

GRAPPLING WITH THE CONCEPTS OF “IMPACT” AND “OPENNESS” IN RELATION TO OER: CURRENT DEVELOPMENTS IN THE ROER4D PROJECT

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IDRC Grant/Subvention du CRDI: 107311-001-Research into Open Educational Resources for Development

Grappling with the concepts of “impact” and “openness” in relation to OER: Current developments in the ROER4D Project

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Abstract

Now that Open Educational Resources (OER) have been around for over a decade, research projects are turning their attention to the impact of the use of OER on a range of educational aspects including student achievement, teacher performance, quality of teaching and learning materials, learning processes and the broader educational systems. To date most of the OER research has been undertaken in the Global North concerning issues such as costs of open textbooks (Wiley, Green & Soares 2012; Wiley, Hilton III, Ellington & Hall 2012; Hilton, Robinson, Wiley & Ackerman 2014); business models (McGill, Currier, Duncan & Douglas 2008); and student satisfaction with “flexbooks” (Lindshield & Adhikari 2013).

Limited OER research has yet emanated from countries in the Global South (Hatakka 2009), but where it has, it has mostly focused on OER “adoption” (OER creation and use) and not so much on OER “impact” per se. Some research studies in the Global South have been part of other international OER research efforts - such as the COL/UNESCO Survey on Governments’ OER Policies (Hoosen 2012) - while others have been part of Global North and South inter-institutional OER projects, such as the TESSA project (Thakrar, Zinn & Wolfenden 2009; Wolfenden, Buckler & Keraro 2010) and the OER Health Project (Harley 2011). Some research has been initiated in the Global South, for example Hodgkinson-Williams and Paskevicius’ (2011; 2012), which investigated ways in which senior students can assist academics in adapting existing materials into OER. However, none of these studies specifically addresses the possible impact of OER.

The paucity of research on the impact of OER on a range of educational aspects has triggered the focus of one of the Sub-Projects in the Research on Open Educational Resources for Development in the Global South (ROER4D) project. An open call was issued in mid-2014 for studies that focused specifically on the impact of the use of OER in Global South contexts. Part of the challenge faced by the ROER4D team and proposal writers was to clarify what was understood by the term “impact” as well as “openness” to ensure that the focus of the studies surfaced the impact of “open” educational resources and not on educational materials in general.

This paper will trace the deliberations around what is meant by “impact” and “openness” in relation to the study of OER in Global South contexts. It will draw on the current literature around “impact” (de los Arcos, Farrow, Perryman, Pitt & Weller 2014) and “openness” (Smith 2014; Weller 2014), and share strategies adopted in the ROER4D-Impact Studies Workshop held in Penang in December 2014 as well as in subsequent or planned ROER4D webinars and collaboration on a cloud-based document to help better conceptualise and operationalise these tricky concepts in relation to OER.

Introduction

Now that Open Educational Resources (OER) have been around for over a decade, research projects are turning their attention to the impact of the use of OER on a range of educational

aspects including student achievement, teacher performance, learning processes, quality of teaching and learning materials, costs of materials and broader educational systems. Deliberating impact and outcomes has also been the topic of international meetings (cf. Fondation Maison des Sciences de l'Homme's meeting around 'Open Educational Resources: impact and outcomes' in December 2014) with attention being paid to business models, public policies and 'transformation' more broadly.

The recent bibliographic mapping of OER research (Zancanaro, Todesco & Ramos 2015) provides evidence of the Global North dominance in OER adoption and OER impact study research. Some of the studies concern the broad adoption of OER (Boston Consulting Group 2013) and specific issues such as costs of open textbooks (Allen 2013; Wiley, Green & Soares 2012; Wiley, Hilton III, Ellington & Hall 2012; Hilton, Robinson, Wiley & Ackerman 2014); student satisfaction with "flexbooks" (Lindshield & Adhikari 2013); development and remixing of OER (Coughlan, Pitt & McAndrew 2013); student learning support (Alves, Miranda & Morais 2014); student performance (Pitt, Ebrahimi, McAndrew & Coughlan 2013); student outcomes (Feldstein et al. 2013); teacher practices (Masterman & Wild 2011); specific pedagogies such as 'flipped learning' (de los Arcos 2014); education policy (Daly et al. 2013) and OER business models (McGill, Currier, Duncan & Douglas 2008).

Limited OER research has yet emanated from countries in the Global South (Hatakka 2009), but where it has, it has mostly focused on OER "adoption" (OER creation and use) and not directly on OER "impact" per se. Some research studies in the Global South have been part of other international OER research efforts - such as the COL/UNESCO Survey on Governments' OER Policies (Hoosen 2012) - while others have been part of Global North and South inter-institutional OER projects, such as the TESSA project (Thakrar, Zinn & Wolfenden 2009; Wolfenden, Buckler & Keraro 2010) and the OER Health Project (Harley 2011). Some research has been initiated in the Global South, for example in Africa Hodgkinson-Williams and Paskevicius (2011; 2012) investigated ways in which senior students can assist academics in adapting existing materials into OER, while Cox (2012; 2013) as well as Percy and Van Belle (2012) investigated academics adoption of OER in South Africa, and Mtebe and Raisamo (2014a; 2014b) investigated academics' intention to adoption OER in Tanzania. De Hart and Oosthuizen (2012) described a nascent institutional perspective on OER adoption at the largest Open and Distance Learning (ODL) university in Southern Africa. However, none of these studies specifically addresses the impact of OER use on costs, materials development processes, educators' teaching performance, students' achievements or institutional policy per se.

In Asia, thanks to the catalyst of the PAN Asia Networking Distance and Open Resources Access (PANdora) and associated regional symposia on OER in 2012 and 2014, more specific attempts have been made to understand OER adoption and pedagogical principles (Misra 2012); learning materials development (Chung & Khor 2012); and initial perceptions of impact of the use of open textbooks (Yuen & Li 2014) and impact of OER on pedagogy (Chowdhuri & Gupta 2014).

In South America much of the OER research is focused much more on awareness (Torres 2013) and capacity building (Amiel 2013); governments' debates about OER (Rossini 2012); and benchmarking current educational expenditure (Toledo, Botero & Guzmán (2014) than on adoption or impact per se.

The paucity of research on the impact of OER on a range of educational aspects has triggered the focus of one of the Sub-Projects in the Research on Open Educational Resources for Development in the Global South (ROER4D) project. ROER4D is a 3-year International research project funded by the Development Research Centre (IDRC) in Canada and the Department for international Development (DFID) in the UK with the primary objective to improve educational policy, practice, and research in developing countries by better understanding the use and impact of OER. The initial group of research projects that commenced in late 2013 focused on the creation and use of OER in achieving the outcomes of resourcing easily accessible, socially acceptable, high quality and affordable post-secondary education in the Global South. An open call was issued in mid-2014 for studies that focused specifically on the impact of the use of OER in Global South contexts. Part of the challenge faced by the ROER4D team and proposal writers was to clarify what was understood by the term “impact” as well as “openness” to ensure that the focus of the studies surfaced the impact of “open” educational resources and not on educational materials in general.

This paper traces initial deliberations around what is meant by “openness” and “impact” and in relation to the study of OER in Global South contexts. It will draw on the current literature deliberating the concept of openness (Smith 2014; Weller 2014) and “impact”, especially in relation to OER (de los Arcos, Farrow, Perryman, Pitt & Weller 2014) and share strategies adopted in the ROER4D-Impact Studies Workshop held in Penang in December 2014 as well as in subsequent or planned ROER4D webinars and collaboration on a cloud-based document to help better conceptualise and operationalise these slippery concepts in relation to OER. In short this paper opens up the conversation around ‘what OER is’ and ‘what the adoption of OER does’.

Conceptual clarification: ‘Open’ and ‘Openness’

The conceptualisation of ‘open’ and ‘openness’ are quite vague terms despite the common-sense understanding of ‘open’ being a direct opposite to ‘closed’. A number of key thinkers in the field of OER and in associated ‘open’ movements have endeavoured to gain some conceptual traction on ‘open’ in thoughtful blogs (Cormier 2013), websites (Open Knowledge Foundation), conference papers (Smith 2014) and an entire book (Weller 2014). As Weller reminds us of ‘openness’:

It is a term that hides a multitude of interpretations and motives, and this is both its blessing and curse. It is broad enough to be adopted widely, but also loose enough that anyone can claim it, so it becomes meaningless (2014: 28).

This paper does not set out to repeat these explorations, but instead endeavours to distill the key features of ‘open’ so that we can operationalise these concepts in the ROER4D research.

Matthew Smith, who happens to be the IDRC Program Officer to whom the ROER4D project reports, provides a very useful paper on ‘open’ and ‘openness’ that the ROER4D researchers might find useful to understand and operationalise these concepts in research. Smith argues for “placing ICT-enabled open practices at the center of theory and research on open applications in [Information Communication Technology for Development] ICT4D” (2014:1). He goes on to define “being open” as the “strategic application of ICT-enabled openness practices (sharing, transparency, reuse, revision, remixing, crowdsourcing, and peer

production) in ICT4D interventions/activities to help tackle a development problem” (2104:1). Smith further suggests that from a research and practice perspective, a “focus on openness practices is beneficial because it: a) theoretically connects openness to development outcomes, b) is where practical learning and theorizing about open practices and their interactions in different contexts is possible, and c) makes comparison across different open applications possible” (Smith 2014:1).

The concept of ‘openness’ can seem, at face-value, to be quite straight forward; like an open door in comparison to a closed door. However, a review of the literature reveals that such a simplistic understanding is not helpful in understanding the ‘openness’ of OER. In his deliberations on the concept of ‘open’ in the term ‘open content’ in 2009, David Wiley reflects that:

“Open” is a continuous, not binary, construct. A door can be wide open, completely shut, or open part way. So can a window. So can a faucet. So can your eyes. Our commonsense, everyday experience teaches us that “open” is continuous. Anyone who will argue that “open” is a binary construct is forced to admit that a door cracked open one centimeter is just as open as a door standing wide open, because their conception of the term is overly simplified and has no nuance.

So while we can easily establish that there is a continuum of openness, we need clarify the dimensions of ‘openness’ to which this continuous spectrum of ‘openness’ or “degrees of openness” of OER (Hodgkinson-Williams & Gray 2009) relate. With respect to OER, this means clarifying the underlying practices and determining the extent to which they are undertaken.

Conceptual clarification: “Open Educational Resources”

The concept underpinning OER has been variously labelled and defined by international agencies, philanthropic organizations, institutions providing and using OER as well as by researchers trying to describe the concept of intentionally contributing teaching, learning and research materials for others to access freely and reuse legally.

Although the term OER was deliberately coined during a UNESCO meeting in 2002 (D’Antoni 2008), the concept is similar to other terms that preceded and even succeeded UNESCO’s attempt to standardise the term to optimise information sharing about this emerging phenomenon. These terms include “open content” (Wiley 1998), “learning objects” (Hodgins 2004), “reusable learning content” (Duval et al. 2001), “open courseware” (Malloy, Jensen, Regan & Reddick, 2002), “open-sourced content”, “open source digital content”, “open-source curriculum”, “open eLearning content” (Geser et al. 2012), “digital learning resources” (Margaryan & Littlejohn 2008) and “reusable digital learning resources” (Leacock & Nesbit 2007). As these terms often have equivalents in other languages, e.g. “recursos educativos abiertos” (REA) in Spanish (Braun et al. 2010) and “recursos educacionais abertos” (REA) in Portuguese (Amiel, Orey & West 2011) research in the Global South needs to take into account these terms as well. Although these terms often include the word ‘open’, ‘abiertos’ or ‘abertos’, it is not immediately apparent to what extent there is a shared understanding exactly what ‘open’, ‘abiertos’ or ‘abertos’ constitutes. Analysing some key OER definitions (for the term ‘open’ only in this paper) provides additional clues.

In the Wikipedia entry on OER, the affordability of and accessibility to free materials is foregrounded in their definition:

OER are freely accessible, openly formatted and openly licensed documents and media that are useful for teaching, learning, education, assessment and research purposes (italics added).

The legality of ‘open’ materials is paramount in the definition of OER offered by the William and Flora Hewlett Foundation:

OER are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge (italics added).

While Wiley’s most recent definition of the term "open content", mentions the legality of ‘open’ materials, his definition focuses on providing clarity on the reusability of these materials:

Open content describes any copyrightable work (traditionally excluding software, which is described by other terms like "open source") that is licensed in a manner that provides users with free and perpetual permission to engage in the 5R activities:

1. Retain - the right to make, own, and control copies of the content (e.g., download, duplicate, store, and manage)
2. Reuse - the right to use the content in a wide range of ways (e.g., in a class, in a study group, on a website, in a video)
3. Revise - the right to adapt, adjust, modify, or alter the content itself (e.g., translate the content into another language)
4. Remix - the right to combine the original or revised content with other open content to create something new (e.g., incorporate the content into a mashup)
5. Redistribute - the right to share copies of the original content, your revisions, or your remixes with others (e.g., give a copy of the content to a friend).

However, Weller highlights that a focus “purely on reuse gives a content-centric view, and openness relates to practice also” (2014:29) and cautions us not to ignore pedagogic practices or what have become known as ‘open educational practices’ or ‘open pedagogy’. Geser et al. are quite critical of OER advocates who:

... do not take into account the legacy of traditional institutional frameworks and pedagogical models. They seem to assume implicitly that easy and free access to a ‘critical mass of high-value content’ (which appears as a standard formula), and tools to make use of such content interactively, would somehow also lead to a change in such frameworks and models (2012:41).

By contrast the definition put forward by Debbie Morrison in her blog, privileges the technical formatting of OER:

Open Educational Resources abbreviated as OER, are openly formatted and licensed documents and media accessed on the Web that are useful for teaching, learning, education, assessment and research that anyone can openly use and reuse, without charge.

The Open Knowledge Foundation define ‘open formatting’ as:

The work must be provided in a convenient and modifiable form such that there are

no unnecessary technological obstacles to the performance of the licensed rights. Specifically, data should be machine-readable, available in bulk, and provided in an open format (i.e., a format with a freely available published specification which places no restrictions, monetary or otherwise, upon its use) or, at the very least, can be processed with at least one free/libre/open-source software tool.

In the proposal development process in 2012 and 2013, the ROER4D project had to take an initial decision on how the project would define OER before the actual research commenced. The initial ROER4D definition is an adapted version proposed by Smith and Casserly (2006) from the Hewlett Foundation:

OER are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free reuse by others. Examples of OER include full courses, course materials, modules, open textbooks, streaming videos, tests, software, massive open online courses (MOOCs) and any other tools, materials, or techniques use to support access to knowledge (adapted from Smith & Casserly, 2006: 1).

As this definition is insufficiently detailed for operationalising these concepts, we maintain an on-going collaborative space in a Google Doc, ROER4D Research Concepts, where all our researchers are able to comment on the concepts and provide alternative ideas. We held a webinar to deliberate various interpretations in 2014 and are planning to do so again in 2015.

Operationalising the concept of “reusability” in OER

As an example of how we are operationalising ‘open’ concepts from a definition into a form in which we can determine impact, the concept of ‘reusability’ will be explained. From the ROER4D definition the term ‘reuse’ is seen to be any type of ‘use’ and ‘re-purposing’, as we argue that any type of use of another's materials is a type of ‘reuse’. The concept of OER ‘reuse’ (including ‘repurposing’), has been variously defined by Wiley, Green and Soares (2012) and updated by Wiley in 2014. Okada et al. (2012) have extended the concept of OER reusability by elaborating upon Wiley’s ‘revise’ and ‘remix’ processes. So building on their work, we have created a description of ‘types of reusability’ (Table 1) that provides a definition of the ‘reuse’ activities from fairly simple revision activities such as ‘re-authoring’, ‘contextualising’ and ‘redesigning’ through to more complex remix activities such as ‘decomposing’, ‘remixing’ and ‘reassembling’.

Table 1: Types of reusability in OER (adapted from Wiley 2014 and Okada et al. 2012)

Types of reusability	Ways of reusing OER	Operational
REUSE	Use “as is” or copy verbatim	Copy: Make a copy of the original
REVISE	Edit, modify, adapt and improve the OER so it better meets your needs by re-authoring, contextualising, re-designing, summarising, versioning, repurposing,	Contextualize: Changing content or adding new information in order to assign meaning, make sense through examples and scenarios Redesign: Converting a content from one form to another, presenting pre-existing content into a different delivery format

	translating, personalising, re-sequencing the content.	<p>Summarise: Reducing the content by selecting the essential ideas</p> <p>Repurpose: Reusing for a different purpose or alter to make more suited for a different learning goals or outcome</p> <p>Version: Implementing specific changes to update the resource or adapt it for different scenario.</p> <p>Translate: Restating content from one language into another</p> <p>Personalise: Aggregating tools to match individual progress and performance</p> <p>Re-sequence: Changing the order or sequence of the materials</p>
REMIX	Combine the original or revised content with other open content to create something new	<p>Decompose: Separating content in different sections, break out content down into parts</p> <p>Remix: Connecting the content with new media, interactive interfaces or different components</p> <p>Reassemble: Integrating the content with other content in order to develop a module or new unit</p>
RETAIN	Make, own, keep and control (curate) copies of the content	Save: Make and save a copy
REDISTRIBUTION	Share the original OER or your new version with others	Share: Share the original OER or your new version

Two additional concepts not covered in this table as it focuses on ‘reuse’, are that of ‘awareness’ and ‘creation’ of OER. The concept of awareness is used very broadly in the studies mentioned and in other OER online surveys . In the ROER4D project it is proposed that the term is understood to mean an awareness of the open movement in general (e.g. open source software, open access), the concept of open educational resources in particular (not necessarily the actual term), OER repositories or portals as well alternative licensing systems and in particular the concepts of reusing, revising, re-mixing and legal redistribution.

The concept of creation is not mentioned by either Wiley et al. (2012), Wiley (2014) or Okada et al. (2012), but is given some prominence by others who have referred to developing OER “from scratch” (Schuwer, Lane, Counotte-Potman & Wilson 2011) or ‘creating materials’ (Schuwer et al. 2010). The term “contribution” to “open education goods” (Iiyoshi & Kumar 2008) is sometimes used synonymously with “creation” as is the word “production” (See CERI/OECD Report 2007). The creation phase refers to the development of original materials and/or tuition by the author or institution either as a “self-use” of existing materials or “born open” OE, i.e. developed with the view of being shared freely and openly (Hodgkinson-Williams 2014:8).

Table 2: Operationalising ‘creation’ in OER

Type of OER activity	Ways of engaging with OER	Operational
AWARENESS	Being aware of the open movement in general, the concept of open educational resources in particular (not necessarily the actual term), OER repositories or portals as well alternative licensing systems and in particular the concepts of reusing, revising, re-mixing and legal redistribution.	Know about: The open movement in general (e.g. open source software, open access), the concept of OER, (not necessarily the actual term), OER repositories or portals; alternative licensing systems (e.g. Creative Commons) and in particular the concepts of reusing, revising, re-mixing and legal redistribution
CREATION	Producing original materials with the intention to share them beyond the initial target group	Create: Produce, develop OER “from scratch”

These conceptual definitions can be used as the basis for the analytical framework that ROER4D researchers will need to describe the various OER creation and ‘reuse’ practices and then link them to possible measures of impact - i.e. what the adoption of OER does.

In order to be able to use a word to describe all the types of OER activity, the ROER4D project settled early on on the term ‘adoption’. Some studies have opted for ‘adoption’ (Abeywardena, Dhanarajan & Chan 2012; Ngimwa & Wilson 2012), ‘adoption and use’ (Barrett, Grover, Janowski, van Lavieren, Ojo & Schmidt 2009), ‘diffusion and adoption’ (Lane & van Dorp 2011) as well as variations on OER ‘take-up’ (Glennie et al. 2012; Sapire, Reed & Welsch, 2012) or OER ‘uptake’ (van der Merwe 2013). In the ROER4D project it has been proposed that the term ‘adoption’ be used as the overarching construct to denote the wide range of OER practices and policy development. This includes creating, using /re-using, revising, re-mixing, redistributing and retaining educational materials.

Grappling with OER impact

There are a few studies that mention ‘OER impact’, but not all actually report what measures they used to establish ‘impact’. Fortunately more recent studies, in particular the study of the Bridge to Success programme (Pitt, Ebrahimi, McAndrew & Coughlan 2013), provide a much more in-depth discussion on what measures can be used in an endeavour to establish the impact of the use of OER and the challenges inherent in measuring the use of ‘open’ materials where logging into an OER site is not necessarily required and open to anyone to use irrespective of their institutional ‘home’.

Perhaps the first important lesson from the research by Pitt et al. (2013) is to make explicit the definitions of ‘impact’ from those appearing in the literature, those expected from funders, those from participating institutions to inform the research team definitions. The concept of ‘impact’ can only be understood in relation to a specific concept, e.g. impact of climate change. In order to understand the impact of the use of OER or ‘what the adoption of OER

does', there is a need to link back to the original problem that the adoption of OER seeks to address.

At the ROER4D Impact Studies Workshop in Penang in December 2014, we endeavoured to make explicit the process from the problem through to our prediction in order to get a grip on what evidence we needed to establish and from whom to account for the possible impact of OER adoption. We prompted this process through a series of seven questions:

1. What is the problem?
2. What is the claim made about OER as a response to this problem? (What is the hypothesis to be tested?)
3. What are the specific objectives?
4. What would count as evidence? Which evidence should be prioritised (“gold”, “silver” and “bronze”)?
5. From whom could you obtain this evidence?
6. What method/s would be most suitable to gain this evidence?
7. What are you predicting? What is your theory of change?

We encouraged the researchers to think through these questions and plot them in a table so that that the congruence (or lack thereof) between the various elements could be quite easily noted and the possible measures for what might count as impact could be made explicit (Table 3).

Table 3: Planning for OER impact studies

What is the problem?	What is the claim made about OER as a response to this problem? (What is the hypothesis to be tested?)	What are the specific objectives?	What would count as evidence? Which evidence should be prioritised (“gold”, “silver” and “bronze”)?	From whom could you obtain this evidence?	What method/s would be most suitable to gain this evidence?	What are you predicting? What is your theory of change?
Expensive textbooks/educational materials	OER can reduce the cost of textbooks/educational materials	To establish whether (or not, to what extent) the adoption (creation/reuse, revision, remixing or redistribution) of OER reduces the cost of	Calculation of savings based on number of OER users who would have spent funds on traditional textbooks/educational materials	Who will make the cost savings? Learners (if they purchase the textbooks) Teachers (if they develop the educational materials) Institution (if they procure the	Survey of publishers' sites for textbooks Questionnaire for learners, teachers on textbook/educational materials Institutional data on library expenditure Interview with	If OER reduces the cost of textbooks/educational materials, then education would be more affordable in formal or informal contexts

		textbooks/ educationa l materials for (learners, teachers, institution s, bursary funders, governme nt) in (context x)		textbooks/ educational materials for the learners or libraries) Bursary funders or student loan agencies (if if they procure the textbooks/ educational materials) Government (if if they procure or produce the textbooks/ educational materials)	Bursary funders or student loan agencies	
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This process will hopefully help ROER4D researchers - and other researchers - to be able to quickly frame research questions, identify what evidence would be the most ideal (i.e. gold), from whom they are likely to gain this information - if at all. In this way we can help researchers preempt the type of data they can put forward as impact measures before actually conducting the study. It will also assist researchers in predicting who might benefit most from a type of OER adoption. To expand the “reduction of costs” claim above, the kind of research questions, type of evidence and sources of evidence could be mapped as illustrated in Table 4.

Table 4: Mapping research questions to the type of evidence and sources of evidence

Subsidiary questions	Interviews	Artefact analysis
What are the cost savings, if any, for formal students using OER?	Formal students’ perceptions of cost savings: - Who pays for formal students’ textbooks, course materials? - How likely are students to purchase new (printed and/or digital) traditional textbooks, course materials? - How likely are students to purchase second-hand textbooks, course materials? - How likely are students to borrow textbooks from the library? - How likely are students to share textbooks, course materials with peers? - How likely are student to	Analysis of the costs of new (printed and/or digital) and second hand traditional resources (e.g. textbooks, course materials) through price comparison of textbooks on publishers’ websites (taking cheapest price) Analysis of costs, if any, of OER to the formal student

	make illegal copies of textbooks, course materials?	
What are the cost savings, if any, for informal learners using OER?	Informal learners' perceptions of cost savings: - How likely are informal learners to purchase traditional textbooks? - How likely are informal learners to purchase second-hand textbooks?	Analysis of the costs of new (printed and/or digital) and second hand traditional resources (e.g. textbooks) through price comparison of textbooks on publishers' websites (taking cheapest price) Analysis of costs, if any, of OER to the informal learner

These examples only scratch the surface of the impact of OER adoption, but we hope that by thinking about these issues before the commencement of the ROER4D studies, when there is still time to benchmark various measures that could provide evidence of impact, that we will increase the strength of the evidence we offer as measures of impact of OER adoption.

Through our planned ROER4D webinars and collaboration on a cloud-based document we hope to continue to better conceptualise and operationalise these slippery OER concepts in English, Spanish and Portuguese.

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