

## 12 Open Educational Resources and Practices in the Global South: Degrees of Social Inclusion

Henry Trotter and Cheryl Hodgkinson-Williams

### Introduction

Across the Global South, educational institutions are under pressure to provide students with equitable access to affordable and good-quality education in economically constrained environments. The demand for equity of access to affordable and appropriate educational materials is felt in these countries that face growing student numbers, decreasing government funding, increasing textbook costs, and lack of locally relevant educational resources.

The rapid growth and broad deployment of digital technologies have provided educators and students with platforms for locating, creating, sharing, and using educational materials at an unprecedented scale. This is a development that many (e.g., Daniel, Kanwar, and Uvalić-Trumbić 2009; Smith and Casserly 2006) have hoped would expand equity of access for those from resource-constrained environments. However, not all the educational materials located on the Internet are legally adaptable or shareable. Moreover, even if learners and educators have access to materials on the Internet, whether openly licensed or not, the content may not be suitable for their needs or it may lack relevance because it is based on worldviews or contexts that do not speak meaningfully to their own.

Engaging with open educational resources (OER) and open educational practices (OEP), which entails creating materials, sharing them on public platforms, reusing the original materials verbatim, customizing them, combining them with other materials, and sharing these publicly, has been advocated as a way of reaching groups that are socioeconomically, geographically, linguistically, and epistemically marginalized. In many parts of the world, educators in schools, higher-education institutions, and non-governmental organizations (NGOs) are starting to collaboratively create educational materials with the intention of sharing these freely with other educators and students. These OEP include activities such as collaboration among educators, cocreation among

learners and educators, the use of open technologies, and open peer review. If the materials created are given an open license (e.g., Creative Commons)<sup>1</sup> that specifies the reuse permissions, these materials can then be shared as OER. Due to the legal permissions granted by the creators of OER, other educators and learners can legally copy, adapt, keep, and reshare versions of resources in ways that best suit their contextual needs and foreground local knowledge.

This chapter explores the phenomena of OER and OEP and their relationship to social inclusion in developing countries. It asks the question: Whether, why, and how do OER and OEP contribute to the social inclusion of underserved communities in the Global South by widening access to education, encouraging educational participation, and fostering empowerment of educators and learners? To answer this question, we analyze findings from the Research on Open Educational Resources for Development (ROER4D) project,<sup>2</sup> which focuses on OER and OEP activities in three regions: South America, sub-Saharan Africa, and South and Southeast Asia. ROER4D consists of eighteen subprojects with more than 100 participating researchers and research associates in Afghanistan, Brazil, Chile, Colombia, Ghana, India, Indonesia, Kenya, Malaysia, Mauritius, Mongolia, Pakistan, the Philippines, Somalia, South Africa, Sri Lanka, Tanzania, Uganda, Uruguay, Zambia, and Zimbabwe.

This chapter starts by presenting a conceptual framing of the concepts of OER, OEP, and social inclusion. Next, it provides perspectives on how OER and OEP relate to social inclusion, as gleaned from the academic literature. Then it describes the meta-analytical methodology employed here. Finally, it goes through the findings as they pertain to the relationship between ROER4D's subprojects' data and OER and OEP, as well as summarizing the key points of this chapter.

### **Conceptual Framing of OER, OEP, and Social Inclusion**

In this section, we provide a conceptual and theoretical framework for understanding OER, OEP, and social inclusion. This framework underpins the discussion of the findings that follow.

### **Open Educational Resources and Practices**

In this chapter, we adopt the Hewlett Foundation's definition of OER, which conceives of them as "teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property (IP) license that permits their free use and re-purposing by others."<sup>3</sup> Wiley, Green, and Soares (2012) expand on the terms *free use* and *re-purposing*, coining the term *4 Rs* (which stands for *revise, reuse, remix, and*

*redistribute*) to describe the rights associated with OER, and later extend this to the 5 Rs framework (by adding *retaining* to the list) (Wiley 2014).

An early definition considered OEP as “the practice of creating the educational environment in which OER are created or used” (Conole and Ehlers 2010, 2). Subsequent practitioners and researchers have extended these practices more deliberately to include collaboration (Karunanayaka et al. 2015), “developing and applying open/public pedagogies in teaching practice” (Beetham et al. 2012, 1), crowdsourcing (Weller 2013), open peer review (Hegarty 2015), and “using open technologies” (Beetham et al. 2012, 2). More recently, Cronin (2017, 18) expanded the concept of OEP to include “collaborative practices that include the creation, use, and reuse of OER, as well as pedagogical practices employing participatory technologies and social networks for interaction, peer-learning, knowledge creation, and empowerment of learners.”

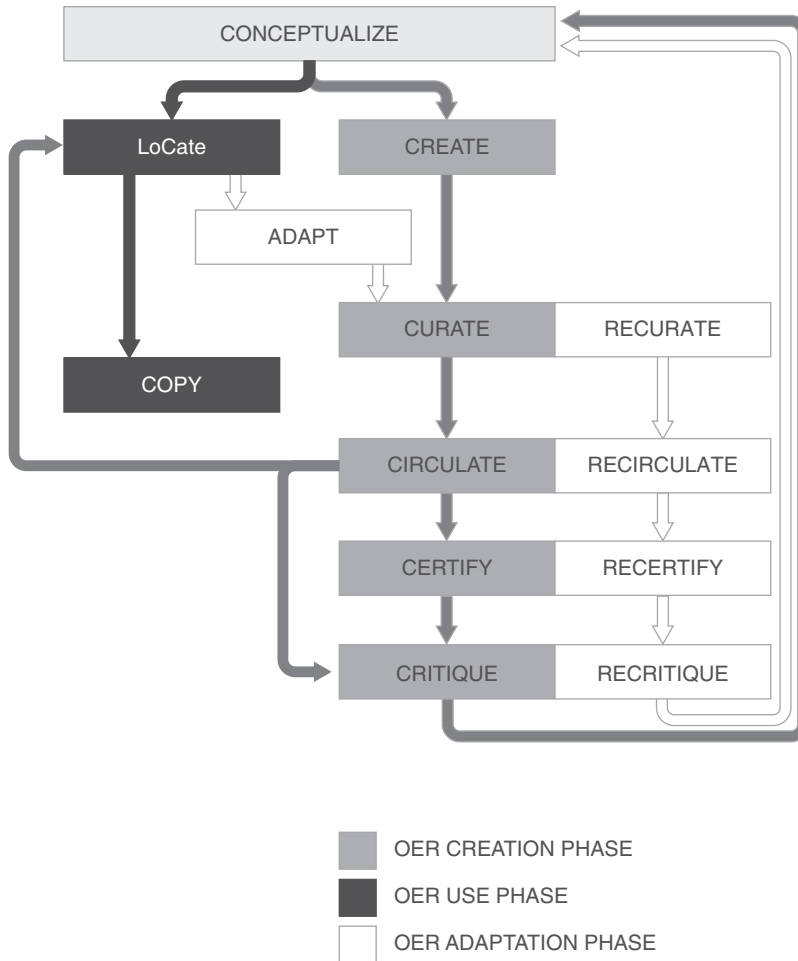
In the ROER4D project, OEP are construed as individual and/or collaborative practices between educators and/or cocreation with students to create, use, and adapt OER through crowdsourcing of ideas and/or materials, open peer review of materials, participatory teaching practices, and open technologies to optimize sharing and reuse.

In 2014, Hodgkinson-Williams proposed an elaboration of the practices associated with OER (Okada et al. 2012; White and Manton 2011; Wiley 2014), framing them within a more comprehensive set of OEP encompassing ten distinct activities of an open education cycle (originally called the *10 Cs*—*conceptualize, create, curate, circulate, certify, critique, locate, customize, combine, and copy*) posited to optimize the key value propositions of OER (namely, access to affordable, high-quality education). This model has evolved over the period of ROER4D research (Walji and Hodgkinson-Williams 2017) and been refined into an open education cycle, which is based on a common conceptualization activity, followed by three distinct phases: a creation phase, a use phase, and an adaptation phase (see figure 12.1).

For OER to exist, there must be prior OEP, such as individual or collaborative creation, curation (retention), and circulation (distribution) processes, in order for others to locate, copy (reuse in its unaltered form), or adapt (customize/revise or combine/remix) so as to recurate and recirculate (Hodgkinson-Williams 2014). Therefore, if OER are to contribute to more equitable, high-quality, and sustainable education, OEP must be taken up by educators and learners.

As explained by Hodgkinson-Williams et al. (2017, 32–33):<sup>4</sup>

The **conceptualisation** activity includes planning what OER and which pedagogical strategies might be most suitable in a specific context; it is implicit in the OER creation, use or adaptation phases. 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 as “born open” OER



**Figure 12.1**

Proposed optimal Open Education cycle.

*Source:* Adapted from Hodgkinson-Williams (2014, 32); Walji and Hodgkinson-Williams (2017).

(i.e. developed with the view of being shared freely and openly). In order for these materials to be made publicly available, they need to be **curated**; that is, they need to be hosted on a publicly accessible platform with sufficient descriptive information (i.e. metadata) and appropriate open licensing (e.g. Creative Commons [CC]) for them to be easily found through Internet search tools and legally reusable. Further **circulation** amongst potential users of the OER is required to raise awareness of the existence of the OER (e.g. via social media, OER portals), which are then ideally **certified** through some type of quality assurance mechanism, either

by the OER creator, their peers, an educational body or the hosting organisation. Best practice also requires that the OER can be **critiqued** to ensure that user feedback informs subsequent phases of conceptualisation regarding the OER. The **use** phase refers to finding OER (artificially referred to as “**loCate**” in this phase) so that it can be used in its original form (i.e. **copied**) in other contexts. This use phase, where OER are used “as is”, implies a finite path as no subsequent OER are created from this activity. The **adaptation** phase refers to OER being customised (e.g. revised, modified) or combined (e.g. remixed with more than one set of OER) in order for these derivative OER to be re-curated, re-circulated, re-certified and re-critiqued.

### Social Inclusion

For the analysis of ROER4D findings, we use the concept of social inclusion, which the World Bank (2013, 3) defines as “the process of improving the terms for individuals and groups to take part in society,” to which Bonami and Tubio (2015, 100) further add: “It ensures that people have a voice in decisions which affect their lives and that they enjoy equal access to markets, services and political, social, and physical spaces.”

This process counters an opposing reality of exclusion that faces a great many people, especially in the Global South. The World Health Organization defines *exclusion* as consisting of: “dynamic, multi-dimensional processes driven by unequal power relationships interacting across four main dimensions—economic, political, social, and cultural—and at different levels including individual, household, group, community, country, and global levels.”<sup>5</sup>

According to Peters and Besley (2014), the concept of social inclusion first emerged as a guiding political priority in France during the 1970s, followed by Britain’s New Labour government in the 1990s, with its Third Way approach to neoliberal governance. It has since then become more broadly accepted as a norm to strive for across all spheres of social activity, having become a dominant policy concept that is “seen as self-evident and part of the common-sense acceptance of the human rights framework” (Peters and Besley 2014, 108).

According to Gidley et al. (2010, 1), the following elements may, depending on the particular context, influence social inclusion, “socio-economic status, culture (including Indigenous cultures), linguistic group, religion, geography (rural and remote/isolated), gender, sexual orientation, age (including youth and old age), physical and mental health/ability, and status with regard to unemployment, homelessness and incarceration.”

Aside from factors that influence social inclusion, Gidley et al. (2010, 2) suggest that there are “degrees” of social inclusion characterized by notions of access, participation,

and empowerment. This means that inclusion should not be understood as a simple, binary, yes/no outcome. As they argue, “Social inclusion can be understood as pertaining to a nested schema regarding degrees of inclusion. The narrowest interpretation pertains to the neoliberal notion of social inclusion as *access*; a broader interpretation regards the social justice idea of social inclusion as *participation*; whilst the broadest interpretation involves the human potential lens of social inclusion as *empowerment*” (Gidley et al. 2010, 2).

**Access** The most basic form of social inclusion revolves around the principle of *access*, one of the major preoccupations of the open movement. Gidley et al. claim that this is often tied up with neoliberal ideology, which sees access as being about “investing in human capital and improving the skills shortages for the primary purpose of economic growth as part of a nationalist agenda to build the nation’s economy in order to better perform in a competitive global market” (2010, 2). This is an instrumentalist approach, seeing people as having certain deficits in skills, knowledge, and so forth, which should be overcome with greater access, leading to increased social capital, and, therefore, opportunities for the individuals concerned, as well as expanded economic growth for their societies.

**Participation** A broader sense of social inclusion includes notions of participation, which are tied to questions of social justice. This goes beyond the more economically instrumental view of neoliberal access and addresses the frequently more challenging issues of “human rights, egalitarianism of opportunity, human dignity, and fairness for all” (Gidley et al. 2010, 4). Such social inclusion at the higher education level is exemplified through social responsibility activities such as those involved in university-community partnerships. The relationship between the university and civil society is what Cooper (2009, 153) calls the “fourth helix,” which goes beyond the more traditional triple-helix relationship between University-Industry-Government. The theories associated with this aspect of inclusion include critical pedagogy, partnership theory, and feminist theories.

**Empowerment** At the broadest level, social inclusion also includes a focus on personal empowerment, in that education should seek to “maximise the potential of each human being” (Gidley et al. 2010, 4). This is based on the recognition that each person is complex and multidimensional and that difference and diversity are strengths to be leveraged and enhanced rather than ignored or suppressed. “Through this, education can be understood as transformative” (Gidley et al. 2010, 5), fostering one’s dignity and generativity. The theories associated with this element include adult developmental psychology theories, pedagogies of hope, and postcolonial development theories.

### Perspectives on How OER and OEP Relate to Social Inclusion

With this understanding of social inclusion in mind, we can see how other scholars have tried to relate OER and OEP to these three elements of the concept (as shown in figure 12.2). Concerning the first element, *access*, from the very beginning of the open movement (Smith 2014), OER have been touted as having the power to overcome various forms of educational exclusion, especially for informal learners (McGreal et al. 2014) and those in marginalized contexts (Dutta 2016). Open advocates and scholars have argued that “at the heart of the movement toward OER is the simple and powerful idea that the world’s knowledge is a public good and that technology in general and the World Wide Web in particular provide an opportunity for everyone to share, use, and reuse it” (Smith and Casserly 2006, 2). Many early studies focused on access as the foundational challenge to inclusion (OECD 2007), and the Millennium Development Goals (MDGs) prioritized universal access to primary education.<sup>6</sup> Access remains a challenge for many people today, as Willems and Bossu (2012, 185) contend: “[W]hile equity reasons often underpin the provision of OER, challenges continue to be experienced by some in accessing open digital materials for learning.” Indeed, despite OER being “high on the agenda of social and inclusion policies and supported by many stakeholders, their use in higher education and adult education has not yet reached the critical threshold” (Ehlers 2011, 1). Thus, access is still at the core of social inclusion discussions in many contexts, especially the Global South.

However, as access has grown, OER proponents have broadened their understanding of social inclusion to incorporate notions of participation (Lane 2012), especially as it relates to social and educational justice (Richter and McPherson 2012). Richter and McPherson (2012, 202) elaborate on this perspective with this observation:

Just providing those resources as a contextualized “give-away” cannot lead to reach the aim of educational justice throughout the world, but worse, without further action, the gap between the industrialized countries and the developing world may even be risen. Our research (Richter 2010) has shown that when implementing learning in foreign contexts, not taking the cultural context of the targeted learners into consideration can lead to their frustration and finally to a general denial of participation.

This has already permeated the approaches of many educational organizations, including the European Association of Distance Teaching Universities (EADTU) that views participation as being “limited for many learners by availability, affordability, accessibility and acceptability of opportunities to participate in education” (Lane 2012, 138). Richter and McPherson (2012) also note how the historical effects of colonialism, language, contextual gaps, and a lack of cultural diversity influence the production of educational materials globally, which affects participation.

Additionally, as remarked upon by Perryman and Coughlan (2013, 1),

this vision of openness and of the connection between OER and social justice...is limited by the fact that OER-provision is typically top-down, driven by higher education suppliers with the needs of higher education (HE) in mind. As a consequence, the OER that are released can be hard to find for potential users outside HE and often fail to meet those potential users' needs in respect of the content, size, format and level of the OER.

To overcome this deficiency, Perryman and Coughlan (2013, 1) call for academics to become “public-facing open scholars” who work with “online communities outside HE to source OER to meet the specific needs of those communities.” Thus, social inclusion at this level means allowing learners to identify the type of educational needs that they have, and educators to apply their expertise to meet those needs in an open fashion.

Moving beyond access and participation, scholars have also started to highlight the importance of empowerment for social inclusion. As Knox states in his critique of the OER movement: “Proponents of OER have focused disproportionately on the removal of barriers to accessing educational content, and studies into the activities and competences of self-direction are needed” (2013, 830). This type of empowered, self-directed activity forms part of a broader movement encouraging those who have been socially excluded in the past—such as scholars in the Global South vis-à-vis those in the Global North—to contribute their knowledge to the world in their own unique voices and through their own “theory from the south” (Comaroff and Comaroff, 2012). In this way, they may transcend the demeaning and exclusionary situation where “data gathering and application happen in the colony, while theorizing happens in the metropole” (Connell 2007, ix). Empowerment through OER can occur at multiple levels, such as between students and educators. Hodgkinson-Williams and Paskevicius (2012) have studied how postgraduate students at a South African university experienced a growing sense of personal agency from their efforts to help rework academics' teaching materials as OER. Thus, empowerment can occur not only in OER creation, but also in all forms of OER use (revising, remixing, redistributing, etc.).

These OER and OEP can be visually conceptualized as a nested development from access to participation through to empowerment (see figure 12.2).

### **Methodological Approach: Metasynthesis**

To provide insights into the relationship between OER, OEP, and social inclusion, the findings across seventeen ROER4D empirical studies on OER adoption and impact in the Global South have been examined using a metasynthesis approach. Scruggs, Mastropieri, and McDuffie (2007, 395), based on their research, explain that the purpose of





**Figure 12.2**  
Degrees of social inclusion with regard to OER and OEP.  
*Source:* Adapted from Gidley et al. (2010, 3), figure 1.

metasynthesis is “to integrate themes and insights gained from individual qualitative research into a higher order synthesis that promotes broad understandings of the entire body of research, while still respecting the integrity of the individual reports.”

The draft research reports or chapters of the ROER4D volume, edited by Hodgkinson-Williams and Arinto (2017), serve as the data objects for this metasynthesis, which involves a number of stages, as follows:

1. Reading draft and final versions of the research reports or chapters (including, in some cases, primary microdata) and noting key similarities and/or differences according to key themes in the research question
2. Engaging directly with the researchers to clarify concepts, data, and/or findings to aid comparison of the findings
3. Using a literature-informed set of themes (access, participation, and empowerment) in the first instance to create a metalevel conceptual framework to identify the possible themes and indicators that might be expected to arise from the studies
4. Using this framework to code the themes in the findings of each of the studies and then adjusting the framework to include unanticipated themes emerging from the findings
5. Distilling insights according to the theoretical framework proposed here

## Findings

In this section, we examine how the findings from the ROER4D studies relate to the social inclusion themes of access, participation, and empowerment. We aim to provide details from as many of the studies as possible to allow an understanding of the rich diversity of the research sites involved and to reveal the complexities, nuances, and differences that characterize the Global South’s context.

## Access

In this section, we assess educators’ and learners’ degrees of access to OER in the Global South. We do so through examining how the studies speak to several factors that shape the nature and extent of access: socioeconomic status, infrastructural access, technical capacity, OER availability, and OER awareness.

## Socioeconomic Status

Whether OER use is positively related to higher levels of economic development was examined in a ROER4D study by de Oliveira Neto et al. (2017). Higher levels of

development typically provide higher-education learners and educators with opportunities for accessing and engaging online learning platforms and online collaborative spaces. The question that must be asked, however, is whether that access translates into higher OER use rates. To find out, the researchers first looked at the OER use rates across the Global South and then compared them to the gross domestic product (GDP) per capita statistics for each country as a proxy for level of development. They did this for both higher-education lecturers and learners.

Based on data from de Oliveira Neto et al.'s cross regional, nine-country study, 51 percent of the 295 randomly selected educators surveyed reported having used OER at least once (2017, 81) (see table 12.1). Those from the South and Southeast Asia regions had the highest comparative use rates, with 56 percent claiming that they had used OER, while 49 percent of educators in South America and 46 percent in sub-Saharan Africa asserted that they had done the same.

A wide range of OER usage responses were found across the nine countries. Educators in Brazil (71 percent), India (70 percent), and Indonesia (70 percent) reported the highest levels of OER use; Malaysia (39 percent), South Africa (35 percent), and Colombia (22 percent) educators revealed the lowest OER use; and Ghana (53 percent), Kenya (49 percent), and Chile (45 percent) educators indicated intermediate use of OER. In another ROER4D study (Zagdragchaa and Trotter 2017), 48 percent of forty-two

**Table 12.1**

ROER4D cross-regional study—Educators' response as to whether they have used OER.

Region	Country	Yes (%)	Not Sure (%)	No (%)
South America	Brazil ( <i>n</i> = 17)	71	24	6
	Chile ( <i>n</i> = 33)	45	36	18
	Colombia ( <i>n</i> = 9)	22	56	22
Regional total	<i>n</i> = 59	49	36	15
Sub-Saharan Africa	Ghana ( <i>n</i> = 38)	53	32	16
	Kenya ( <i>n</i> = 43)	49	30	21
	South Africa ( <i>n</i> = 34)	35	32	32
Regional total	<i>n</i> = 115	46	31	23
South and Southeast Asia	India ( <i>n</i> = 23)	70	22	9
	Indonesia ( <i>n</i> = 44)	70	7	23
	Malaysia ( <i>n</i> = 54)	39	15	46
Regional total	<i>n</i> = 121	56	13	31
Total	<i>n</i> = 295	51	25	24

Source: de Oliveira Neto et al. (2017, 81), chapter 3, table 3.

university lecturers surveyed in Mongolia reported having used OER for teaching and learning purposes. A qualitative study of teacher educators in education institutions in Tanzania, Uganda, and Mauritius revealed that the use of OER was highly fragmented and had yet to have any impact at the institutional or department level (Wolfenden et al. 2017). Furthermore, almost half of the forty-eight secondary school teachers in a study conducted in Afghanistan by Oates et al. (2017) indicated that they had used OER prior to the study.

Based on a similar survey given to students at the same twenty-eight universities as the educators (de Oliveira Neto and Cartmill 2017), table 12.2 shows that 39 percent of students said that they had used OER before, while 35 percent were unsure if they had and 26 percent stated that they had not. South and Southeast Asian students claimed the highest OER use rate, 51 percent, substantially higher than the 37 percent of South Americans, and 29 percent of sub-Saharan African students.

On the highest end of the use scale were students from India (85 percent), followed by Malaysia (47 percent), Colombia (41 percent), and Kenya (40 percent), then Brazil (38 percent), Chile (35 percent), Indonesia (33 percent) and Ghana (47 percent), and followed by the students of Kenya (41 percent) and Brazil (40 percent), then Chile (35 percent) and Indonesia (33 percent), and finally South Africa (25 percent) and Ghana (22 percent).

**Table 12.2**

ROER4D cross-regional study—Learners' response to whether they have used OER.

Region	Country	Yes (%)	Not sure (%)	No (%)
South America	Brazil ( <i>n</i> = 286)	38	33	29
	Chile ( <i>n</i> = 293)	35	34	31
	Colombia ( <i>n</i> = 170)	41	45	14
Regional total	<i>n</i> = 749	37	36	27
Sub-Saharan Africa	Ghana ( <i>n</i> = 817)	22	45	33
	Kenya ( <i>n</i> = 798)	40	38	22
	South Africa ( <i>n</i> = 622)	25	41	34
Regional total	<i>n</i> = 2,237	29	41	29
South and Southeast Asia	India ( <i>n</i> = 437)	85	5	9
	Indonesia ( <i>n</i> = 645)	33	42	24
	Malaysia ( <i>n</i> = 716)	47	25	28
Regional total	<i>n</i> = 1,798	51	27	22
Total	<i>n</i> = 4,784	39	35	26

Source: de Oliveira Neto and Cartmill (2017), appendix C.

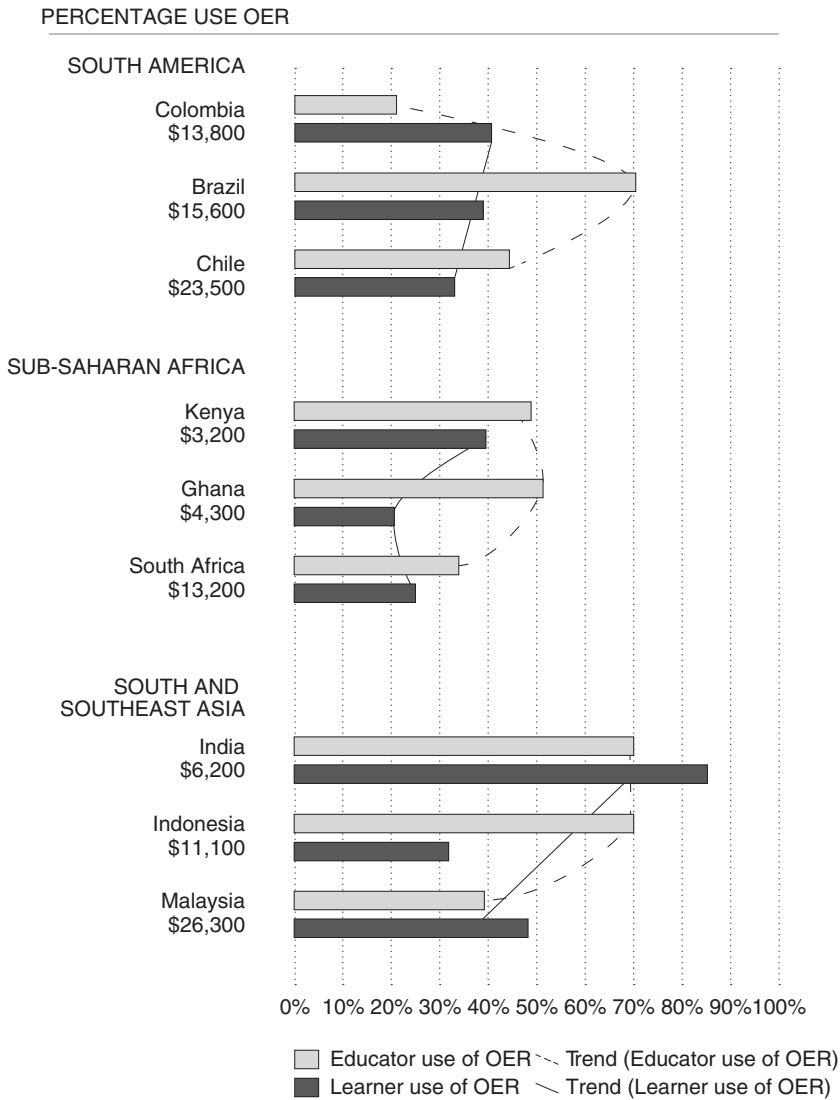
However, when these figures are compared to GDP per capita data, figure 12.3 suggests that, at least for educators, the assumption about a positive relation between OER use and level of socioeconomic development does not stand. In two of the three regions—sub-Saharan Africa and South and Southeast Asia—the educators from the relatively less economically developed countries were most likely to use OER. In South America, this trend is only modified due to the very low OER use levels in Colombia (a country from which only nine educators responded to the survey, far below the thirty respondents that were aimed for in each survey, and that might explain this aberration).

As de Oliveira Neto et al. (2017, 84) state, “This perhaps suggests that instructors from these countries or regions have had to be more resourceful than their colleagues in more developed countries and regions in seeking out non-traditional educational materials that suit their needs from a cost and accessibility perspective.” These authors also argue that it is likely that because all of the educators surveyed work in higher-education contexts, they appear to have access to the minimum level of technological infrastructure necessary for using OER without too much hindrance.

The student responses support this portrayal to some extent. In all three regions, the students from the lowest GDP per capita countries were more likely to have used OER than those from most developed countries within their own regions: Colombia more than Chile; Kenya more than South Africa; and India more than Malaysia (de Oliveira Neto and Cartmill 2017). Because of the mild variability within this pattern, it is worth remaining cautious about the link between GDP per capita and OER use. As suggested by de Oliveira Neto et al. (2017, 110), “OER use requires a certain minimum threshold of access to information and communication technology (ICT) infrastructure, which the HEIs [higher-education institutes] we surveyed provide,” and it is likely that other factors are more influential than access with regard to negatively influencing OER use, at least for educators. Further research is required to ascertain this, however.

### **Infrastructure**

Infrastructural conditions need to be favorable for learners and/or educators to gain access to digital OER and to be able to participate in online open education activities. While some OER are available in print, such as open textbooks (Goodier 2017), the majority are available via online platforms. These include those of the Khan Academy, used in a study in Chile (Westermann Juárez and Venegas Muggli 2017); Coursera and FutureLearn, used in a study in South Africa (Czerniewicz et al. 2017); and institutional- or government-supported repositories, such as Karnataka Open Educational Resources (KOER), used and extended in a study by Kasinathan and Ranganathan (2017). In addition, collaborative creation of OER with colleagues or cocreation with students usually



**Figure 12.3**

GDP per country\* and educators' and learners' use of OER.

Source: \*CIA (2016).

Adapted from de Oliveira Neto and Cartmill (2017).

requires the use of an online platform, such as Wikibooks, used in the Chilean study (Westermann Juárez and Venegas Muggli 2017). Necessary infrastructure, therefore, includes access to a stable power supply, appropriate hardware, and Internet connectivity. In many parts of the Global South, as ROER4D found, these foundational infrastructural requirements for OER use and creation cannot be taken for granted for either educators or learners.

### Electricity

In most of the contexts where ROER4D research was engaged, local participants, especially educators, enjoyed some level of access to electricity, though this was sometimes compromised through random or scheduled power outages. Such outages severely hampered their general access to and use of desktop computers and other computing devices. For instance, teachers in the Karnataka state of India reported that power outages were quite common in many areas (Kasinathan and Ranganathan 2017), as did teacher educators in Tanzania, Uganda, and Mauritius (Wolfenden et al. 2017). In South Africa, one study found that university lecturers faced similar power disruptions (called *load shedding*), but at varying levels of inconvenience, with the urban universities enjoying longer, more stable periods of power than rural universities (Cox and Trotter 2017). This is a challenge over which educators and students have little control, but it creates additional pressure on educators and learners when they are able to use computers, forcing them to focus on essential activities while there is access to electricity. OER may sometimes be a casualty of that pressure and constraint.

### Hardware

Access to computers is also essential for OER activity. In the higher-education sector in which ROER4D subprojects were engaged, educators appeared to have good enough access to computing hardware to conduct their normal teaching work, and, by extension, to engage with OER. However, *good enough* does not necessarily mean *optimal*; it means that the computers likely belong to the institution and are as up to date and powerful as the institutions' or governments' budgets allow. This will shape the users' experiences with the machine, but for the most part it does not make OER adoption impossible.

However, such experiences can influence users' priorities around what to allocate time to while on the computer. For instance, nearly 25 percent of Indian higher-education educators surveyed by Mishra and Singh (2017) stated that poor technical infrastructure was a barrier to OER adoption. A dire challenge was noted by Indian schoolteachers, many of whom said that they did not always have sufficient access to

functional computers, which inhibited their OER creation and use (Kasinathan and Ranganathan 2017).

### **Connectivity**

The availability and quality of Internet connectivity are also major access issues in OEP. For most of the educators participating in ROER4D studies, connectivity was possible, allowing OER adoption activities, though that connectivity was characterized by varying levels of stability, speed, and cost. These variables did not necessarily prohibit OEP in any absolute sense, but it constrained it for some. For instance, secondary school teachers in Afghanistan said that because of Internet connectivity challenges, they required extra computer terminals to be located at their school so that they could access a particular digital library offline that was populated with OER (Oates et al. 2017). Teacher educators from Tanzania, Uganda, and Mauritius also reported an absence of fast, consistent Internet connectivity (Wolfenden et al. 2017). The same was true for some South African lecturers at a rural university, where it was more convenient for them to use private data dongles rather than the institutional network. The university recognized this problem, providing data dongles to many of its staff (Cox and Trotter 2017).

The urban/rural divide was often the key factor in whether connectivity was suitable for OEP. For many Indian schoolteachers interviewed in Karnataka, the “patchy” connectivity in certain rural areas limited their access to the collaborative development platforms and digital repositories necessary for OEP (Kasinathan and Ranganathan 2017, 527). In another study, South African lecturers at a distance education university worried about the lack of connectivity for their rural students, so they limited the amount of digital materials that they encouraged their students to use. This concern for their students’ lack of connectivity in poorer, rural areas influenced their pedagogical strategies regarding OER (Cox and Trotter 2017).

### **Technical Capacity**

The infrastructural aspects of OEP also rely on users having the requisite level of technical capacity to adopt such materials. As ROER4D’s cross-regional survey established, this did not require an advanced level of digital expertise, but somewhere between a basic and intermediate level (de Oliveira Neto et al. 2017). With only the basic level of digital skills, OER use is a challenge. According to Cox and Trotter (2017, 296–297), OER technical capacity goes beyond a general sort of computer literacy because it requires OER agents to “possess an understanding of what differentiates OER from



other educational materials as well as the technical skills to adapt (revise or remix), curate (include metadata to aid findability) and share these materials on a public platform. They [teachers] must, therefore, comprehend the role of open licensing and how this impacts Internet searching (to find OER) as well as materials development (for open sharing of educational resources).”

This is in line with the sentiments expressed by the Indian higher-education educators in one study, whose general interest in increasing their ICT skills opens a door to potential OEP as they gain exposure to the more specialized aspects of this activity (Mishra and Singh 2017). Similarly, course developers in Malaysia revealed in a focus group discussion that they would have reduced their time in searching for relevant resources if they had better technical skills (Menon et al. 2017). Teachers in the Indian study found the editing of content on a shared wiki platform difficult and intimidating, opting instead to share materials via a mailing list (Kasinathan and Ranganathan 2017). However, as was revealed at one South African university, the relevant technical capacity need not reside in all educators if they are able to call on institutional support, such as from staff members or student assistants, to help with their OER-related needs (Czerniewicz et al. 2017).

### **OER Availability**

Another essential structural requirement for access is the availability of global, national, regional, and/or institutional platforms, repositories, aggregators, initiatives, and/or projects used to create and host OER—including open textbooks and massive open online courses (MOOCs)—and/or facilitate OEP. This is largely beyond the control of individual educators, as such availability relies on the collective efforts of educators to make their teaching materials available, and of relevant institutions to establish the digital platforms for the sharing of those materials. However, while there is a large number of OER available on the Internet for free use, this is not quite what we mean by *availability*, which requires that those materials are contextually suitable for educators and have the requisite quality. Thus, for our purposes, availability is less about the sheer volume of materials online and more about the relevance of those materials for a particular educator or learner who desires materials for a specific anticipated use (Cox and Trotter 2017).

Several ROER4D studies show that where such appropriate materials are made available to them, educators use the resources to enhance teaching of their subject matter. In Chile, educators reported using materials from the Spanish Khan Academy site for first- and second-year university students and the Wikibooks platform for a

teacher-generated open textbook (Westermann Juárez and Venegas Muggli 2017). Indian teachers stated that they were pleased to use materials from the KOER platform (Kasinathan and Ranganathan 2017). In Afghanistan, teachers said that they used materials from the purpose-built online Darakht-e Danesh Library (DDL)<sup>7</sup> (Oates et al. 2017). In Africa, teachers from a number of countries revealed that they had used resources from the Teacher Education in Sub-Saharan Africa (TESSA)<sup>8</sup> platform (Wolfenden et al. 2017). With the assistance of an institutional MOOC development team, lecturers at one university in South Africa have so far contributed to four MOOCs on platforms such as FutureLearn and Coursera (Czerniewicz et al. 2017). In Sri Lanka, an OER-integrated Teaching and Learning (OERTL) learning management system played a key role in facilitating teachers' access to OER related to their subject areas and their integration of those resources into their teaching and learning practices (Karunanayaka and Naidu 2017). OERTL was organized to motivate and support teachers not only to search, identify, and integrate OER, but also to share OER with peers, upload OER-integrated lessons, upload concept maps, and reflect on experiences. In South Africa, the Department of Basic Education has engaged in at least two national OER initiatives: printing and distributing openly licensed textbooks produced by an independent OER publisher, Siyavula,<sup>9</sup> and producing, printing, and distributing the "Mind-the-Gap"<sup>10</sup> OER self-study guides to public schools (Goodier 2017).

However, many educators said that they also felt constrained by the current OER available. Some felt they were not of the best format for their teaching needs (e.g., they were text based rather than multimedia based), or there was not enough diversity of platforms catering to their specific regional context, or the materials were in languages that were difficult for them or their students to engage with. For example, educators in Sri Lanka have some familiarity with English, but a majority teach in Sinhala or Tamil (Karunanayaka and Naidu 2017). Teachers in Pakistan and Afghanistan also bemoaned the fact that OER available in their national languages is limited (Oates et al. 2017; Waqar et al. 2017).

One university in South Africa has taken a small step in ameliorating this type of deficit by establishing an open research, teaching, and learning repository where lecturers can share their teaching materials openly (Cox and Trotter 2017). Another South African university also plans to make a large proportion of its staff's teaching materials openly available, a project similar to the OpenCourseWare (OCW) initiative at the Massachusetts Institute of Technology (MIT) (Cox and Trotter 2017). Such developments are crucial if educators and learners from poorer, marginalized regions and countries are to see OER as increasing their level of social inclusion.

### OER Awareness

In order for open education to fulfill its potential, students, educators, learning designers, librarians, educational managers, and policymakers need to be aware of the concept of *openness*, OER, open textbooks, and MOOCs, as well as their associated open practices. Most important, they need to be aware of how these resources are different from any other content on the Internet and other online courses that do not allow legal retention, reuse, revision, remixing, and redistribution.

In the cross-regional survey, 75 percent of the educators reported that they were aware of OER to some extent, in that they were able to say definitively whether they had used OER or not, compared to 25 percent who said that they were unsure if they had ever used OER (de Oliveira Neto et al. 2017). This does not provide much detail as to the extent of that awareness, but it suggests that OER as a concept have some degree of familiarity in this particular education community.

Research at South African universities showed, however, great variation between levels of awareness at different institutions. At one urban residential university, which has a pro-OER policy and institutional support for OER activity (in the form of OER grants, workshops, and other offerings), awareness was relatively high (Cox and Trotter 2017). At a large distance education university that has an OER strategy (but not yet a policy), where OER workshops are featured every few months on campus, OER awareness was growing from a relatively low base (Cox and Trotter 2017). But at a rural residential university that had been historically disadvantaged during apartheid, OER awareness was decidedly low (Cox and Trotter 2017). This intracountry differentiation was common in many research contexts, including in India (Mishra and Singh 2017) and Mongolia (Zagdragchaa and Trotter 2017).

The picture becomes more challenging in the schooling context. For instance, prior to an OER workshop intervention in Sri Lanka, only 10 percent of teachers said that they had heard of the term *OER* before (Karunanayaka and Naidu 2017). This is partially due to a simple lack of exposure to the concept. However, it also appears due in part to the fact that there are already certain understandings of what can be used freely in teaching based on fair use guidelines and common pedagogical tradition. Thus, although the majority of teacher educators in institutions in Tanzania, Uganda, and Mauritius regularly drew on multiple online resources, many were uncertain as to which of these resources were *open* (Wolfenden et al. 2017). They used them regardless, as the relevance of the resources was more important than their licensing conditions (Wolfenden et al. 2017). Similarly, secondary school teachers in Afghanistan demonstrated little familiarity with the concept of OER, revealing some confusion as to what constituted the *open* in *OER*: “Most teachers had some idea that OER generally had to

do with information that was online and many respondents assumed that OER had to do with the Internet, with libraries, books, or information" (Oates et al. 2017, 565).

This perception that essentially all Internet resources are available for educational use cuts across multiple educational levels. Among the Mongolian university educators as well, many felt largely free to download and use any type of educational material online (whether openly licensed or not), which means that the typical value proposition made by OER advocates—that OER are free—may not mean much when educators are already obtaining and using desired materials for free (Zagdragchaa and Trotter 2017). These findings are consistent with prior studies on students' download and use behaviors in the Global South (Czerniewicz 2016).

This variable and often laissez-faire understanding of what OER consist of as opposed to any other type of online materials was mirrored in educators' general lack of knowledge about open licensing. Among those who had used OER, most were at least marginally aware of the rights that a Creative Commons (CC) license might grant them, but they were rarely confident enough in their knowledge of such licenses to know how they would then apply a CC license to their own work to make it publicly open. The nuances involved in the legal rights expressed in the various licenses felt like specialized knowledge to most. Educators at one South African university were confronted with the challenges of copyright and open licensing when needing to make decisions around access to the resources of their MOOCs (including their own articles over which they did not have copyright) (Czerniewicz et al. 2017). Special permissions for reusing their articles in fully copyrighted journals or books were sought, and, if not granted, educators were not at liberty to use their published research in the MOOC.

### Participation

If access is satisfactorily achieved, educators and learners can move on to the more profound social inclusion component of participation, which is linked to social and educational justice. We will focus here on the factors that are critical in determining educators' and learners' degrees of participation (in the Global South): disciplinary norms, institutional policies, institutional support mechanisms, pedagogical practices, and collaboration (including communities of practice).

**Disciplinary Norms** One of the primary social cues that educators assess when making pedagogical decisions is what is conventional practice within their discipline. If OEP are common in their field, then they have to decide for themselves whether to participate in such practices. If it is not common, then it may not even require a conscious decision, either because they remain unaware of OER and OEP or because they see OEP as a niche or optional activity.

At South African universities, qualitative interviews revealed that educators were sensitive to the norms not only of their disciplines, but also those of their colleagues in their departments. While the disciplinary norms influenced them from within and beyond the university, their departmental settings provided personal peer pressure regarding their teaching choices, sometimes leading to OER use (Cox and Trotter 2017).

In the study of Mongolian universities, “Of the 76 percent of survey respondents who said that they had never created and shared OER, the highest percentage of them (25 percent) said that they had not done so because ‘such sharing is not common in my discipline’” (Zagdragchaa and Trotter 2017, 408).

**Institutional Policies** While disciplinary (and departmental) norms seem to shape the expectations of educators regarding their pedagogical options, institutional policies can play an even more determining role regarding whether they will be able to use or create OER. The institution’s policies, some of which are based on national law (particularly regarding copyright), may ultimately decide at what level educators can enjoy or promote social inclusion, participation, and social justice.

In many countries, such as South Africa (as well as Canada and the United States), national copyright laws automatically grant employers copyright over any works created by employees in the course of their duties. This typically includes teaching materials created by educators for use with their students. Most South African universities explicitly note this in their IP policies (Trotter 2016), but some also state that they grant copyright over those teaching materials to the creators, thus allowing the latter to relicense those works and share them openly as OER if they so desire. Without that formal permission from the institution, educators are technically not allowed to share their teaching materials openly because they lack the right to relicense the materials (they legally belong to the institution).

For most educators, this does not influence whether they can download and use OER in their teaching, but it does affect whether they can create or redistribute OER (Trotter 2016). For instance, while one South African university in the ROER4D study had developed a pro-OER policy that formally encouraged educators to share their teaching materials openly on a purpose-built open platform hosted by the university, another university had created a mechanism whereby educators could petition their relevant tuition committees to gain permission to share their teaching materials as OER. Though not well known to the study’s participants, this mechanism provides at least a technically viable avenue for some level of OER creation activity (Cox and Trotter 2017).

Other universities, such as the University of the Republic of Uruguay, which accounts for 90 percent of the country’s total enrollment, has begun promoting OER as one of

the open initiatives in an institutional policy that includes OEP, use of open-source software, and open access (Toledo 2017). Wawasan Open University in Malaysia has adopted a specific OER policy on new course development that requires that educators use existing OER wherever possible to avoid the use of copyrighted textbooks (Menon et al. 2017).

While institutional IP policies and broader OER-related policies offer general guidelines on how educators might participate in OEP (if at all), educators themselves often say that they are more responsive to the personally impactful policies regarding rewards and incentives. For instance, educators at four Indian higher education institutions identified the lack of recognition and reward systems as a major obstacle for developing OER (Mishra and Singh 2017). Half of forty-two Mongolian university educators surveyed felt that the lack of a reward system for OER creation was an important factor in their decision-making on this issue (Zagdragchaa and Trotter 2017). In addition, teachers in Tanzania, Uganda, and Mauritius highlighted an absence of institutional recognition for OER creation, noting that even in institutions where senior leaders expressed support for OER, there was little evidence of institutionwide implementation (Wolfenden et al. 2017).

Cox and Trotter (2016) suggest that an institution's dominant culture (collegial, managerial, bureaucratic, etc.) should be taken into account when determining which type of policy arrangement would work best in promoting OEP. However, as research participants from across numerous field studies reported, having any sort of policy clarity regarding OER would be a useful first step in many environments where there is no such clarity or awareness regarding policy's relationship to OER.

**Institutional Support** While it is possible to use and create OER on one's own, it is useful to be surrounded by colleagues who also do so and be backed by policies that provide clarity on one's actions. Beyond this, educators appreciate any institutional support that they can get for adopting OER. For instance, this support that can come in many forms, such as OER creation grants, legal support personnel (for copyright management and licensing), an institutional OER platform, and an on-campus unit with OER specialists who are available to help staff, has been instrumental in the engagement with OER for a number of educators at one South African university (Cox and Trotter 2017; Czerniewicz et al. 2017). Because of the robustness of this support, the educators were able to go far beyond simply using OER as is, reworking their own materials as OER, contributing to larger projects, such as MOOCs, and making all their work open.

Institutional support does not have to be as extensive as this to be valuable. In one ROER4D study, Malaysian librarians and technical support staff assisted course developers in locating suitable OER for creating a research methodology course primarily

from existing OER (Menon et al. 2017). This is a low-budget form of support, as it taps into intellectual capital rather than financial capital. It also builds networks and capacities for future OER-related activities.

In Africa, at three teacher education institutions in Tanzania, Uganda, and Mauritius, extended individual engagement with OER was found to have been stimulated by support from library staff, or staff leading internal staff development sessions, such as instructional design specialists who acted as a resource for practice (Wolfenden et al. 2017). However, in several institutions, the locus of OER expertise was seen to be located in the e-learning, distance learning, or ICT unit or department, resulting in a gap between the technical issues of OER and the social practice of their use in teaching (Wolfenden et al. 2017).

In general, the instances of institutional support that we identified in our research across the Global South were few. Most educators said that they worked in environments where they either did not know where to go institutionally for OER support, or they already knew that there was nowhere to go for such support. While they could often get ICT support from the ICT staff, they did not look to them for the more specialized knowledge required for OER activity. The same was true for the library staff, some of whom were familiar with open access issues that pertain to research publications rather than teaching and learning materials but not OER. For many of the educators, knowing of even one person on campus, such as an institutional champion of OER who tried to raise awareness among colleagues, was important.

Because of this, most institutional work regimes do not actively support OEP, thus making it an optional activity outside the scope of normal work. For instance, teachers in Colombia complained to the researchers that their institutions did not provide time for the creation of educational resources and that school principals, in particular, were unsupportive (Sáenz, Hernandez, and Hernández 2017). Without formal, or even tacit, institutional support, OEP will likely remain an individualized and niche activity that will never gain critical mass. This is a challenge for a social inclusion ethic surrounding participation that benefits from broad engagement.

**Pedagogical Practices** There is a spectrum of OEP in which educators can engage to adopt OER. On the one hand, for some who are the lone OER users or creators in their departments or institutions, the work can be quite solitary. They and their students may benefit from this OEP, but it would not necessarily result in a broader change in practices. On the other hand, especially where there is some institutional support for open activities or where an institution has been the target of sustained OER interventions from outside groups, there exists the possibility that conventional pedagogical practices can be reexamined and altered to fit a new, more open paradigm.



Where educators' practices reside on this spectrum may be initially influenced by the level of informal sharing that occurs prior to a formal open intervention. For instance, 92 percent of teachers in the Sri Lankan study revealed that they informally shared materials that they were developing with each other or other interested parties (Karunanayaka and Naidu 2017). However, they rarely took the next step to make them formally open (licensed) or publicly available to anyone who may request them. This was a common approach among disciplinary and departmental colleagues in the many contexts we investigated. A culture of mild informal sharing among peers was common, and in some cases that could be used as the basis for encouraging educators to take the next step and enlarge the circle of people that they share with beyond their known associates (Kasinathan and Ranganathan 2017).

However, regardless of the predominant approach to informal sharing, pedagogical practices were observed to change in situations where educators were exposed to OER and OEP and given the necessary support to experiment with them. For instance, based on the long-term interventions promoted by one open educational initiative in three African countries, a number of OER champions at these teacher-educator institutions stated that they had observed a shift in educator thinking and practices. One educator, who was reporting on his colleagues' practices, suggested, "Exploring other OER gave them a quality benchmark, which sometimes caused them to feel they were doing a 'substandard' job compared to their international peers and that they were using 'old' methods" (Wolfenden et al. 2017, 271–272). Indeed, in the course of the intervention, participants' pedagogical thinking became more critical, creative, and collaborative, due to the integration processes involved in OEP (Wolfenden et al. 2017, 271–272). The educators themselves identified various factors that they believed were helpful for sustaining a shift to OEP, including extended study at another institution (usually abroad), improved technology or connectivity (such as personal acquisition of a laptop), and personal interaction with an external visitor who advocates and illustrates the use of OER (Wolfenden et al. 2017, 271–272). By the end of the intervention, the majority of the participants who remained were actively engaged not only in reusing OER, but also in repurposing them by translating them into local languages, adapting them to suit their contexts, and even creating OER on their own (Wolfenden et al. 2017, 271–272).

However, in some cases, the predominant culture among colleagues is hostile to the type of openness (i.e., sharing and collaboration) that can be built in for OER purposes. At one South African university, there was very little informal sharing, as educators felt possessive over their teaching materials and had a "conservative academic culture" (Cox and Trotter 2017, 322). This stance made the case for OER that much more



difficult to sustain, as it relies on educators having a certain level of emotional and philosophical openness that can be leveraged and expanded.

Some teachers, such as more than half of those featured in the Afghanistan study, revealed that when they prepared lesson plans, they did not use any OER and relied solely on a textbook (Oates et al. 2017). This is a common approach in areas where teachers may not feel capacitated to construct their own learning materials from a broad array of resources, or where the textbook takes pride of place as the curricular guide.

A work environment need not be hostile to openness for the idea of OER and OEP to struggle there. In many cases, such as with teachers in India, educators do not have the necessary autonomy in their work or control over their responsibilities to introduce OER or OEP (Kasinathan and Ranganathan 2017). For these teachers, their role is to simply transmit the prescribed textbook-based information to their students, not to develop teaching materials themselves (Kasinathan and Ranganathan 2017). Thus, while they are open to the idea of OER and OEP, their own conventional teaching roles do not allow them to engage with teaching materials in the same way as, perhaps, at other institutions where teachers develop much of their own teaching materials. Thus, for these teachers, to enjoy the type of participation and social inclusion promised by open practices, they would need not only to engage with OER and OEP, but also to be given the right and time to do so from their institutions and/or provincial education departments.

**Collaboration and Communities of Practice** If we extend this discussion on the idea of a spectrum of open practices from individual based to group based, then we can focus on the maximal form of OEP as advanced by the open community, that of sustained collaboration, or the development of communities of practice where creating, sharing, and peer reviewing of OER is a focal practice. For OER advocates, this represents the fulfillment at a developmental and practice level of the open ethic, in which educators collaborate with each other as a norm, building identities or communities around those collaborations. As this marks a high point of OEP, it is also relatively rare, at least when it is connected to OER outputs. Of course, in many disciplines such as the sciences, collaboration is already common, but the resulting outputs are often closed, copyright-protected materials. The kind of collaboration being addressed here is the kind that leads to and facilitates further open collaboration between educators and with students.

This type of sustained, open collaboration was glimpsed mostly in experimental contexts, as with the MOOC team at one South African university (Czerniewicz et al. 2017). Because the unit in which the MOOC was based happened to have a strong open ethos, the members of that unit were able to push for the MOOCs produced—and all

future MOOCs to come out of its collaborations with other university staff members—to be based upon open, collaborative practices (Czerniewicz et al. 2017).

In Afghanistan, most secondary school teachers (76 percent) featured in the study said that they were willing to share resources found in the DDL, while 78 percent indicated that the OER in DDL helped them initiate collaboration among students (Oates et al. 2017). In addition, two-thirds also said that the OER would help them work collaboratively with other teachers. This was a relatively new idea among teachers in Afghanistan, but it was an educational context that was wide open to new ideas, as the educators recognized that their challenging environment called for imaginative strategies to overcome limitations while delivering relevant, high-quality education to their students (Oates et al. 2017).

### **Empowerment**

If access and participation can be achieved, educators and learners can move on to the final social inclusion component of empowerment, which relates to capacitating individuals to live up to their full potential, whether as educators or learners. We focus here on the factors that relate to OER creation, reputation enhancement, personal fulfillment, research-led teaching praxis, cocreation with students, and epistemic stance, by which we can deduce educators' and learners' degrees of empowerment in the Global South.

**OER Creation** OER creation represents the fulfillment of a relatively high level of social inclusion. It goes beyond mere OER use, especially if the OER is used as is because that type of OER engagement is only minimally transformative (at least for the educator, though inclusion of OER could enhance the learning experience appreciably for students). But when educators create and share their own teaching materials openly, they make a contribution to the broader world (beyond the classroom), asserting their unique voice along with that of the many others who share their materials. This is potentially transformative not only for the recipients, but also for the educators themselves. It reveals (and hopefully develops) a level of confidence that is especially necessary for educators in the Global South, whose knowledge production has been marginalized compared to their counterparts in the Global North.

According to the multiregion survey, 23 percent of the 295 educators stated that they had openly licensed (i.e., shared) their teaching materials in some fashion (de Oliveira Neto et al. 2017). This is just less than half the percentage who stated that they had used OER before. That there are fewer OER creators than users can be expected, given that there are lower barriers to OER use than to OER creation. But there is also a discernible relationship between users and creators, in that virtually all creators have used OER at some point as well (de Oliveira Neto et al. 2017). Their familiarity with

OER through use may have helped make OER creation an imaginable activity for themselves. Thus, the power of an OER use experience cannot be discounted for inspiring educators to contribute their own work as well.

At one South African university, OER creation activities appeared to result from both personal desire and from peer pressure (Cox and Trotter 2017). A number of individual lecturers profiled by one study saw the virtue of sharing their locally relevant materials so that they could fill a gap in the broader collection of OER available (Cox and Trotter 2017). However, others who joined in a collaborative MOOC creation process found themselves under pressure to release their particular contributions to the overall course openly along with everyone else (Czerniewicz et al. 2017). Although they had not anticipated that they would have to do so, a number of the educators involved were persuaded to make their content open so that the entire MOOC could be considered open, as preferred by the core team running the MOOC-making initiative (Czerniewicz et al. 2017). Through this process, the initially hesitant educators became converts to the cause, appreciating the value of making their own work open.

In India, a group of teachers created (from scratch) twenty-five Kannada-language video resources for the demonstration of various science concepts (Kasinathan and Ranganathan 2017), which eventually formed the core resource material for a statewide training program. This contribution has emboldened many of these Indian teachers to try to find further open opportunities, as they can see its value not only for them, but also for other educators in their region.

**Reputation Enhancement** As can be imagined, one of the outcomes of educators sharing their materials—especially if they are high quality and suited to many potential users—is the enhancement of their reputation, both locally and globally. In some cases, such as at one South African university, educators may receive official recognition for their OER contributions (in this case, an award given at a public ceremony), although in most other instances, that recognition comes from feedback from users of the content, who share words of praise and gratitude and then share the resource further with their colleagues (Cox and Trotter 2017; Czerniewicz et al. 2017).

According to most Indian university lecturers in one study, sharing educational resources was perceived as improving their professional standing, enhancing their personal reputations, and boosting their institutional reputations (Mishra and Singh 2017). It also increased educators' networks and their sphere of influence, providing recognition at a global level. Additionally, in Mongolia, 60 percent of university educators in the study stated that they would be motivated to create OER, as it enhances their reputation among their peers (even though they had not yet contributed OER) (Zagdragchaa and Trotter 2017).

It is hard to overstate the importance of this form of empowerment for the sustainability of the open movement. While openness is based primarily on an altruistic ethical foundation, it leverages more self-centered personal ambitions for educators as well (Cox 2016). The combination of these desires—to enhance one's reputation while also making a contribution to society—allows a type of empowerment at multiple levels.

**Personal Fulfillment** Beyond the competitive gains that educators can make through open practices, such as enhancing their reputations, they can also enjoy one of the more enduring forms of empowerment, which is simply personal fulfillment. Many educators from across the studies revealed that they got a great deal of satisfaction from sharing their materials openly. It addressed a deeply held desire concerning what type of educator they wanted to be, how they wanted to operate in the world, and how they imagined themselves to be at their most effective.

Among Indian university lecturers, the highest score that they collectively attributed to various attitudinal survey prompts (4.65 on a scale of 1–5) related to the pleasure they felt when adopting or adapting their educational resources (Mishra and Singh 2017). It also enhanced their sense of confidence, as it made them feel like they were an important part of a larger community [mean (M) = 4.46]. In addition, they felt that sharing OER was a useful way to disseminate their ideas (M = 4.29) and to obtain feedback (M = 4.58) (Mishra and Singh 2017).

In many ways, this is quite personal, as ROER4D researchers also met many educators who said that currently they would not get the same sense of fulfillment out of openly sharing their materials because they were concerned about their quality and the potentially critical assessment that they might receive from colleagues (Cox and Trotter 2017). It would expose them. For those able to get their materials into a state that they believed not only reflected well upon them as educators but also was of real value to others, the act of sharing their materials openly was a gratifying one (Czerniewicz et al. 2017).

**Research-Led Teaching Praxis** Many educators engaged in the Global South would not have participated in OER creation activities without the intervention of an outside organization that had the capacity to help them develop materials and demonstrate what OEP looks like (Kasinathan and Ranganathan 2017; Sáenz, Hernandez, and Hernández 2017). This points to the continued relevance of the donor-funding community in creating opportunities for educators, especially teachers, to embark on an OER creation exercise within the safety of a larger group of collaborators, with quality assured by the rigor of the process.

In rural Colombia, one of the studies was a participatory action research (PAR) project conducted with forty-eight teachers and eleven teacher educators at eleven schools

across four states (Sáenz, Hernandez, and Hernández 2017). Through that engagement, which was something new for the teachers, six schools and twenty-two teachers created sixteen OER.<sup>11</sup> Six OER were created by several authors to be used across their respective school areas, and ten were created by individual authors. This research-led interaction with the teachers took them from a point of relative disempowerment with regard to their feelings about their teaching materials to one where they were collaboratively creating a broad array of OER to be shared openly.

This kind of outcome can often only come through specialized OER-related interventions, driven by external funders (as in the Colombia example given in this chapter) or governments that have taken up an active role, as they have in three states in India (Kasinathan 2016). Such interventions represent not a norm for the future of all OER expansion, but one of a number of activities that helps educators experiment with OER and gradually build up their capacities and confidence.

### **Cocreation with Students**

Beyond educator to educator collaborative practices, OER advocates have embraced the socially inclusive vision of learner-centered pedagogical practices to the point of encouraging students to become cocreators of OER. This represents a particularly deep and powerful form of empowerment for all concerned, disrupting the power dynamics traditionally associated with the teacher-student relationship.

In ROER4D's multiple studies, this was a very nascent phenomenon. In most cases, educators were not at a stage of pedagogical thinking that enabled them to embark on an experiment like this, as it combines two relatively radical approaches to teaching and learning—cocreation and openness.

In Pakistan, 31 percent of the teachers surveyed indicated that they shared OER with their students using Google Drive, while 22 percent shared resources through a personal website or blog (Waqar et al. 2017). They did this for the sake of their students, not so much to reach an online public. Thus, these teachers made OER central to their approach with their own students, who were also free to share these materials with others. Again, this represents only a gesture toward the broader empowerment goal discussed here. For the most part, such open cocreation is not happening, constrained as educators are by conventional teaching approaches, culturally informed notions of the teacher-student relationship, and a modest familiarity with OEP in general. However, whether or not educators and students interact at this level, from a social inclusion perspective, both are able to still seek the broader goal of empowerment that lies at the heart of the OER and OEP approach.

**Epistemic Stance** Finally, perhaps the ultimate form of empowerment and social inclusion is being able to assert and define one's own understanding of what constitutes valuable knowledge. Due to a long history of imperialism and postindependence neocolonialism, the Global South has been dominated by Northern epistemic norms and understandings, making it difficult for Southern educators to insist on their own forms of knowledge. This is an intellectually debilitating situation to be in, and it is at the heart of educators' sense of global educational inequality (Mkandawire 2011). However, the affordances of the Internet create new opportunities for Southern educators to share their own knowledge (despite the various digital divides that also shape the ICT space), especially as OER. As our research shows, some educators were using this affordance as an opportunity to make epistemic assertions that not only challenged the hegemonic status of Northern knowledge systems, but also provided more locally relevant materials for other educators in the Global South. Thus, a South-to-South conversation was already in motion, if only tentatively, regarding the sharing of teaching materials.

For instance, at the South African university running a series of MOOCs, each MOOC had its own strategic goals, which, to varying degrees, included the provision of open educational opportunities to engage global participants with locally generated knowledge (Czerniewicz et al. 2017). Despite the fact that MOOC learners might be from anywhere in the world, they engaged with materials that were unashamedly Southern (in general), and South African (in particular).

The African teacher educators in Tanzania, Uganda, and Mauritius began altering their epistemic and pedagogical positions through their use of OER by (1) exhibiting greater confidence and competence in drawing on multiple forms of knowledge from OER and problematizing what was considered valued knowledge; (2) challenging traditional hierarchical teacher-learner relationships and instead beginning to position their students as autonomous agents in their learning; and (3) developing a learning culture embracing both formal and informal learning, in which learning is jointly constructed and distributed (Wolfenden et al. 2017).

These efforts were all congruent with a movement toward a more participatory pedagogy, but the evidence was still highly emergent and fragile. For almost all the educators for whom OER have become part of their lived practice, this is the result of personal choice rather than institutional policy or collaborative endeavour (Cox and Trotter 2017).

In addition, while a number of educators felt emboldened to challenge the epistemic status quo by asserting and sharing their own locally imbued materials openly, many others had yet to develop the confidence to do so. Thus, it is still early days in this regard, certainly in the educational resources domain, but it offers the greatest scope for

transformative impact if more educators continue to develop their own Southern voices and share their resources with others. They will then be able to educate a generation of learners for whom epistemic inequality will not be as great as it has been up to now.

## Conclusion

In this concluding section, we summarize the key findings and arguments made in this chapter.

First, engagement with OER and OEP contribute to social inclusion through three nested components of this broader concept: access, participation, and empowerment. The first tier, access, is underpinned by a relatively narrow neoliberal understanding of the term, focused on how educational access can provide marginalized people with more economically useful skills for contributing to their national economies. The open activity most associated with this basic form of social inclusion is the use of OER as is. With the creation of OER platforms around the world, but primarily in the Global North, any educator or learner with an Internet connection can download OER and use them for teaching or learning purposes. As our research shows, this the primary form of engagement that people in the Global South have with OER, as it has the lowest barrier to engagement compared to other forms of OER adoption. There are few policies or regulations against OER use in the education sector, and the ability of educators to use those materials in an unmodified form requires little specialized skill. At its most elementary level, this form of OER use can indeed foster social inclusion through access, broadening the scope of available materials with which educators and learners can engage.

Nevertheless, educators and students exhibit variable OER awareness based on a widespread confusion about which materials are free or open to use on the Internet. This confusion is due, in part, to fair use legal provisions and common educational practices, but it is also exacerbated by the ease with which online materials may be downloaded free of charge, regardless of license. Our research indicates that educators and students use online materials based on their perceived relevance rather than on their open licensing conditions.

In the Global South, there seems to be greater uptake of OER from higher-education institutions than schools. This may be partially because universities, which are mostly urban based, typically enjoy greater infrastructural capacity than many schools which are spread across both urban and rural (often poorer) areas. As we have seen in this chapter, university students have had better access to a sufficient number of functional computers, uninterrupted power supply, and fast, stable, and affordable connectivity.

While most educators and learners had the necessary computer literacy to find and download some OER, they did not necessarily have the specialized knowledge needed for doing anything more than using OER as is.

The second tier of social inclusion is participation, which derives from a number of social justice ideologies. With regard to OER and OEP, this factor is evident in the incipient shifts of teachers' and lecturers' pedagogical practices toward greater collaboration, sharing, and OER engagement. Although ROER4D studies did not find that the creation and sharing of teaching materials were the usual practices for the schoolteachers researched, there was some evidence that, with the necessary support and time to engage in collaborative materials-development activities, they were eager to adapt or create and share materials with each other having content appropriate for their contexts and in languages most readily understood. While the use of the textbook as the core source of information was still the norm within the schooling sector, many teachers seemed to be eager to use OER as a supplement in a localized or summarized form. Despite infrastructural challenges, they appeared willing to share their materials, if in a more informal manner (such as emailing each other) than by uploading their materials to a public repository.

Because current OER repositories host mostly English-language materials, lack of OER in languages relevant in the Global South remains a challenge. It forms a barrier to full access and participation. However, as we have seen, some educators from India, Sri Lanka, and Afghanistan have started contributing materials in local languages to various local platforms with the help of government or foreign donor funding. The ongoing support for these existing and new communities of collaborative OER developers may be a strategy for surmounting the need for linguistically appropriate materials.

Participation in collaborative creation of OER takes a slightly different form in higher education where lecturers are more likely to collaborate with librarians, learning designers, course developers, content production teams, platform hosts, and some of their disciplinary and departmental colleagues. However, this traditional form of collaboration—and informal sharing of resources between colleagues—has not yet been infused with the open ethic. But because this type of sociability already exists in many higher-education contexts, it represents a foundation on which more collaborative activities can develop, shifting to a more participatory space for everyone involved.

Although relatively few examples of cocreation with students were reported in ROER4D studies, this nascent student participation is indicative of a more learner-centered approach and a challenge to the traditional teacher-learner hierarchies. The pedagogical shifts to more learner-centered approaches become more pronounced with the development of MOOCs, where lecturers must not only consider the needs



of a wider audience than their immediate student cohort, but also think of ways of conveying their course content in multimedia formats, preparing assessments that are suitable for large numbers of students, and engaging in online support activities with large groups of students. One of the key challenges here is ensuring that the materials referred to in the MOOCs have open licenses that can be easily accessed, as MOOC participants do not enjoy the same access to university libraries as fee-paying students. For this reason, it is useful to distinguish between OER-based MOOCs and so-called xMOOCs (eXtended Massive Open Online Courses), which do not openly license their materials for future reuse.

Finally, the third tier of the social inclusion concept concerns empowerment, a notion that is ideologically informed by human potential theories. This high-level form of social inclusion through OEP was embryonic within ROER4D studies. It was emerging in the contribution of original OER to public repositories by educators and the offering of MOOCs by university lecturers in association with their own institutions and hosting platforms. For schoolteachers, this represented the development of a new level of agency in privileging their own perspectives on what constitutes valuable knowledge, thereby increasing their accountability and influencing their reputation beyond their usual sphere of influence. Likewise, for university lecturers, the offering of MOOCs provided an opportunity to assert alternative epistemic perspectives on a global scale involving both personal and institutional reputational risks. By contributing original OER and/or offering MOOCs, teachers and lecturers were offering knowledge to the world in their own unique voices and through their own “theory from the South,” engaging in a dynamic conversation with hegemonic epistemic perspectives while strengthening their sense of self-identity.

In sum, it appears that the use, adaptation, and creation of OER (including OER-based MOOCs), as well as collaboration and cocreation practices, foster social inclusion along a continuum from enabling access, to encouraging participation, to gradually cultivating empowerment more markedly with educators (especially in higher education) than with learners in the Global South. At least, that is the picture currently. What is clear is that these social inclusion processes take time to develop and unfold and need ongoing nurturing.

### **Acknowledgments**

This work was carried out with the aid of a grant from Canada’s International Development Research Centre. The authors wish to thank the ROER4D researchers, whose original research contributed to this analysis. We also thank the ROER4D network hub

for generous assistance (namely, Michelle Willmers for her editorial support). Also, we thank Sarah Goodier for visuals, Tess Cartmill for quantitative data analysis, and Thomas King for data curation. We extend our gratitude to the ROER4D team at Wawasan Open University and the ROER4D researchers who helped with the review process, specifically Patricia Arinto, Shironica Karunanayaka, Sanjaya Mishra, Maria Lee Hoon Ng, and Freda Wolfenden. Additionally, we give special thanks to Marshall Smith and the other volume contributors who provided excellent feedback during the chapter's development, to J. Lynn Fraser for her attentive copyediting, and to the volume editors, Ruhiya Kristine Seward and Matthew Smith, for their careful and insightful comments.

### Notes

1. See Creative Commons (n.d.).
2. See ROER4D (2018).
3. See William and Flora Hewlett Foundation (2018).
4. Emphasis in bold, as in the original.
5. See World Health Organization (2018).
6. See United Nations (n.d.).
7. See Darakht-e Danesh Library (n.d.).
8. See TESSA (n.d.).
9. See Siyavula (n.d.).
10. See “Mind the Gap Study Guide” ([http://www.education.gov.za/Curriculum/LearningandTeachingSupportMaterials\(LTSM\)/MindtheGapStudyGuides.aspx](http://www.education.gov.za/Curriculum/LearningandTeachingSupportMaterials(LTSM)/MindtheGapStudyGuides.aspx)).
11. See Proyecto de Co-Creación Colaborativa de Recursos Educativos Abiertos (REA). n.d.

### References

- Beetham, Helen I., Isobel Falconer, Lou McGill, and Allison Littlejohn. 2012. “Open Practices: Briefing Paper.” Jisc, 2012. <https://oersynth.pbworks.com/w/page/51668352/OpenPracticesBriefing>.
- Bonami, Beatrice, and Maria L. Tubio. 2015. “Digital Inclusion, Crowdfunding, and Crowdsourcing in Brazil: A Brief Review.” In *Handbook to Comparative Approaches in the Digital Age Revolution in Europe and the Americas* (A volume in the Advances in Electronic Government, Digital Divide, and Regional Development ((AEGDDRD) Book Series), ed. Brasilina Passarelli, Joseph Straubhaar, and Aurora Cuevas-Cerveró, 77–100. Hershey, PA: Information Science Reference (IGI Global). <https://www.igi-global.com/chapter/digital-inclusion-crowdfunding-and-crowdsourcing-in-brazil/138027>.

Central Intelligence Agency (CIA). 2016. *CIA World Factbook*. <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html>.

Comaroff, Jean, and John L. Comaroff, 2012. "Theory from the South: Or, How Euro-America is Evolving toward Africa." *Anthropological Forum* 22 (2): 113–131.

Connell, Raewyn W. 2007. *Southern Theory: The Global Dynamics of Knowledge in Social Science*. Cambridge, UK: Polity.

Conole, Grainne C., and Ulf-Daniels Ehlers. 2010. "Open Educational Practices: Unleashing the Power of OER." Paper presented to UNESCO Workshop on OER in Namibia 2010. Windhoek, Namibia. [https://oerknowledgecloud.org/sites/oerknowledgecloud.org/files/OEP\\_Unleashing-the-power-of-OER.pdf](https://oerknowledgecloud.org/sites/oerknowledgecloud.org/files/OEP_Unleashing-the-power-of-OER.pdf).

Cooper, David. 2009. "University-Civil Society (U-CS) Research Relationships: The Importance of a 'Fourth Helix' Alongside the 'Triple Helix' of University-Industry-Government (U-I-G) Relations." *South African Review of Sociology* 40 (2): 153–180.

Cox, Glenda. 2016. "Explaining the Relations between Culture, Structure and Agency in Lecturers' Contribution and Non-contribution to Open Educational Resources in a Higher Education Institution." PhD thesis, University of Cape Town, South Africa. <http://open.uct.ac.za/handle/11427/20300>.

Cox, Glenda, and Henry Trotter. 2016. "Institutional Culture and OER Policy: How Structure, Culture, and Agency Mediate OER Policy Potential in South African Universities." *International Review of Research in Open and Distributed Learning* 17 (5). <https://doi.org/10.19173/irrodl.v17i5.2523>.

Cox, Glenda, and Henry Trotter. 2017. "Factors Shaping Lecturers' Adoption of OER at Three South African Universities." In *Adoption and Impact of OER in the Global South*, ed. Cheryl Hodgkinson-Williams and Patricia B. Arinto, 287–347. Cape Town, South Africa/Ottawa: African Minds/IDRC; Cape Town, South Africa: Research on Open Educational Resources for Development. <https://www.idrc.ca/en/book/adoption-and-impact-oer-global-south>.

Creative Commons. n.d. "Creative Commons." <https://creativecommons.org/>.

Cronin, Catherine. 2017. "Openness and Praxis: Exploring the Use of Open Educational Practices in Higher Education." *International Review of Research in Open and Distributed Learning* 18 (5): 15–34. <http://www.irrodl.org/index.php/irrodl/article/view/3096>.

Czerniewicz, Laura. 2016. "Student Practices in Copyright Culture: Accessing Learning Resources." *Learning, Media, and Technology* 42 (4): 1–84. <http://www.tandfonline.com/doi/full/10.1080/17439884.2016.1160928>.

Czerniewicz, Laura, Andrew Deacon, Sukaina Walji, and Michael Glover. 2017. "OER in and as MOOCs." In *Adoption and Impact of OER in the Global South*, ed. Cheryl Hodgkinson-Williams and Patricia B. Arinto, 349–386. Cape Town, South Africa/Ottawa: African Minds/IDRC; Cape Town, South Africa: Research on Open Educational Resources for Development. <https://www.idrc.ca/en/book/adoption-and-impact-oer-global-south>.

Daniel, John, Asha Kanwar, and Stamenka Uvalić-Trumbić. 2009. "Breaking Higher Education's Iron Triangle: Access, Cost, and Quality." *Change: The Magazine of Higher Learning* 41 (2): 30–35.

Darakht-e Danesh Library. n.d. "Home Page." <http://www.darakhtdanesh.org/>.

de Oliveira Neto, José D., and Tess Cartmill. 2017. "OER Adoption by Higher Education Instructors and Students in the Global South." *ROER4D* (blog), November 16. <http://roer4d.org/3305>.

de Oliveira Neto, José D., Judith Pete, Daryono, and Tess Cartmill. 2017. "OER Use in the Global South: A Baseline Survey of Higher Education Instructors." In *Adoption and Impact of OER in the Global South*, ed. Cheryl Hodgkinson-Williams and Patricia B. Arinto, 69–118. Cape Town, South Africa/Ottawa: African Minds/IDRC; Cape Town, South Africa: Research on Open Educational Resources for Development. <https://www.idrc.ca/en/book/adoption-and-impact-oer-global-south>.

Dutta, Indrajeet. 2016. "Open Educational Resources (OER): Opportunities and Challenges for Indian Higher Education." *Turkish Online Journal of Distance Education* 17 (2): 110–121.

Ehlers, Ulf-Daniel. 2011. "From Open Educational Resources to Open Educational Practices." *E-learning Papers* 23: 1–8. [https://www.researchgate.net/publication/260423349\\_Extending\\_the\\_territory\\_From\\_open\\_educational\\_resources\\_to\\_open\\_educational\\_practices](https://www.researchgate.net/publication/260423349_Extending_the_territory_From_open_educational_resources_to_open_educational_practices).

Gidley, Jennifer, Gary Hampson, Leone Wheeler, and Elleni Bereded-Samuel. 2010. "Social Inclusion: Context, Theory, and Practice." *Australasian Journal of University-Community Engagement* 5 (1): 6–36. <https://researchbank.rmit.edu.au/view/rmit:4909>.

Goodier, Sarah. 2017. "Tracking the Money for Open Educational Resources in South African Basic Education: What We Don't Know." *International Review of Research in Open and Distributed Learning* 18 (4): 16–34. <http://dx.doi.org/10.19173/irrodl.v18i4.2990>.

Hegarty, Bronwyn. 2015. "Attributes of Open Pedagogy: A Model for Using Open Educational Resources." *Educational Technology* (July–August): 3–13. [https://upload.wikimedia.org/wikipedia/commons/c/ca/Ed\\_Tech\\_Hegarty\\_2015\\_article\\_attributes\\_of\\_open\\_pedagogy.pdf](https://upload.wikimedia.org/wikipedia/commons/c/ca/Ed_Tech_Hegarty_2015_article_attributes_of_open_pedagogy.pdf).

Hodgkinson-Williams, Cheryl. 2014. "Degrees of Ease: Adoption of OER, Open Textbooks, and MOOCs in the Global South." Keynote address at the OER Asia Symposium 2014, Penang, Malaysia, June. <https://www.slideshare.net/ROER4D/hodgkinson-williams-2014-oer-asia>.

Hodgkinson-Williams, Cheryl, and Patricia B. Arinto, eds. 2017. *Adoption and Impact of OER in the Global South*. Cape Town, South Africa/Ottawa: African Minds/IDRC; Cape Town, South Africa: Research on Open Educational Resources for Development. <https://hdl.handle.net/10625/56823/IDL-56823.pdf?sequence=2&isAllowed=y>.

Hodgkinson-Williams, Cheryl, Patricia B. Arinto, Tess Cartmill, and Thomas King. 2017. "Factors Influencing Open Educational Practices and OER in the Global South: Meta-synthesis of the ROER4D Project." In *Adoption and Impact of OER in the Global South*, ed. Cheryl Hodgkinson-Williams and Patricia B. Arinto, 27–67. Cape Town, South Africa/Ottawa: African Minds/IDRC; Cape Town, South Africa: Research on Open Educational Resources for Development. <https://www.idrc.ca/en/book/adoption-and-impact-oer-global-south>.

Hodgkinson-Williams, Cheryl, and Michael Paskevicius, 2012. "The Role of Post-graduate 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. <http://dx.doi.org/10.1080/01587919.2012.692052>.

Karunanayaka, Shironica P., and Som Naidu. 2017. "Impact of Integrating OER in Teacher Education at the Open University of Sri Lanka." In *Adoption and Impact of OER in the Global South*, ed. Cheryl Hodgkinson-Williams and Patricia B. Arinto, 459–498. Cape Town, South Africa/Ottawa: African Minds/IDRC; Cape Town, South Africa: Research on Open Educational Resources for Development. <https://www.idrc.ca/en/book/adoption-and-impact-oer-global-south>.

Karunanayaka, Shironica P., Som Naidu, Joseph C. N. Rajendra, and Hemali U. Ratnayake. 2015. "From OER to OEP: Shifting Practitioner Perspectives and Practices with Innovative Learning Experience Design." *Open Praxis* 7 (4): 339–350.

Kasinathan, Gurumurthy. 2016. "Scaling Open Education Resource-Based Teacher Professional Development in India." Unpublished technical report. Cape Town, South Africa: Research on Open Educational Resources for Development (ROER4D) project, August 5.

Kasinathan, Gurumurthy, and Sriranjani Ranganathan. 2017. "Teacher Professional Learning Communities: A Collaborative OER Adoption Approach in Karnataka, India." In *Adoption and Impact of OER in the Global South*, ed. Cheryl Hodgkinson-Williams and Patricia B. Arinto, 499–548. Cape Town, South Africa/Ottawa: African Minds/IDRC; Cape Town, South Africa: Research on Open Educational Resources for Development. <https://www.idrc.ca/en/book/adoption-and-impact-oer-global-south>.

Knox, Jeremy. 2013. "Five Critiques of the Open Educational Resources Movement." *Teaching in Higher Education* 18 (8): 821–32.

Lane, Andy. 2012. "A Review of the Role of National Policy and Institutional Mission in European Distance Teaching Universities with Respect to Widening Participation in Higher Education Study through Open Educational Resources." *Distance Education* 33 (2): 135–150.

McGreal, Rory, Dianne Conrad, Angela Murphy, Gabi Witthaus, and Wayne Mackintosh. 2014. "Formalising Informal Learning: Assessment and Accreditation Challenges within Disaggregated Systems." *Open Praxis* 6 (2): 125–133. <https://openpraxis.org/index.php/OpenPraxis/article/download/114/88>.

Menon, Mohandas B., Bhandigadi Phalachandra, Jasmine S. Emmanuel, and Ch'ng Lay Kee. 2017. "A Study on the Processes of OER Integration for Course Development." Unpublished final research report. Cape Town, South Africa: Research on Open Educational Resources for Development (ROER4D) project, November 7.

Mishra, Sanjaya. 2017. *Promoting Use and Contribution of Open Educational Resources*. New Delhi: Commonwealth Educational Media Centre for Asia (CEMCA). <http://oasis.col.org/handle/11599/2659>.

Mishra, Sanjaya, and Alka Singh. 2017. "Higher Education Faculty Attitude, Motivation and Perception of Quality and Barriers towards OER in India." In *Adoption and Impact of OER in the Global South*, ed. Cheryl Hodgkinson-Williams and Patricia B. Arinto, 425–458. Cape Town, South Africa/

Ottawa: African Minds/IDRC; Cape Town, South Africa: Research on Open Educational Resources for Development. <https://www.idrc.ca/en/book/adoption-and-impact-oer-global-south>.

Mkandawire, Thandika. 2011. "Running While Others Walk: Knowledge and the Challenge of Africa's Development." *African Development* 36 (2): 1–36.

Oates, Lauryn, Letha K. Goger, Jamshid Hashimi, and Mubarak Farahmand. 2017. "An Early Stage Impact Study of Localised OER in Afghanistan." In *Adoption and Impact of OER in the Global South*, ed. Cheryl Hodgkinson-Williams and Patricia B. Arinto, 549–73. Cape Town, South Africa/Ottawa: African Minds/IDRC; Cape Town, South Africa: Research on Open Educational Resources for Development. <https://www.idrc.ca/en/book/adoption-and-impact-oer-global-south>.

Okada, Alexandra, Alexander Mikroyannidis, Izabel Meister, and Suzanne Little. 2012. "Colearning"—Collaborative Networks for Creating, Sharing and Reusing OER through Social Media." In *Cambridge 2012: Innovation and Impact—Openly Collaborating to Enhance Education*, April 16–18, Cambridge, UK: The Open University. <http://oro.open.ac.uk/33750/2/59B2E252.pdf>.

Organisation for Economic Co-operation and Development (OECD). 2007. *Giving Knowledge for Free: The Emergence of Open Educational Resources*. Paris: Centre for Educational Research and Innovation; Organisation for Economic Co-operation and Development. <http://www.oecd.org/edu/ceri/38654317.pdf>.

Perryman, Leigh-Anne, and Tony Coughlan. 2013. "The Realities of 'Reaching Out': Enacting the Public-Facing Open Scholar Role with Existing Online Communities." *Journal of Interactive Media in Education*.3.

Peters, Michael A., and Tina A. C. Besley. 2014. "Social Exclusion/Inclusion: Foucault's Analytics of Exclusion, the Political Ecology of Social Inclusion, and the Legitimation of Inclusive Education." *Open Review of Educational Research* 1 (1): 95–115. <http://www.tandfonline.com/doi/full/10.1080/23265507.2014.972439>.

Proyecto de Co-Creación Colaborativa de Recursos Educativos Abiertos (REA). n.d. "Banco de REA." [https://karisma.org.co/cokrea/?page\\_id=1079](https://karisma.org.co/cokrea/?page_id=1079).

Research on Open Educational Resources for Development (ROER4D). 2018. "ROER4D Overview." ROER4D.org.

Richter, Thomas. 2010. "Open Educational Resources im kulturellen Kontext von e-Learning. Zeitschrift für E-Learning" (ZeL), Freie elektronische Bildungsressourcen." *Journal for e-Learning, Open Educational Resources* (Special Issue) 3 (September): 30–42.

Richter, Thomas, and Maggie A. McPherson. 2012. "Open Educational Resources: Education for the World?" *Distance Education* 33 (2): 201–219.

Sáenz, María P., Ulises Hernandez, and Yoli M. Hernández. 2017. "Co-creation of OER by Teachers and Teacher Educators in Colombia." In *Adoption and Impact of OER in the Global South*, ed. Cheryl Hodgkinson-Williams and Patricia B. Arinto, 143–185. Cape Town, South Africa/Ottawa: African Minds/IDRC; Cape Town, South Africa: Research on Open Educational Resources for Development. <https://www.idrc.ca/en/book/adoption-and-impact-oer-global-south>.

Scruggs, Thomas E., Margo A. Mastropieri, and Kimberley A. McDuffie. 2007. "Co-teaching in Inclusive Classrooms: A Metasynthesis of Qualitative Research." *Exceptional Children* 73 (4): 392–416. [http://www.schoolturnaroundsupport.org/sites/default/files/resources/Scrugg\\_2007.pdf](http://www.schoolturnaroundsupport.org/sites/default/files/resources/Scrugg_2007.pdf).

Siyavula, n.d. Siyavula: Technology Powered Learning. <https://www.siyavula.com/>.

Smith, Marshall S. 2014. "Open Educational Resources: Opportunities and Challenges for the Developing World." In *Open Development: Networked Innovations in International Development*, ed. Matthew L. Smith and Katherine M. A. Reilly, 129–179. Cambridge, MA/Ottawa: MIT Press/IDRC. <https://www.idrc.ca/sites/default/files/openebooks/541-1/index.html#ch06>.

Smith, Marshall S., and Catherine M. Casserly. 2006. "The Promise of Open Educational Resources." *Change: The Magazine of Higher Learning* 38 (5): 8–17. <https://www.hewlett.org/wp-content/uploads/2016/08/ChangeArticle.pdf>.

Teacher Education in Sub-Saharan Africa (TESSA). n.d. <http://www.tessafrica.net/>.

Toledo, Amalia. 2017. "Open Access and OER in Latin America: A Survey of the Policy Landscape in Chile, Colombia, and Uruguay." In *Adoption and Impact of OER in the Global South*, ed. Cheryl A. Hodgkinson-Williams and Patricia B. Arinto, 121–141. Cape Town, South Africa/Ottawa: African Minds/IDRC; Cape Town, South Africa: Research on Open Educational Resources for Development. <https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/56823/IDL-56823.pdf?sequence=2&isAllowed=y>.

Trotter, Henry. 2016. "How Intellectual Property (IP) Policies Affect OER Creation at South African Universities." *ROER4D* (blog), June 1. <http://roer4d.org/2298>.

United Nations. n.d. "Goal 2: Achieve Universal Primary Education." (website). "We Can End Poverty. Millennium Development Goals and Beyond 2015." <http://www.un.org/millenniumgoals/education.shtml>.

Walji, Sukaina, and Cheryl A. Hodgkinson-Williams. 2017. "Factors Enabling and Constraining OER Adoption and Open Education Practices: Lessons from the ROER4D Project." Slide presentation at World Conference for Online Learning, Toronto, October 15–19. <https://www.slideshare.net/ROER4D/factors-enabling-and-constraining-oer-adoption-and-open-education-practices-lessons-from-the-roer4d-project>.

Waqar, Yasira, Sana Shams, Naveed Malik, Muhammad Ahsan ul Haq, and Syed M. M. Raza. 2017. "An Exploratory Case Study: Enabling and Inhibiting Factors and Extent of Use of Open Educational Resources (OER) in Pakistan." Unpublished final research report. Penang, Malaysia: Research on Open Educational Resources for Development (ROER4D) Project, February 7.

Weller, Martin. 2013. "The Battle for Open—A Perspective." *Journal of Interactive Media in Education* (3). <https://www.jime.open.ac.uk/articles/10.5334/2013-15/>.

Westermann Juárez, Werner, and Juan Ignacio Venegas Muggli. 2017. "Effectiveness of OER Use in First Year Higher Education Students' Mathematical Course Performance: A Case Study." In *Adoption and Impact of OER in the Global South*, ed. Cheryl Hodgkinson-Williams and Patricia B. Arinto, 187–229. Cape Town, South Africa/Ottawa: African Minds/IDRC; Cape Town, South



Africa: Research on Open Educational Resources for Development. <https://www.idrc.ca/en/book/adoption-and-impact-oer-global-south>.

White, David, and Marion Manton. 2011. *Open Educational Resources: The Value of Reuse in Higher Education*. Oxford: University of Oxford. <http://www.jisc.ac.uk/media/documents/programmes/elearning/oer/OERTheValueOfReuseInHigherEducation.pdf>.

Wiley, David. 2014. "Clarifying the 5th R." *Iterating Toward Openness* (blog), March 15. <https://opencontent.org/blog/archives/3251>.

Wiley, David, Cable Green, and Louis Soares. 2012. "Dramatically Bringing Down the Cost of Education with OER: How Open Education Resources Unlock the Door to Free Learning." Colorado: Educause Center for American Progress. <https://library.educause.edu/resources/2012/2/dramatically-bringing-down-the-cost-of-education-with-oer-how-open-education-resources-unlock-the-door-to-free-learning>.

Willems, Julie A., and Carina Bossu. 2012. "Equity Considerations for Open Educational Resources in the Glocalization of Education." *Distance Education* 33 (2): 185–199.

William and Flora Hewlett Foundation. 2018. "Open Educational Resources: Overview." <http://www.hewlett.org/strategy/open-educational-resources/>.

Wolfenden, Freda, Pritee Auckloo, Allison Buckler, and Jane Cullen. 2017. "Teacher Educators and OER in East Africa: Interrogating Pedagogic Change." In *Adoption and Impact of OER in the Global South*, ed. Cheryl Hodgkinson-Williams and Patricia B. Arinto, 251–286. Cape Town, South Africa/Ottawa: African Minds/IDRC; Cape Town, South Africa: Research on Open Educational Resources for Development. <https://www.idrc.ca/en/book/adoption-and-impact-oer-global-south>.

World Bank. 2013. *Inclusion Matters: The Foundation for Shared Prosperity*. New Frontiers of Social Policy 81478. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/114561468154469371/pdf/814780PUB0Incl00Box379838B00PUBLIC0.pdf>.

World Health Organization. 2018. "Social Determinants of Health: Social Inclusion." Geneva, Switzerland: World Health Organization (WHO). [http://www.who.int/social\\_determinants/themes/socialexclusion/en/](http://www.who.int/social_determinants/themes/socialexclusion/en/).

Zagdragchaa, Batbold, and Henry Trotter. 2017. "Cultural-Historical Factors Influencing OER Adoption in Mongolia's Higher Education Sector." In *Adoption and Impact of OER in the Global South*, ed. Cheryl Hodgkinson-Williams and Patricia B. Arinto, 389–424. Cape Town, South Africa/Ottawa: African Minds/IDRC; Cape Town, South Africa: Research on Open Educational Resources for Development. <https://www.idrc.ca/en/book/adoption-and-impact-oer-global-south>.