

ADOPTION AND IMPACT OF OER IN THE GLOBAL SOUTH: CHAPTER SUMMARIES

Hodgkinson-Williams, Cheryl;

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Adoption and Impact of OER in the Global South



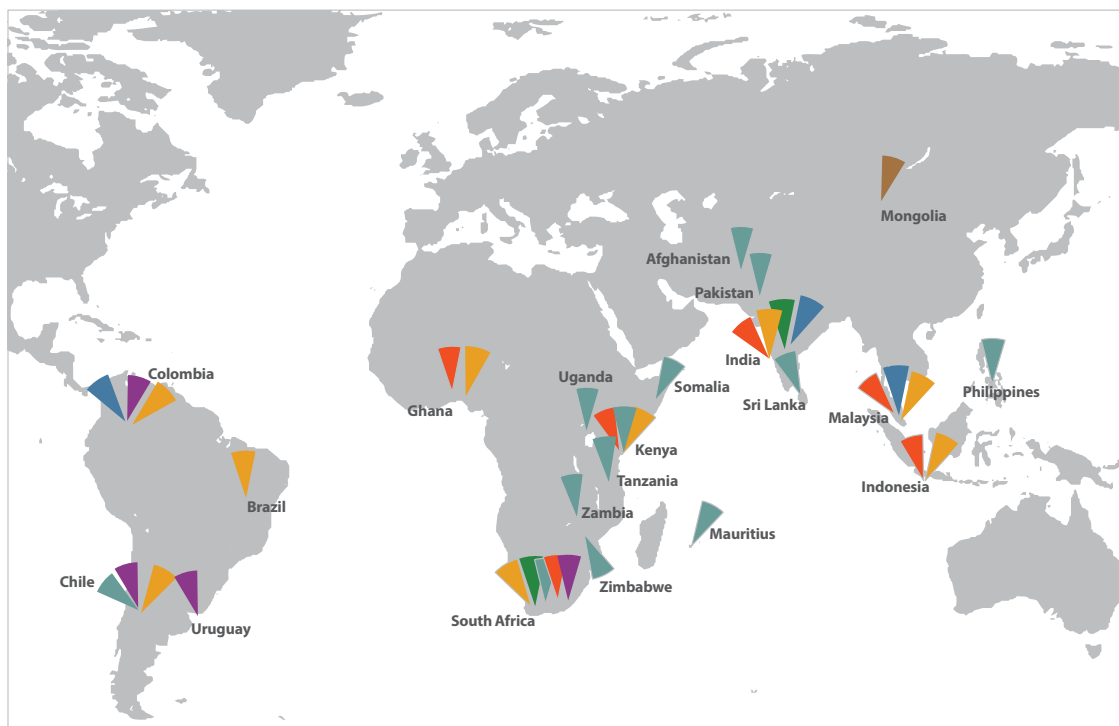
Chapter summaries

<http://roer4d.org/edited-volume>

Education in the Global South faces several key interrelated challenges for which Open Educational Resources (OER) are seen to be part of the solution and against which use of OER might be evaluated. These challenges include: unequal access to education; variable quality of educational resources, teaching and student performance; and increasing cost and concern about the sustainability of education.

The Research on Open Educational Resources for Development (ROER4D) project was a four-year research initiative to investigate in what ways and under what circumstances the adoption of OER could address the increasing demand for accessible, relevant, high quality and affordable education in the Global South.

The project was comprised of 18 sub-projects, the findings from which are captured as chapters in the edited volume, *Adoption and Impact of OER in the Global South*. The summaries presented here provide an overview of chapters' study contexts, methodological approaches, key findings and recommendations, as well as links to accompanying open datasets. Of the total 16 chapters, 12 are based on sub-project findings and four are synthesis and overview chapters. The chapters are organised into five main sections: Overview, South America, Sub-Saharan Africa, South and Southeast Asia, and Conclusion. Within these broader sections, chapters are presented in sequence according to whether the research addresses basic or higher education.



Geographic overview of ROER4D study-site locations

SECTION 1: Overview

Chapter 1 – Chapter 2 – Chapter 3

Chapter 1 **Research on Open** **Educational Resources for** **Development in the Global** **South: Project landscape**

*Patricia B. Arinto,
Cheryl Hodgkinson-Williams,
Thomas King, Tess Cartmill &
Michelle Willmers*

Chapter 2 **Factors influencing** **Open Educational Practices** **and OER in the Global South:** **Meta-synthesis of the** **ROER4D project**

*Cheryl Hodgkinson-Williams,
Patricia B. Arinto, Tess Cartmill
& Thomas King*

The Research on Open Educational Resources for Development (ROER4D) project was proposed to investigate in what ways and under what circumstances the adoption of Open Educational Resources (OER) could address the increasing demand for accessible, relevant, high-quality and affordable education in the Global South. The project was originally intended to focus on post-secondary education, but the scope was expanded to include basic education teachers and government funding when it launched in 2013. In 2014, the research agenda was further expanded to include the potential impact of OER adoption and associated Open Educational Practices (OEP).

ROER4D was funded by Canada's International Development Research Centre (IDRC), the UK's Department for International Development (DFID) and the Open Society Foundations (OSF), and built upon prior research undertaken by a previous IDRC-funded initiative, the PAN Asia Networking Distance and Open Resources Access (PANdora) project.

This chapter presents the overall context in which the ROER4D project was located and investigated, drawing attention to the key challenges confronting education in the Global South and citing related studies on how OER can help to address these issues. It provides an abbreviated history of the project and a snapshot of the geographic location of the studies it comprises, the constituent research agendas, the methodologies adopted and the research-participant profile. It also provides an overview of the other 15 chapters in this volume and explains the peer review process.

This chapter provides a meta-synthesis of the findings from the Research on Open Educational Resources for Development (ROER4D) empirical studies based on the 13 sub-project chapters in this volume as well as other sub-project research reports. It does so by analysing how three phases of Open Educational Resources (OER) adoption – OER creation, use and adaptation – are observed in the studies as forms of Open Educational Practices (OEP), identifying where there are most likely to be disjunctures that inhibit optimal OER adoption processes and their longer-term sustainability. It compares the open practices reported in the ROER4D sub-project studies to an idealised or maximal set of open processes, modelled as the Open Education cycle framework. It draws upon social realist theory to uncover agential decision-making about OER creation, use and adaptation in relation to structural and cultural environments, and seeks to answer the ROER4D project's overarching research question: Whether, how, for whom and under what circumstances can engagement with OEP and OER provide equitable access to relevant, high-quality, affordable and sustainable education in the Global South?

This chapter interrogates findings from the ROER4D empirical studies using a metasynthesis approach. Following a review of sub-project research reports (including, in some cases, primary micro data), the authors used a literature-informed set of themes to create the meta-level conceptual framework for claims about OER and OEP in relation to access, quality and affordability; the Open Education cycle; and structural, cultural and agential influences on the potential impact on access, quality and affordability.

Nvivo software was used to help reveal literature-informed and emergent themes in the studies, identifying the most frequently occurring themes to provide a more comprehensive and classified interpretation of the findings across the empirical studies. Insights and recommendations were then distilled according to Archer's (2003; 2014) social realist theoretical framework which assesses social change – and its counterpart, stasis – according to dynamically interactive and structural, cultural and agential factors. The authors used these three factors to guide their analysis of the ROER4D findings, as understood in relation to the three broad phases of OER adoption (creation, use and adaptation) proposed in the Open Education cycle.

Findings show that in the Global South contexts studied, the ideal or maximal Open Education cycle is incomplete in terms of optimising the benefits of OER adoption. There are five key points of disjuncture: (1) the dependence on copying of existing OER and the corollary failure to localise; (2) the adaptation of OER, but with inconsistent curation and rehosting of derivative works on publicly available

platforms or in repositories, limiting access to the derivative OER; (3) limited circulation of derivative OER due, in part, to the absence of a communication strategy; (4) inconsistent quality assurance processes; and (5) a weak feedback loop for continuous improvement of the original or derivative work.

The chapter concludes with a critical exploration of the range of influences of OER and associated practices on access to educational materials, the quality of educational resources, educators' pedagogical perspectives and practices, and student performance as well as the overall affordability and sustainability of education in the Global South. It argues that full participation in the OER movement in the Global South requires that certain structural factors be put in place – including a minimum level of infrastructural support, legal permission to share materials and OER curation platforms – to curate curriculum-aligned OER in local languages. However, these structural adjustments alone are insufficient for the full value proposition of OER to be realised. While individual educators and some institutions are sharing OER, this willingness needs to be bolstered by a much stronger cultural change where communities of educators and students are given technical and pedagogical support to enable OER uptake – especially the creation and adaptation of OER produced in the Global South.

The research presented here provides baseline data regarding the use of Open Educational Resources (OER) by higher education instructors in the Global South (South America, Sub-Saharan Africa, and South and Southeast Asia). It does so while attending to how such activity (or inactivity) is differentiated across continental regions and associated countries. The chapter addresses two questions: what proportion of instructors in the Global South have used OER, and which variables may account for different OER usage rates between respondents? This is done by examining which variables – such as gender, age, technological access and digital proficiency – seem to influence OER use rates, thereby allowing the authors to gauge which are the most important for instructors in their respective contexts.

This study is based on a quantitative research survey taken by 295 randomly selected instructors at 28 higher education institutions in nine countries (Brazil, Chile, Colombia; Ghana, Kenya, South Africa; India, Indonesia, Malaysia). The 30-question survey addressed the following themes: personal demographics, infrastructure access, institutional environment, instructor attitudes and open licensing. Survey responses were correlated for analysis with respondents' answers to the key question of the survey: whether they had ever used OER or not.

Findings indicate that 51% of respondents have used OER, a rate slightly differentiated by region: 49% in South America, 46% in Sub-Saharan Africa and 56% in South and Southeast Asia. A number of variables were associated with varying levels of OER use rates – such as instructors' country of habitation (and its gross domestic product per capita), level of digital proficiency, educational qualification, institutional position and attitude to education – while many others were not, such as instructors' gender, age or perception of their institutions' OER-related policies.

For these respondents in the Global South, OER use is predicated upon instructors enjoying a certain minimum level of access to information and communication technologies infrastructure – especially hardware (computers, mobile devices, etc.) and internet connectivity (broadband, Wi-Fi, etc.) – which, once achieved, can be described as an enabling factor for OER engagement, but not a motivating factor. Beyond that minimum, increased internet speeds, lower internet costs and greater diversity of technical devices do not seem to lead to ever-increasing OER use rates. Similarly, while OER-related policies would likely be a crucial factor in OER creation, they did not seem to be important regarding OER use. Lastly, it was instructors in the comparatively less-developed countries who were using OER at a markedly higher rate than those from the more developed countries (at least intra-regionally). This suggests that instructors from the relatively lesser-developed countries may find greater utility in OER because it serves to overcome some of the pressing educational challenges associated with their nations' contexts' lower economic development.

Chapter 3 OER use in the Global South: A baseline survey of higher education instructors

*José Dutra de Oliveira Neto,
Judith Pete, Daryono &
Tess Cartmill*

SECTION 2: South America

Chapter 4 – Chapter 5 – Chapter 6

Chapter 4 **Open Access and OER in** **Latin America: A survey of** **the policy landscape in Chile,** **Colombia and Uruguay**

Amalia Toledo

This chapter presents an overview of the mechanisms (funding, policy, legislative and procedural) adopted by Latin American governments with respect to Open Access and Open Educational Resources (OER) initiatives in the higher education sector. It addresses three questions: How do the higher education systems of Chile, Colombia and Uruguay operate and fund their activities in general? How do existing policies and processes incorporating Open Access and/or OER influence student access to learning and research materials in these countries? What policy, advocacy and community-building interventions might be useful for promoting Open Education activities in these contexts?

This study employed a descriptive, case study approach to examine whether and how Open Access and OER policies have been applied at national and institutional levels. It first engaged in an Open Education policy country-mapping exercise, then conducted a comparative analysis, and concluded the research process with a workshop conducted with 10 regional education experts and activists to validate findings.

Findings indicate that while each country has its own approach to funding higher education, there are few or no specific national and/or institutional policies aimed at promoting Open Education in the higher education sectors. Low OER awareness and a commercialised model of higher education appear to account for the lack of any OER policies in Chile, while in Colombia various national and institutional strategies reveal a country at a nascent stage of Open Education policy development. By contrast, the nature of OER management and extent of policy implementation in Uruguay suggests that it is an enabling environment for current and future open policy development.

All of these countries are making investments in science, technology and innovation programmes and projects, making this the most fruitful field for potential Open Education advocacy.

Based on the outcomes of this study, a number of recommendations are proposed, including: fostering and strengthening networks among Latin American civil society organisations promoting Open Education; engaging with higher education stakeholders on how to develop open policies; promoting open policies and mandates for publicly funded research; developing bottom-up and top-down strategies for greater engagement with OER; and providing greater visibility to existing Open Education projects in the region.

Chapter 5 **Co-creation of OER by** **teachers and teacher** **educators in Colombia**

María del Pilar Sáenz Rodríguez,
Ulises Hernandez Pino &
Yoli Marcela Hernández

This chapter, based on research conducted by members of the Collaborative CoCreation of Open Educational Resources by Teachers and Teacher Educators in Colombia (coKREA) project, assesses whether and how a contextually based, bottomup approach to the promotion and advocacy of Open Educational Resources (OER) – in which teachers are encouraged to collaboratively co-create resources – supports the adoption of OER in Colombian schools.

The study, conducted with public school teachers in southwestern Colombia, used a Participatory Action Research approach, in which the object of study is not external to the researchers, as the social practices under study are performed by the same subjects who are conducting the investigation. This allows teachers to identify possibilities of OER in their own educational practices, as well as the conditions required for their adoption, based on collective thinking processes immersed in their own sociocultural contexts.

A call for research participation was issued to teachers who were experienced in using information and communication technologies (ICT) in their teaching. The data collection process was undertaken through administration of a series of online questionnaires (completed by 19 teachers), a survey (completed by 248 teachers), webinars (in which 28 teachers connected and 14 participated actively), unstructured telephone interviews (with 30 teachers) and a series of focus group discussions (with a cohort of 49 teacher educators, teachers and students). A face-to-face workshop was also conducted with teachers to provide an introduction to OER, after which they identified challenges to incorporating OER into their pedagogical practices and discussed their own OER-related activities.

Data analysis followed a rigorous Grounded Theory process and involved an “approach stage” to identify key teacher practices; a “deepening stage” to uncover relationships and affinities; and a “condensation phase” to surface a theory of change.

The main finding in this study is that teachers create and use OER more effectively when they receive flexible and continuous pedagogical support that: (1) fosters pedagogical practices drawing upon constructivist models, so that teachers and students have an active role in the creation and recreation of knowledge; (2) promotes open licensing that respects authors' rights, but allows for legal reuse and adaptation; and (3) facilitates the use of ICT available in schools and at home to access, create and share OER. Similarly, it was found that this pedagogical support generated better outcomes when teacher teams work around a project in their schools instead of attending general training sessions on OER. The key recommendation is that pedagogical support be provided to encourage team-based teacher OER development projects within schools.

This chapter aims to understand the impact of Open Educational Resources (OER) on first-year mathematics students at the Instituto Profesional Providencia (IPP) in Santiago, Chile, where more than half (52%) of first-year students typically drop out of their studies. In order to address this, the institution established an innovation fund and a project to profile, assess and monitor student performance through an early warning system. IPP stakeholders envisioned that a strategy to promote OER uptake could complement these efforts. By looking at an OER intervention amongst first-year students, this study seeks to identify ways in which OER can provide new tools, opportunities, and contexts to improve student performance and lower dropout rates by answering the following research questions: What is the effect of OER use on first-year students' mathematics course performance? In face-to-face instruction, what is the effect of OER use on first-year students' class attendance? What are teachers' and students' perceptions of the OER adoption process?

To answer questions one and two, this study used a quantitative method to estimate the effect of OER use on students' mathematical course performance and class attendance. Five groups of first-year students were compared based on the analysis of two scenarios. In Scenario 1, a control group and two treatment groups were in a traditional face-to-face classroom setting. The control group relied on a proprietary textbook; the first treatment group was taught with the help of a Khan Academy OER collection; and the second treatment group was taught by means of a custom-designed Open Textbook. Scenario 2 compared two classes in blended-mode Algebra and Calculus courses. The control group relied on a proprietary resource, and the treatment group used a Khan Academy collection of OER in addition to the proprietary resource. In order to estimate the effectiveness of OER use on students' mathematical performance, the impact analysis focused on three result variables: (1) students' marks before the final exam, (2) students' final exam marks, and (3) students' final course marks after the exam.

To answer research question three, a mixed-methods approach was applied in the form of a series of semi-structured interviews, a focus group discussion and a student survey. The students who used the Khan Academy OER collections or the Open Textbook were asked to participate in this study in order to better comprehend learners' and teachers' perceptions of OER.

Students in Scenario 1 who used Khan Academy resources obtained statistically significantly better exam grades than those who used the proprietary resource or the Open Textbook, suggesting that not all kinds of OER have the same effect on student performance. In Scenario 2, there was no improvement in mathematical course performance amongst students using OER. In terms of student attendance, face-to-face mode students who used Khan Academy OER had significantly lower attendance levels than those who relied on the proprietary textbook, which may be due to the fact that when students have access to the infrastructure required to access OER remotely they tend to work more from home.

With regard to student and teacher perceptions of the OER adoption process, the qualitative and quantitative data confirmed the assumption that OER can be relevant and useful to Chilean students.

The chapter concludes with the insight that "openness" does not necessarily produce an impact in and of itself, but is instead part of a greater set of tools and practices in which many variables exert an influence. Neither the intrinsic nature of information and communication technologies nor openness are tools or instruments that can be said to result in a specific outcome.

Chapter 6

Effectiveness of OER use in first-year higher education students' mathematical course performance: A case study

Werner Westermann Juárez &
Juan Ignacio Venegas Muggli

SECTION 3: Sub-Saharan Africa

Chapter 7 – Chapter 8 – Chapter 9 – Chapter 10

Chapter 7 **Tracking the money for** **Open Educational Resources** **in South African basic** **education: What we** **don't know**

Sarah Goodier

This study aims to develop an understanding of government funding allocated to educational resources in basic education in South Africa. Linked to claims about potential cost savings associated with using Open Educational Resources (OER), the main intention was to establish a benchmark of public spending on educational resources in order to be able to ascertain the economic benefits of using OER. As such, the following research questions are considered: How much public money is currently being spent on educational materials in basic education in South Africa? How much public money is currently being spent on OER in basic education in South Africa? Do OER represent a cost reduction with regard to educational resource acquisition in basic education in South Africa?

The study is comprised of a desk review and document analysis of publicly available information on expenditure in South African basic education. This approach was adopted in order to develop a conceptual understanding of South African government funding allocation for general educational resources as well as OER.

The findings highlight the fact that individual provinces, rather than central government, have the authority to determine budget allocations for the procurement and delivery of what are termed Learning and Teaching Support Materials (LTSM). Although each provincial Department of Education budget includes a line item for LTSM, these are not sufficiently disaggregated to determine the actual expenditure on specific categories, such as textbooks, in order to establish a benchmark for potential cost savings of OER. The findings also illustrate a possible cost-recovery model based on the local Siyavula open textbook initiative.

In order to make claims about OER and their cost-saving potential in the South African education system, national and provincial government budgets will need to be disaggregated to a more granular level and made more readily available for in-depth investigation of budgetary allocations.

Chapter 8 **Teacher educators and** **OER in East Africa:** **Interrogating** **pedagogic change**

Freda Wolfenden,
Pritee Auckloo, Alison Buckler &
Jane Cullen

This study examines the use of Open Educational Resources (OER) in six teacher education institutions in three contrasting East African settings – Mauritius, Tanzania and Uganda – all of which had previous engagement with OER initiatives. Drawing primarily on interviews with teacher educators, the study examines how and when teacher educators engage with OER, the factors that support and constrain sustained OER engagement, and the influence of such engagement on their teaching practice. It seeks to answer the following three research questions: What kinds of OER are teacher educators aware of and how do they access them? How and for what purpose are they using the OER? What intended and enacted pedagogic practices are associated with OER use?

The study takes a sociocultural approach, paying attention to the practices of teacher educators and the context and culture of the teacher education institutions within which they work, as well as the national policies relevant to these institutions. Surveys were sent to academic staff at each of the participating institutions who were, or had been, involved in curriculum development work involving OER. Male and female educators from different disciplinary backgrounds and with varying roles and periods of service within the institutions were targeted. From the respondents, selected individuals were asked to participate in semi-structured interviews concerning OER and their pedagogical practices. A total of 58 surveys were completed by teacher educators along with 36 in-depth teacher educator interviews and six institutional stakeholder interviews.

The results of the study indicate that teacher educators' understanding and use of OER is highly fragmented, with little traction at department or institutional level. At all the study sites there was dissonance between the ways in which individual educators are using OER and the dominant institutional values and discourse. There were also numerous structural and cultural factors acting to limit agency with regards to OER use. The demands of curriculum and assessment, professional identity, digital skills, provision of equipment and connectivity, values and weak cultures of collaboration all exerted an influence and enabled or constrained teacher educators' efforts to achieve agency with OER.

For a small number of teacher educators (OER "champions"), OER provides a tool for extending their agency to move towards more participatory practices. In their interviews, several of these educators spoke of the formative role of academic training

and many were linked to external OER networks. These elements of historic identity formation influence how they respond to OER, and enhance their confidence to take risks in moving beyond conventional practice.

Enabling educators to act in an agentive way with OER is not easy. Moving forward, attention should be given to issues of access so that educators are able to locate and view OER relatively easily and experiment with their use. This study recommends that time be made available for educators to enhance their skills in working digitally and to become familiar with principles of learning design such that these become integral dimensions of their professional identity. It is also argued that extending and deepening engagement with OER requires opportunities for professional dialogue and collaboration to support the development of productive educator identities with OER and transformation of the community's field of practice.

The research presented here focuses on understanding the obstacles, opportunities and practices associated with Open Educational Resources (OER) adoption at three South African universities. It addresses the question: Why do South African lecturers adopt – or not adopt – OER? In trying to answer this, the authors also attempt to identify which factors shape lecturers' OER adoption decisions, and how lecturers' institutional cultures influence their OER use and creation choices.

This study employed a qualitative research approach through in-depth personal interviews with 18 respondents at three different universities which together broadly represent the characteristics of South Africa's university sector. Unique analytical tools – the OER adoption pyramid and OER adoption readiness tables – were developed to help with analysing and synthesising the data.

Findings indicate that whether and how OER adoption takes place at an institution is shaped by a layered sequence of factors – infrastructural access, legal permission, conceptual awareness, technical capacity, material availability, and individual or institutional volition – which are further influenced by prevailing cultural and social variables.

This study has value and application for researchers and institutions pursuing an OER agenda, policy-makers seeking tools to assess OER readiness in institutional contexts, and funding agencies aiming to boost institutional OER engagement.

This chapter reports on the investigation into the production and rollout of four Massive Open Online Courses (MOOCs) at the University of Cape Town (UCT) in South Africa, and on the experiences of the educators involved in their production. The overarching aim of this study is to address the question: How does MOOC-making with Open Educational Resources (OER) influence educators' Open Educational Practices (OEP)? The authors were interested to know why UCT educators wanted to make MOOCs, whether they adopted OER, whether their practices become more open after making a MOOC, and in which ways.

Drawing on Beetham et al. (2012) and Hodgkinson-Williams (2014), an analytic framework of OEP was developed comprising three dimensions: legal, pedagogical and financial. The research methodology is qualitative, using semi-structured interviews and data from MOOC discussion forums. Six MOOC lead educators were interviewed at three intervals: before their MOOCs ran, immediately after their MOOC's first run, and six to 10 months later. Transcripts were coded using OEP concepts.

The findings offer insights into the relationships between educators' motivations for making MOOCs, their MOOC design tools, the OEP that can be identified and the contradictions they experienced in making MOOCs. Despite the challenges that educators faced, they largely achieved their purposes of making MOOCs and manifested legal, pedagogical and financial dimensions of OEP. The impact on educators' open practices was observed in several subsequent projects after the MOOCs were first run. Tensions involved in making MOOCs, adopting OER and enacting OEP point to how educators could be better supported to become more open in their educational practices.

No negative experiences were attributed to the creation of OER and, indeed, MOOC-making with OER appeared to be conducive to OER adoption in general. However, more time would be needed to conclude whether these educators could become OER advocates or could function autonomously in creating and sharing OER.

Chapter 9 Factors shaping lecturers' adoption of OER at three South African universities

Glenda Cox & Henry Trotter

Chapter 10 OER in and as MOOCs

*Laura Czerniewicz,
Andrew Deacon, Sukaina Walji &
Michael Glover*

SECTION 4: South and Southeast Asia

Chapter 11 – Chapter 12 – Chapter 13 – Chapter 14 – Chapter 15

Chapter 11 **Cultural–historical** **factors influencing OER** **adoption in Mongolia's** **higher education sector**

*Batbold Zagdragchaa &
Henry Trotter*

The research presented here investigates the strategies and practices of educators from six public and private higher education institutions (HEIs) in Mongolia in order to understand the role of Open Educational Resources (OER) in their work. It addresses the question: Which cultural–historical factors shape OER activities in Mongolia's higher education sector? In addition, the study sets out to determine whether OER has the potential to move beyond a niche innovation advocated and funded by international donors to one that is broadly adopted, implemented and disseminated by local educators.

The study employed a sequential exploratory model in which qualitative interviews comprised the first stage of data collection, followed by quantitative surveys. The interviews were conducted with 14 participants recruited using a convenience sample from four Mongolian HEIs, two government organisations and three non-governmental organisations. In total, eight educators and six administrators were interviewed. A follow-up survey was conducted with 42 instructors and administrators at six HEIs, also recruited through convenience sampling. The study utilised Cultural Historical Activity Theory as a framework to analyse the data.

Findings indicate that despite recent efforts to promote OER by funding agencies and the government, OER awareness remains modest amongst higher education instructors and administrators. It is therefore not surprising that OER adoption rates in Mongolia are low. As a result, a culture around OER engagement has not yet emerged, with only isolated individual educators adopting OER. In contrast with many academics who often worry about the quality of OER, Mongolian educators appear to be more concerned about a particular sub-component of quality, which is relevance. In addition, many study participants expressed reservations about the potential value and utility of OER.

As a country, Mongolia has developed and supported large-scale educational-resource projects, especially at the basic education level, and it may need to take a similar proactive stance regarding OER in the higher education sector if it seeks to improve the quality, relevance and cost-effectiveness of teaching content. As the first study on OER activity in Mongolia's higher education system, this research has value and application for researchers and advocates pursuing an OER agenda, for policy-makers seeking to understand how policy interventions might influence OER adoption in the national and institutional context, and for funding agencies aiming to boost educators' OER engagement more broadly.

Chapter 12 **Higher education faculty** **attitude, motivation and** **perception of quality and** **barriers towards OER in India**

Sanjaya Mishra & Alka Singh

The premise of this study is that teachers' conceptions of the quality of Open Educational Resources (OER) and their attitudes and motivations towards using OER will influence whether and how they use and/or contribute open resources. Understanding teachers' attitudes, motivations and barriers to OER use and comparing data across institutions may help to identify the issues that influence OER uptake in India. This chapter attempts to answer the following four research questions: How are teachers' attitudes towards OER situated in the context of teaching and learning? What are teachers' motivations for using OER and sharing their work as OER? How do teachers perceive the quality of OER? What barriers to using OER do teachers perceive?

This study employed a mixed methods approach, using a survey to gather the quantitative data which form the focus of this chapter, as well as workshop engagements and interviews to collect qualitative data. The research was carried out at four universities representing the varying contexts of higher education teachers in India – one state, open university; one dual-mode university; one semi-urban university; and one multi-campus, private university – and amongst the WikiEducator India community. At each university, a three-day OER workshop took place where 30 teachers learned about OER and completed a survey. In addition to the 120 workshop participants engaged at the four universities, the survey was sent to the 107 members of the WikiEducator India community who participated in the research process. Of the total of 227 teachers who were asked to take the survey, 149 survey responses were received, of which 117 (comprised of 43% females and 57% males) were useable. A total of 28 educators from the universities were also interviewed.

Despite the relatively low levels of awareness of OER demonstrated by Indian teachers prior to the research process, they were very positive about creating and sharing OER, while being slightly less enthusiastic about using externally developed materials. Many of the positive attitudes stemmed from: the sense of satisfaction obtained when others use and adapt their materials; useful feedback received from peers; increased reputational profile experienced as a result of sharing; collaborative opportunities introduced in the sharing process; and the belief that their own sharing would encourage other teachers to do the same. The teachers were mildly cautious about OER quality issues, but said that they would use OER if they were appropriate for their needs. They acknowledged a number of barriers to using and sharing OER, including a lack of understanding of intellectual property, copyright and open licensing; a lack of time; and the lack of funding, institutional incentives and support for OER activities.

The authors recommend that advocacy to raise awareness of OER in Indian universities should be a top priority, with a particular focus on teachers and senior administrators; teachers should be released from certain duties and provided with the time required to engage in OER activity; incentives in the form of awards and/or recognition in promotion should be provided for teachers to undertake OER development; quality assurance mechanisms for OER produced should be introduced; and continuous professional development opportunities should be provided to teachers through regular workshops and training sessions on advanced information and communication technologies and OER skills.

This chapter reports on a research project implemented in the Faculty of Education at the Open University of Sri Lanka (OUSL) which investigated the impact of integrating Open Educational Resources (OER) in the teaching-learning process by secondary level student teachers in Sri Lanka. The research questions this study seeks to answer are: What are the impacts of OER integration on the use of instructional materials by teachers? What are the impacts of OER integration on teachers' pedagogical perspectives? What are the impacts of OER integration on teachers' pedagogical practices?

The study adopted a design-based research approach. An intervention programme was implemented with 230 participants who were student teachers registered in the OUSL Postgraduate Diploma in Education programme in nine OUSL centres across the nine provinces of Sri Lanka. Data were collected at multiple stages through the following quantitative and qualitative strategies: survey questionnaires, analysis of lesson plans, concept mapping, self-reflection, semi-structured interviews, focus group discussions, usage data from the learning management system and narratives in the form of "stories". While descriptive statistical methods such as percentages were used to analyse the quantitative data, the authors employed an Interpretive Phenomenological Analysis approach to analyse the qualitative data.

Findings showed that the integration of OER had a substantial impact on changing teachers' instructional resource use, pedagogical perspectives and pedagogical practices. The careful and systematic design of activities facilitated a shift from a "low" to a "high" degree of innovative use of instructional resources as well as creation of OER by teachers, while their pedagogical perspectives and practices shifted towards more constructivist, context-centric and collaborative patterns, as well as to a participatory and sharing culture, in favour of Open Educational Practices.

This kind of capacity-building of teachers in the adoption of OER has the potential to strengthen the school education system in Sri Lanka. Motivating teachers through provision of further opportunities, and recognition of their initiatives through incentives and appreciation, would enhance empowerment of teachers to act as "change agents". It will also provide insights to inform recommendations for the formulation of evidence-based guidelines to support OER adoption.

Chapter 13

Impact of integrating OER in teacher education at the Open University of Sri Lanka

Shironica P. Karunanayaka & Som Naidu

SECTION 4: South and Southeast Asia

Chapter 11 – Chapter 12 – Chapter 13 – Chapter 14 – Chapter 15

Chapter 14 **Teacher professional** **learning communities:** **A collaborative OER** **adoption approach in** **Karnataka, India**

*Gurumurthy Kasinathan &
Sriranjani Ranganathan*

This chapter analyses collaborative Open Educational Resources (OER) adoption amongst Indian school teachers by examining the enabling and constraining techno-social, techno-pedagogical and sociocultural factors in an education context characterised by (1) low information and communication technologies (ICT) use in schools; (2) a “textbook culture” in which teachers often act as simply “content transmitters” of officially prescribed texts; and (3) diverse linguistic challenges, in which predominately English language OER may not always be relevant. The study addressed the following research question: Can a collaborative, “bottom-up” approach by teachers working together to create, adapt and share contextually appropriate resources provide a model of OER adoption?

This study adopted a mixed-methods approach – primarily through action research – in which the research team collaborated with 67 teachers and teacher educators on an OER adoption process. The team worked with the teachers between June 2013 and December 2015, utilising a combination of face-to-face workshops (19 in total), questionnaires, focus group discussions and online interactions. The participants were selected from different districts of Karnataka state, representing diverse geographic areas of the state and three subject disciplines: mathematics (26), science (18) and social science (23). The impact this collaboration had on teacher practices was compared with a Comparable group made up of 124 teachers who did not participate in the research intervention. Data analysis suggests that teachers are able to use digital methods to adopt OER and to contextualise (revise) OER to suit their needs, if given appropriate training. Their techno-social skills were advanced through greater knowledge and experience with digitally mediated collaborative OER activity.

Their techno-pedagogical efficacy improved through greater networking with other colleagues and a sense of openness to having their materials adapted and revised, though teachers acknowledged that linguistic and quality challenges remained. The collaborative OER adoption approach also raised teachers’ sociocultural knowledge concerning copyright and contextually relevant OER. In addition, the OER engagement processes have aided teacher professional development by building a collaborative environment with peers and introducing them to a multiplicity of educational resources.

The authors recommend that state education authorities implement a professional learning community approach to teacher professional development within in-service teacher education, implement a collaborative model for OER adoption, suggest that copyright regulations should position open licensing as the default, and implement a Free Open Source Software-based ICT programme in school education.

Chapter 15 **An early stage impact** **study of localised OER in** **Afghanistan**

*Lauryn Oates, Letha Kay Goger,
Jamshid Hashimi &
Mubaraka Farahmand*

This study evaluates a group of Afghan teachers’ use of Open Educational Resources (OER) from the Darakht-e Danesh Library (DDL) – a digital library comprised of educational materials in English, Dari and Pashto – investigating whether these resources enabled improvements in teaching practice and led to improved subject knowledge. Conducted with secondary-school teachers in Parwan, Afghanistan, who accessed the DDL over a four-week period in 2016, the study asked the following research questions: To what extent did teachers in this study access and use OER in the DDL? Did access and use of OER in the DDL enhance teachers’ subject area content knowledge? Did access and use of DDL resources enhance teachers’ instructional practices? To what extent did teachers’ understanding of OER and its value change?

The study utilised quantitative and qualitative methods to examine the behaviour and practices of 51 teachers in rural Afghanistan, all of whom were teaching at the secondary level or affiliated with a local teacher training college. The study collected data from server logs, pre- and post-treatment questionnaires, lesson plan analyses, teacher interviews and classroom observation. A purposive sampling technique was utilised to select the teachers, drawing from educational institutions with which the Canadian Women for Women in Afghanistan non-governmental organisation had previously interacted.

Findings indicate that when the DDL was used by teachers, the OER accessed positively impacted teachers’ knowledge and helped them in lesson preparation.

On average, the 33 teachers who visited the lab at least three times downloaded 12 OER each over the course of the study. However, a number of teachers did not download or use any OER, and many more preferred to continue using only the traditional textbook to prepare their lesson plans even after exposure to the DDL. Furthermore, while teachers found the OER helpful in creating assessment activities for their students, there was no observed improvement in teacher understanding and use of formative or summative assessment. Lastly, there was limited understanding among the teachers of the exact meaning of “open”, with most viewing OER as learning materials obtained from the internet, libraries or simply from outside of their school. Teachers made little reference to licensing or to the accessibility characteristics of OER. Thus, while teachers who used OER appeared to benefit from these resources, the concept was new to them, representing a disruption to the familiar way of preparing and delivering lessons.

For further diffusion of OER as an innovation in teachers’ learning and practice, concerted action will be required to build the collection of OER available in Afghan languages, provide support in how teachers might integrate OER into their teaching, and ensure connectivity in the context of limited internet access in rural areas and a teacher population with widely varying levels of proficiency in using digital technology.



SECTION 5: Conclusion and recommendations

Chapter 16

This concluding chapter explores the implications of the main research findings presented in the meta-synthesis for the attainment of social inclusion, which lies at the heart of the Open Education movement. The Paris OER Declaration of 2012 explicitly calls upon states to “[p]romote and use OER to ... contribut[e] to social inclusion, gender equity and special needs education [and i]mprove both cost-efficiency and quality of teaching and learning outcomes” (emphasis added). The Ljubljana OER Action Plan of 2017 likewise recognises that, “[t]oward the realization of inclusive Knowledge Societies ... [OER] support quality education that is equitable, inclusive, open and participatory”.

Understanding how OER, OEP and Open Education more generally, can help to achieve social inclusion is particularly critical in the Global South where increased demand, lack of resources and high costs limit the capacity of education systems to provide accessible, relevant, high quality and affordable education.

This chapter aims to contribute to this understanding the potential of OER and their accompanying OEP through a critical exploration of the ROER4D findings in terms of whether and how OER adoption promotes equitable access, participatory education and empowerment of teachers and students, and thus helps to achieve social inclusion. The chapter begins with a brief overview of the relationship between OER and social inclusion, details the implications of ROER4D’s findings as they pertain to social inclusion, and concludes with recommendations for advocacy, policy, practice and further research in OER and OEP in the Global South.

Chapter 16 OER and OEP in the Global South: Implications and recommendations for social inclusion

*Patricia B. Arinto,
Cheryl Hodgkinson-Williams &
Henry Trotter*



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Orders

African Minds
4 Eccleston Place
Somerset West
7130
Cape Town
South Africa
info@africanminds.org.za
www.africanminds.org.za



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Apart from the edited volume profiled here, ROER4D outputs include 10 journal articles, three book chapters, two monographs, five keynote addresses, 10 conference papers, 75 conference presentations and 63 blogs. A full list of project outputs can be accessed at <https://goo.gl/BMeCTH>.

The English-language open datasets accompanying chapters in this volume can be accessed at: <https://www.datafirst.uct.ac.za/dataportal/index.php/catalog/ROER4D>.
The Spanish-language dataset accompanying Chapter 5 can be accessed at: <https://karisma.org.co/cokrea?p=1007>.