionnaire and/or advertisement documents should be used. The consent form(s) must be signed by each subject prior to initiation of any protocol procedures. In addition, each subject must be given a copy of the signed consent form.

2) All protocol amendments and changes to other approved documents must be submitted to HDREC and not be implemented until approved by HDREC except where necessary to eliminate apparent immediate hazards to the study subjects.
3) Significant changes to the study site and significant deviations from the research protocol and all unanticipated problems that may involve risks or affect the safety or welfare of subjects or others, or that may affect the integrity of the research must be promptly reported to HDREC.

Valid Thru:
10 DEC 2015

1

4) All deaths, life threatening problems or serious or unexpected adverse events, *whether related to the study or not,* must be reported to HDREC in a timely manner as specified in the National Guidelines for Research Involving Humans as Research Participants.

- Please complete and submit reports to HDREC as follows:

a) For renewal of the study approval – complete and return the continuing Review Report – Renewal Request (Form 404A) at least 60 days prior to the expiration of the approval period. The study cannot continue until re-approved by HDREC.

b) Completion, termination, or if not renewing the project – send a final report within 90 days upon completion of the study.

- Finally, the legal requirement in Uganda is that all research activities must be registered with the National Council of Science and Technology. The forms for this registration can be obtained from their website www.uncst.go.ug. Please contact the Administrative Assistant of the Higher Degrees, Research and Ethics Committee at wtusiime@musph.ac.ug or telephone number (256)-41-543872 or +256772496136 if you encounter any problems.

Valid Thru:
10 DEC 2015

Yours sincerely

Dr. Suzanne Kiwanuka
Chairperson: Higher Degrees, Research and Ethics Committee

Enclosures:

a) A stamped, approved study documents (informed consent documents):

Appendix 3: Ethical Clearance Certificate (UNCST)

Notice of UNCST approval: SS 3643 (2)

From: Mutumba Beth
To: me
CC: nilyar@yahoo.com winnfry@gmail.com leahtabo@gmail.com

Nov 13, 2014

Dear Mr. Siminyu,

Re: Open Educational Resources Utilisation among Learners at Makerere University: A MIXED METHODS STUDY

This is to notify you that on **11/11/2014** the Uganda National Council for Science and Technology (UNCST) reviewed the above mentioned protocol and noted that no ethical clearance had been obtained from a Research Ethics Committee in Uganda.

According the National Guidelines for Research Involving Humans as Research Participants, Section3.1; '*Oversight of research involving humans as research participants in Uganda is done first at the organizational level by the Research Ethics Committees and second at the national level by UNCST ...* It should be noted that this aims to protect the rights and welfare of human research participants.

Research Involving Humans as Research participants includes Social-behavioral studies; which involve interaction with or observation of participants.

You are therefore advised to seek approval from a Research Ethics Committee in order to obtain UNCST clearance. A list of accredited (RECs) Research Ethics Committee is attached for your reference.

Yours sincerely,

Beth Mutumba

For: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY
Uganda National Council for Science and Technology
P.O. Box 6884, Kampala
***Tel**: +256-414-705-527*
***Fax:** +256-414-234-579*
***Mob:** +256-755-423-321*
***Website:** http://www.uncst.go.ug/*

Appendix 4: Questionnaire for Students

Questionnaire administered by: _____

Date: ___/___/_____ Time _____

Objectives of the study

The study has been designed to meet research thesis requirements for the Doctor of Education in Higher Education programme of the University of Liverpool. The main aim of this study is to establish the nature of socio-cultural forces that support or oppose the use of Open Educational Resources (OER) by learners at Makerere University. The study will investigate challenges to the adoption of OER principles and practices, and explore effective ways of enabling the process of OER uptake among conventional learners. Such understanding will hopefully provide helpful advice for future policies, practices and investment in OER.

I intend to collect sufficient data to be able to:

- establish the form that learner engagement with OER at Makerere University takes;
- explain how learners find their way to and around OER;
- explain how and why teachers' use of OER influences learner engagement with OER;
- relate the institutional context to learner uptake of OER;
- explain how and why community engagement influences OER uptake among learners; and, ultimately
- explain what drives or hinders learner utilisation of OER at Makerere University.

Answering this questionnaire is expected to take you about 30 minutes.

Type of information sought

I am mainly interested in your personal experience as a student engaging with the OER movement. Using Ehler's (2011) OEP-scope model, I wish to gauge

your engagement with OER on your own and alongside other users. Where there have been successes and/or challenges, I would like to reflect with you on the best possible futures for OER at Makerere University and for its individual stakeholders.

Questions

1. Role in OER Projects

1.1. Which of these statements apply to you? (*Tick (✓) "True" or "False"*)	True	False	**CODING**
1.1.1. I am aware of my college's involvement in a collaborative project which promotes the development and use of OER.			
1.1.2. I played no role in the development of the materials mentioned in 1.1.1 above.			
1.1.3. I know that the intellectual property license for these material is more friendly and different from the commonly used "all rights reserved" type of license.			
1.1.4. I do not know the type of license attached to this material.			
1.1.5. I was among those who used the draft learning materials and gave feedback to the developers of the materials.			
1.1.6. I use the OER materials developed by the project for my studies.			
1.2. Which of these statements apply to you? (*Tick (✓) "True" or "False"*)	True	False	**CODING**
1.2.1. I have never heard about any OER-related project at my college.			
1.2.2. I have ever heard about but never taken interest in the OER project at my college.			

2. Forms of learner engagement with OER

2.1. In the course of your studies, which of these OER have you ever used? (*Tick (✓) as many as apply*):	*(✓)*	**CODING**
2.1.1. Course materials prepared by my teacher(s) and/or their collaborators.		
2.1.2. Online course materials from another institution (e.g., Massachusetts Institute of Technology – MIT, Open University UK – OUUK).		

2. Forms of learner engagement with OER

2.1.3. Online learning resources developed collaboratively by teachers and/or learners not linked to particular institution(s).						
2.1.4. Scholarly articles in open access journals.						
2.1.5. Massive open online courses (MOOCs).						
2.1.6. Instructional videos on YouTube.						
2.1.7. Khan Academy videos.						
2.1.8. TED: Ideas worth spreading						
2.1.9. Coursera						
2.1.10. edX						
2.1.11. Other (*please specify*):						
2.2. What do you use the OER for? (*Tick (✓) as many as apply*):					*(✓)*	**CODING**
2.2.1. To complete class assignments.						
2.2.2. For supplementary reading.						
2.2.3. To broaden my understanding of the topic.						
2.2.4. To deepen my understanding of the topic.						
2.2.5. To fill in gaps in my knowledge base.						
2.2.6. To pursue my personal interest in the subject beyond class requirements.						
2.2.7. To read ahead of the class.						
2.2.8. To get alternative views on the topic.						
2.2.9. To experience a different teaching/learning style.						
2.2.10. Other (*please specify*): …… ……						
2.3. By ticking *(✓)* the appropriate column, indicate how much you agree or disagree with the following statements (1=strongly disagree, 2=disagree, 3=not sure, 4=agree, and 5=strongly agree):	1	2	3	4	5	**CODING**
2.3.1. I have never knowingly used any OER in my studies.						
2.3.2. When studying, I stick to the learning objectives in the course outline provided by my teacher.						

2. Forms of learner engagement with OER

2.3.3. When studying, I develop my own learning objectives based on my learning needs.						
2.3.4. The OER is used by the class to meet learning objectives specified by the teacher.						
2.3.5. I use the OER just the way I find them; that is using the methods I find laid down in the OER.						
2.3.6. I use OER just like I use any other study materials.						

3. **How learners find their way to and around OER**

3.1. How did you first get to know about the OER that you now use? (*Tick (✓) as many as apply*):	*(✓)*	**CODING**
3.1.1. Through internet surfing.		
3.1.2. From a friend/class mate.		
3.1.3. From my teacher.		
3.1.4. I cannot recall how.		
3.1.5. Other (*please specify*): …… …… ……		
3.2. How do you decide how to use a particular OER? (*Tick (✓) as many as apply*):	*(✓)*	**CODING**
3.2.1. By basing on the requirements of the assignment at hand.		
3.2.2. As directed by the teacher.		
3.2.3. As agreed with colleagues in the discussion group.		
3.2.4. With help from an online community of friends.		
3.2.5. It is up to me and how I feel about the resource.		
3.2.6. Other (*please specify*): …… …… …… ……		
3.3. How often do you use OER? (*Tick (✓) the most appropriate response*):	*(✓)*	**CODING**
3.3.1. At least once every day.		
3.3.2. At least once every week.		
3.3.3. At least once every two weeks.		
3.3.4. At least once every month.		

3.3.5. Whenever I need to.		
3.3.6. Once in a while.		
3.3.7. Never.		
3.4. How do you expect to use OER in future, if at all?		**CODING**
…… …… …… …… …… …… ……		

4. **How teachers' use of OER influences learner engagement with OER**

4.1. By ticking *(✓)* the appropriate column, indicate how much you agree or disagree with the following statements (1=strongly disagree, 2=disagree, 3=Not sure, 4=agree, and 5=strongly agree):	1	2	3	4	5	**CODING**
4.1.1. As far as I can recall, none of my teachers has ever encouraged me to use OER in my studies.						
4.1.2. The majority of my teachers encourage me to stick to the reading list in the course outline when studying.						
4.1.3. I am encouraged by my teachers to develop my own learning objectives based on my perceived learning needs.						
4.1.4. Some of my teachers use OER to replace lecture notes.						
4.1.5. Some of my teachers use OER to supplement lecture notes.						
4.1.6. The OER helps the class to meet learning objectives specified by the teacher.						
4.1.7. The class learns using the methods laid down in the OER with little or no guidance from the teacher.						
4.1.8. Some of my teachers discourage students from using OER.						

5. **Relating the institutional context to learner uptake of OER**

5.1. By ticking (✓) the appropriate column, indicate how much you agree or disagree with the following statements (1=strongly disagree, 2=disagree, 3=not sure, 4=agree, and 5=strongly agree):	1	2	3	4	5	**CODING**
5.1.1. The teaching and learning strategies favour the use of OER.						
5.1.2. The timetabling allows for personal exploratory activities and for group work.						
5.1.3. The assessment methods permit flexible use of learning resources and methods.						
5.1.4. Available ICT infrastructure supports engagement with OER.						
5.1.5. There are technical and library staff to assist students who find difficulties using technology to access and use OER.						
5.1.6. I am aware of university policies that address the use of OER in teaching and learning.						
5.1.7. OER use helps to reinforce the main teaching strategies used in my department.						

6. **How community engagement influences OER uptake among learners**

6.1. By ticking (✓) the appropriate column, indicate how much you agree or disagree with the following statements (1=strongly disagree, 2=disagree, 3=not sure, 4=agree, and 5=strongly agree):	1	2	3	4	5	**CODING**
6.1.1. I study using OER in collaboration with my course mates.						
6.1.2. I collaborate with other people outside my institution when using OER.						
6.1.3. I work alone when using OER.						
6.1.4. I participate in online discussions when using OER.						

6.1.5. I often receive feedback to my submissions on the online forum linked to the OER I use.						
6.1.6. I have ever communicated with the author(s) of the OER I use.						
6.1.7. I have ever modified an online resource and shared my "new" resource with other users.						
6.1.8. I only read other people's contributions on the discussion forum but have never made any.						

7. **What drives or hinders learner utilisation of OER at Makerere University**

7.1. Which of these best describes your competence in the use of ICT for learning? (*Tick (✓) the most appropriate*)					*(✓)*	**CODING**
7.1.1. Not good at all.						
7.1.2. Fairly good.						
7.1.3. Good.						
7.1.4. Very good.						
7.1.5. Excellent.						
7.2. Which of these statements best describes the ICT infrastructure in your college and its suitability for teaching and learning? (*Tick (✓) the most appropriate*)					*(✓)*	**CODING**
7.2.1. Not good at all.						
7.2.2. Fairly good.						
7.2.3. Good.						
7.2.4. Very good.						
7.2.5. Excellent.						
7.3. By ticking the appropriate column, indicate how much you agree or disagree with the following statements (1=strongly disagree, 2=disagree, 3=not sure, 4=agree, and 5=strongly agree):	1	2	3	4	5	**CODING**
7.3.1. The vibrant local community of OER enthusiasts helps propel OER usage at my college.						

7. **What drives or hinders learner utilisation of OER at Makerere University**

7.3.2. The collaborative linkages with the global OER community have helped propel OER at my college.						
7.3.3. The high cost of study materials has forced me to use OER.						
7.3.4. My doubts about the quality of OER affect my participation.						
7.3.5. The nature of assessment used in my college affects my use of OER.						
7.3.6. The attitude of my fellow students to OER affects my use of them.						
7.3.7. The attitude of my teachers to OER affects my use of them.						

8. **Personal Details**

8.1. Sex (*Tick (✓) as appropriate*):	1.	Male		**CODING**
	2.	Female		
8.2. Age (*Tick (✓) as appropriate*):	1.	30 and below		
	2.	31-35		
	3.	36-40		
	4.	41-45		
	5.	46 and above		
8.3. Programme (e.g. BARI, MPH): ……				
8.4. Year of Study (e.g. II, III, IV, V): ……				
8.5. Department: ……..				
8.6. School: ……..				
8.7. College: ……				

9. **Conclusion**

9.1. Is there anything you expected me to ask you about and which I have not raised? Please go ahead and raise it. …… …… …… ……				
9.2. If I were to pursue this study further, who would you suggest I should speak to? …… ……				
9.3. Would you be willing to participate in the follow-up interviews for this study when called upon? (*Tick (✓) as appropriate*):	1.	Yes		
	2.	No		
9.4. If you answered "Yes" to 9.3 above, please indicate the following: Name and Title: …….. Physical address: …… …… Tel.: …… E-mail: ……				

Thank you for giving me some of your time and ideas.

Appendix 5: Interview Protocol for Students

Name and Title of Interviewee: _____

_____

Physical address: _____

Tel.: _____ E-mail: _____

Interviewer: _____ Date and Time of Interview: ___/___/_____

Topics Discussed:

1. Role in OER project(s) ___
2. Forms of learner engagement with OER ___
3. How learners find their way to and around OER ___
4. How and why teachers' use of OER influences learner engagement with OER ___
5. Relating the institutional context to learner uptake of OER ___
6. How and why community engagement influences OER uptake among learners ___
7. What drives or hinders learner utilisation of OER at Makerere University ___
8. _____ ___

Documents obtained at Interview:

1. _____
2. _____

Post-interview Comments and Leads:

_____

_____

How to record findings

With your permission, the interview will be captured on a digital audio recorder for accurate capture and later transcribed. Handwritten notes will be taken during the interview to help the probe process.

Type of information sought

[As in Appendix 4].

Objectives of the interview

[As in Appendix 4].

This interview is expected to take about one hour.

Interview questions

1. Role in OER project(s)

1.1. Are you aware of any collaborative project(s) that your college has had with another institution with the aim of co-developing study materials? If so, name it/them.
1.2. What role did/do you play in the project?
1.3. What type of intellectual property rights does the co-developed material have? What value do you attach to the type of copyright attached to this material?
1.4. If you have ever studied using similar resources developed elsewhere, can you please share that experience with me?

2. Forms of learner engagement with OER

2.1. EITHER A (for OER user): In your response to the questionnaire I circulated earlier, you indicated that you had ever used OER; can you please share with me your experience in using specific types of OER? Which aspect of your programme or course did you use them in? How exactly did you use the OER?
2.2. OR B (for non-OER user): In your response to the questionnaire that I circulated earlier, you indicated that you had never used OER; can you please explain to me why you have never used them?

3. How learners find their way to and around OER

3.1. EITHER A (for OER user): Please explain to me the different ways through which you learned about the OER you use.
3.2. OR B (for non-OER user): Please explain to me how and why you do not engage with OER despite the involvement of your College in the development/utilisation of OOER.

4. How and why teachers' use of OER influences learner engagement with OER

4.1. Do you have any evidence that some of your teachers' use or non-use of OER encourage the use of OER? If so, state and explain this evidence.
4.2. How has your teachers' attitude to OER affected your engagement with OER?

5. Relating the institutional context to learner uptake of OER

5.1. What contextual factors within the institution support your use of OER?
5.2. Are there some contextual issues that make it hard for you the fully engage with OER? Please identify these as well.

6. How and why community engagement influences OER uptake among learners

6.1. Do you have a group you engage with while using OER? If not, why not? If yes, how does the group work?
6.2. What do you do in the group that enhances the utilisation of OER?
6.3. What challenges do you meet working with OER as a group?

7. What drives or hinders learner utilisation of OER at Makerere University

7.1. In a nutshell, what would you says promotes and what hinders learner utilisation of OER at Makerere University?
7.2. What could be done to enhance learner utilisation of OER at Makerere University?

8. Conclusion

8.1. Is there anything you expected me to ask you about and which I have not raised? Please go ahead and raise it.
8.2. If I were to pursue this study further, who would you suggest I should speak to?

Thank you for giving me your time and for sharing your valuable views with me.

Appendix 6: Interview Protocol for Teaching Staff

Name and Title of Interviewee: _____

_____

Physical address: _____

Tel.: _____ E-mail: _____

Interviewer: _____ Date and Time of Interview: ___/___/_____

Topics Discussed:

[As in Appendix 5].

Documents obtained at Interview:

1. _____
2. _____
3. _____
4. _____

Post-interview Comments and Leads:

_____

_____

How to record findings

[As in Appendix 5].

Type of information sought

[As in Appendix 4].

Objectives of the interview

[As in Appendix 4].

This interview is expected to take about one hour.

Interview questions

1. Role in OER project(s)

1.1. Which of these statements best explains your acquaintance with OER?
- 1.1.1. I know nothing about OER ____
- 1.1.2. I am not sure of what I know about OER ____
- 1.1.3. I know very little about OER ____
- 1.1.4. I am well aware of OER and sometimes use them ____
- 1.1.5. I am deeply involved with the OER movement ____

1.2. Are you aware of any collaborative project that your college has had with another institution with the aim of co-developing/sharing study materials? If so, name them.

1.3. What role did/do you play in the project?

1.4. What type of intellectual property rights does the co-developed/shared material have? What value do you personally attach to the type of copyright?

1.5. If you have ever used similar resources developed elsewhere, can you please share that experience with me?

2. Forms of learner engagement with OER

2.1. Have you noticed any consistent patterns of OER utilisation by the learners you teach? If so, can you please explain these patterns?

2.2. How do the students you teach use OER? What evidence do you have for any for these statements?

3. How learners find their way to and around OER

3.1. Please explain how you think your students come to know about the different OER they use.

3.2. Do you know who is involved in guiding your students to particular OER? What dangers do you foresee in this, if any?

4. How and why teachers' use of OER influences learner engagement with OER

4.1. How are you (as their teacher) involved in this process of finding and using OER?

4.2. What OER have you ever recommended for your students to use? How did you expect them to be used? What evidence is there that they followed your recommendations?

4.3. How do you think your attitude to OER has affected your students' engagement with OER?

5. Relating the institutional context to learner uptake of OER

5.1. From your experience, what contextual factors within this institution do you think promote learner engagement with OER?

5.2. Are there some contextual issues that make it hard for your learners to fully engage with OER? Please identify these as well.

6. How community engagement influences OER uptake among learners

6.1. What has been the role of group engagement in the adoption of OER ethos and practices for you and for your learners (if at all it has been the practice)?
6.2. Please explain the type of communities and the way they function.

7. What drives or hinders learner utilisation of OER at Makerere University

7.1. In a nutshell, what would you says promotes and what hinders learner utilisation of OER at Makerere University?
7.2. Please suggest three things Makerere University could do to improve learner utilisation of OER at this institution.

8. Personal Details

8.1. Sex: ____ Male _____ Female
8.2. Age: ____ 30 and below ____ 31-35 ___ 36-40 ___ 41-45 ___ 46 and above
8.3. Programme(s) on which you teach: _____
8.4. Rank: _____
8.5. Most recent academic qualification _____ when? _____ from? _____
8.6. Highest qualification: _____
8.7. Years of teaching experience: _____
8.8. Department: _____
8.9. College: _____

9. Conclusion

9.1. Is there anything you expected me to ask you about and which I have not raised? Please go ahead and raise it.
9.2. If I were to pursue this study further, who would you suggest I should speak to?

Thank you for giving me your time and for sharing your valuable views with me.

Appendix 7: Interview Protocol for Non-teaching Staff

Name and Title of Interviewee: _____

_____

Physical address: _____

Tel.: _____ E-mail: _____

Interviewer: _____ Date and Time of Interview: ___/___/_____

Topics Discussed:

[As in Appendix 5].

Documents obtained at Interview:

1. _____
2. _____
3. _____
4. _____

Post-interview Comments and Leads:

_____

_____

How to record findings

[As in Appendix 5].

Type of information sought

[As in Appendix 4].

Objectives of the interview

[As in Appendix 4].

This interview is expected to take about one hour.

Interview questions

1. Role in OER project(s)

1.1. Please tell me about yourself and the nature of your involvement with OER.
1.2. Which of these statements best explains your acquaintance with OER?
  1.2.1. I know nothing about OER ____
  1.2.2. I am not sure of what I know about OER ____
  1.2.3. I know very little about OER ____
  1.2.4. I am well aware of OER and sometimes use them ____
  1.2.5. I am deeply involved with the OER movement ____
1.3. Are you aware of any collaborative project(s) that Makerere University has had with other institutions with the aim of co-developing/sharing study materials? If so, name the collaborating institutions and the projects they are involved in.
1.4. What role did/do you play in the project?
1.5. What type of intellectual property rights do the co-developed/shared material have? What value do the collaborating institutions attach to the type of license?
1.6. Are you benchmarking these materials on any similar resources developed elsewhere? If so, which resources are they, and what makes them a good model for you?

2. Forms of learner engagement with OER

2.1. Are some of the resources developed under these projects already in use? If so, by whom and in what ways?
2.2. What strategies are in place to ensure that learners engage with the resources produced under the project(s)?

3. How learners find their way to and around OER

3.1. Please explain how you think students have/will come to know about the OER.
3.2. Do you know who else is involved in guiding our students to other OER they may be using? What dangers do you foresee in this, if any?

4. How and why teachers' use of OER influences learner engagement with OER

4.1. How are you involving/intending to involve the teachers in this process of using OER?
4.2. How do/can you monitor learner utilisation of the specific resources you produce?
4.3. How do you think teachers' attitude to OER affects students' engagement with OER? What can we do to positively influence staff attitudes to OER (that is, if they matter at all)?

5. Relating the institutional context to learner uptake of OER

5.1. From your experience, what contextual factors within Makerere University do you think promote learner engagement with OER?
5.2. Are there some contextual issues that make it hard for our learners to fully engage with OER? Please identify these as well.

6. How community engagement influences OER uptake among learners

6.1. What has been the role of group engagement in the adoption of OER ethos and practices at this institution (if at all it has been the practice)?
6.2. Please explain the type of communities and how they function.

7. What drives or hinders learner utilisation of OER at Makerere University

7.1. In a nutshell, what would you say promotes and what hinders learner utilisation of OER at Makerere University?
7.2. Please suggest three things Makerere University could do to improve learner utilisation of OER at this institution.

8. Personal Details

8.1. Sex: ____ Male _____ Female
8.2. Age: ____ 30 and below____ 31-35 ___ 36-40 ___ 41-45 ___ 46 and above
8.3. Academic Programme(s) on which you facilitate: _____
8.4. Academic Rank: _____
8.5. Most recent academic qualification _____ when? _____ from? _____
8.6. Highest qualification: _____
8.7. Years of experience working with OER: _____
8.8. Department: _____
8.9. College: _____

9. Conclusion

9.1. Is there anything you expected me to ask you about and which I have not raised? Please go ahead and raise it.
9.2. If I were to pursue this study further, who would you suggest I should speak to?

Thank you for giving me your time and for sharing your valuable views with me.

Appendix 8: Snapshot Portraits of Interviewees

The following portraits of the individual interviewees provide a snapshot of each interviewee and their perspectives on the key issues addressed by this study. It is a synthesis of what emerged from the about one-hour-long semi-structured interviews with each of the participants. These portraits cover interviewees': (a) personal details; (b) engagement with OER; (c) perspectives on learner engagement; (d) perspectives on teachers' influence on learner engagement; (e) perspectives on the influence of institutional context on learner engagement; and (f) perspectives on influence of community on learner engagement with OER.

Ma-Undergrad1 Aged 30-years-below. Joined with diploma. Uses e-resources for practical computing, engineering and projects. Cannot distinguish free online resources from those the university subscribes to. Needs OER to complete class assignments. Blames low OER uptake on limited computer skills and lux teachers. Recommends collaboration around OER to make training more effective.

Ma-Undergrad2 Aged 30-years-below. Owns smartphone and laptop. Uses MakAir, Google Books and proprietary databases to access materials for group discussions, assignments and projects. Noted low bandwidth hindered accessibility of e-books. Believes OER *is [also] going to help* him *out there in daily life* as a businessman. Recommends assessment strategies that force learners to use OER. Appreciates teachers who introduced e-resources, search engines and databases; encourage learners to fend for themselves; and the shortages pushing learners to OER.

Ma-Undergrad3 Aged 30-years-below. Uses YouTube for project. Engages in forums on ResearchGate. Guided to Makerere University eLearning Environment and ResearchGate by teachers. Used OER during attachment; plans to use them in professional

practice. Believes learner preference for face-to-face interaction hinders development of online communities. Finds teachers and environment supportive of OER uptake. Noted insufficient ICT equipment and slow Internet.

Ma-Undergrad4 Aged 30-years-below. Had laptop and modem stolen; acquired smartphone in final year. Knew about but did not use Makerere University eLearning Environment, MOOCs, or OA journals. Used free digital templates during internship. Prefers class notes and textbooks; consults teachers and experienced friends and not course mates. Suspicious of Internet. Cannot comprehend OER ethos and open licenses. Blames teachers for not introducing OER early enough and for providing minimal ICT skills.

Ma-Undergrad5 Cohort leader, aged 30-years-below. Used Makerere University eLearning Environment to access notes and assignments and Google Scholar for 'free' resources for coursework, research project, and professional development. Values OER but has never used educational videos. Plans to post research report on open platform. Depends on the teachers' recommendations to select reliable materials. Blames teachers for failing to lead by example. ICT infrastructure that does not match student numbers. Recommended CPD, learner sensitisation, and upgrading ICT infrastructure.

Ma-Undergrad6 Aged 30-years-below. Has laptop and smartphone. Used Makerere University eLearning Environment early in the programme. Participated in online forum for professional engineers and engineering students and says *it was fun* and it made him feel *like … an engineer.* Also *motivated on seeing practicing engineers sharing OER while on field attachment.* Believes that *without OER a graduate engineer will not be able to keep pace with developments in the profession.* Noted

that e-resources had become first-port-of-call *whenever* learners *come across a challenge in any course unit*; and that *'good' teachers* guide learners on use of e-resources. Recommended use of personal equipment; replacement of old laboratory equipment to match rise in student numbers; revamping MakAir; and sensitising learners.

Ma-Undergrad7 Aged 30-years-below. Uses teacher-made materials, print and multimedia e-resources like YouTube for supplementary reading, assignments and examinations, and for self-development. Believes *students resort to OER because* they *don't have money* to buy proprietary e-resources. Trusts *the guidance of teachers, field supervisors and mentors* in choosing e-resources. Credits teachers for computer skills, and cost-free Internet access for encouraging usage.

Fe-Undergrad1 Aged 30-years-below. Owns laptop and modem. Foregoes meals to procure Internet bundles. Limited by computer skills. Sees possibility of using OER to educate farmers. Uses notes from Makerere University eLearning Environment; YouTube and materials in public domain for group discussions, coursework assignments, to deepen understanding, write up projects and prepare for examinations. That is what she *can afford*. Aware of online chatrooms, but never used them. Cares less about copyright. Appreciated teachers who encourage learners to use educational videos and castigated those who discourage use of e-resources because they are unreliable and instead direct learners to own publications. Recommended learner sensitisation and increased bandwidth.

Fe-Undergrad2 Aged 30-years-below. Had laptop stolen; uses smartphone for on-campus wireless access and paid-up bundles off-campus. Googles OER for group work, coursework, and examinations. Acknowledges need to reward authors, but

notes that cost *hinders access to learning*. Thinks learners fail to engage with OER because: *some don't know it exists. Others don't have the time. Some are content with the class notes. Some don't have access.* Appreciated Computer Application course; Social Research Methods; *computer labs, wireless Internet access, course outlines that cite references.* Mindfully interacts with CoP.

Fe-Undergrad3 Aged 30-years-below. Has smartphone but lost laptop; depends on equipment in laboratory. Self-driven, lifelong learner; sees OER role in future professional life. Never used YouTube, but accesses information videos from company websites. Blames limited awareness and ICT skills, slow Internet, policies that govern institutional computers, and tight schedules for low adoption. Credited teachers who direct learners to e-resources, institutional computers, and cost-free access to Internet for enabling uptake. Recommended better training, and upgrading ICT infrastructure.

Fe-Gradstu1 Aged 30-years-below. Originally from less endowed local private university. Finds Makerere environment novel, resourceful and conducive to learning. Alone and with others, uses Google Scholar on lab computers to access university-procured and other e-resources. Uses YouTube for self-development. Cares less about copyright. Depends on colleagues and supervisors for choice of e-resources.

Fe-Gradstu2 Aged 30-years-below. Owns smartphone and laptop. Doubts all public domain resources; prefers print materials. Uses proprietary databases recommended by teacher or fellow learners. Uses OER to prepare group assignments. Once used YouTube to clarify an issue but never again. Views video as entertainment medium. Receives e-resources from course mates and never questions copyright. Blames

	warnings about poor quality journals; poor reading culture; unwillingness to experiment. Recommends increased bandwidth, sensitisation, and training.
Ma-Gradstu1	Aged 30-years-below. From less endowed public university. Rates Makerere ICT infrastructure highly. Owns laptop and 4G smartphone. Co-authored in OA journal with undergraduate mentor. Learns about e-resources from friends, lecturers and personal search. Keeps in e-touch with agri-business enterprise in Kampala.
Ma-Gradstu2	International, aged 30-years-below. Teaches in home university. His scholarship require him to publish in OA journals. Gained ICT skills from first-year training. Uses print materials developed by his professors. Blames examination-centred curriculum, non-exemplary teachers, inadequate sensitisation, slow Internet, inadequate data in institutional repository and library database subscriptions, and lack of interactive online platforms.
Ma-Teacher1	Aged 30-40 years. Recent ICT-related doctoral graduate from European university. Engaged in regional and international OER-related projects; uses OER products to teach and network with students and colleagues; participates in MOOCs. Finds undergraduates keener on e-resources than graduates. Has co-authored in OA journals to support mentees. Blamed slow OER adoption on culture of secrecy; unclear adoption strategies; uncoordinated structures; and exclusion from the university strategic direction. Recommends training teachers; institutionalising OER projects; incorporating OER in learner assessment; addressing OER in policy, budgeting, staff attitudes, and intra-university conflicts.
Ma-Teacher2	Aged 46-years-above, in management position. Trained, experienced in developing, adapting digital and print

	materials. Coordinates multinational OER-related projects. Comfortable with collaboratively developed OER and credible OA journals. Depends on partners for copyright guidance. Blamed examination-centeredness, keeping e-resources up-to-dated, teacher-centred pedagogy, and absence of a uniform policy to guide teaching make OER ineffective. Recommends incentives; broader orientation of staff; and regular monitoring.
Ma-Teacher3	Aged 46-years-above. Trained and developed OER locally and in regional project. Believes developing learner autonomy is the essence of teaching; producing and using *OER would provide opportunity for the learner to explore more and be able to think critically and reflect … to help them form their ideas and find solutions* to problems; and OER avail affordable world-class resources for curious and willing learners. Uses e-mails to transmit OER and coursework assignments to learners; YouTube clips and SlideShare to generate discussions in class; and noticed students *get something from SlideShare to share with the rest of the class*. Encourages OER for profiling authors and the institution; teaching 21st century competencies across the curriculum; CPD; pedagogic-philosophy-focussed investment in teaching and learning; and better deployed resources to facilitate OER production and utilisation.
Fe-Teacher1	Aged 46-years-above. Interested in using e-resources but constrained by ICT skills. Participated in developing e-resources on LMS; authored and reviewed for OA journal. Blames unpreparedness for critical reading; institutional restrictions on YouTube; ICT infrastructure; and student numbers. Noted that women staff are less into Internet, have added social responsibilities, and are generally busier than men, making them unlikely to champion OER.

Fe-Teacher2 Aged 46-years-above. Participates in OER projects; developed and used print and e-resources in her teaching; and published in OA journal. Thinks *ordinary university students do not like to read;* undergraduates are immature; *graduate students have to read, whether they like it or not;* and women teachers have unique challenges. Encourages learners to use available e-resources but does not use them herself. Blames time constraints and poor attitudes to criticism and knowledge sharing. Recommends incentives; revamping ICT infrastructure; and providing leadership.

Ma-Nonteacher1 Aged above 46. Supports teachers and learners in use of digital resources. Understands Makerere OER landscape and key challenges. Engaged with OER institutionally, nationally, regionally and internationally for content development, usage, administrative and legal issues. Encourages learners to publish projects as OER. Recommends training students in critical thinking skills to promote OER usage. Blames conservative attitudes, belief that free things cannot be qualitative, unconducive policy environment, and dependence on personalised projects, digital incompetence, and failure to use existing resources. Believes potential for adoption exists; requires external pressure to overcome internal inertia. Noted need for digital learning champions.

Ma-Nonteacher2 Aged 31-35. Works with Directorate for ICT Support. Undertook postgraduate studies in Europe. Uses OER for work and for self-development. Does not deal with leaners directly beyond sensitisation. Faces challenges sensitising staff on ICT and providing technical support in a resource-constrained environment. Recommends coordination between Directorate for ICT Support, Library and e-Learning

	Unit. Notes that OER utilisation is severely constrained by insufficient bandwidth.
Fe-Nonteacher1	Aged 36-40. Senior librarian experienced in supporting access to e-resources. Participates in institutional, national and international OER-related projects. Uses OA journals, open textbooks, MIT-OCW and YouTube for self-development and to support clients. Sees OER as viable alternative to the donor-dependant proprietary databases. Believes OER-aware teachers positively influence learner uptake. Advocates for automation of library support services and increased information literacy. Sees low levels of awareness, low levels of information literacy, and weak ICT infrastructure as hindrances. Believes information literate librarians, library assistants, teachers, and learners coupled with enforceable policies on e-resources usage in technology-supported environment would increase OER usage.