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Open Educational Resources: an Opportunity for Democratic Education?

Giuseppe Ritella*

Abstract

In this article, I argue that Open Educational Resources (OERs) can create opportunities for democratic education by emphasizing collaborative construction, re-vision and updating of knowledge content. This may allow people belonging to different communities and social groups to take collective responsibility for the creation and maintenance of public knowledge content to be used for educational purposes. Such potential is only partially exploited if the practices of reuse favour consumption in place of co-construction. Moreover, although primarily intended for formal education, the potential or OERs is best expressed in hybrid practices where formal and non-formal contexts are not intended as mutually exclusive. A participatory and hybrid framework for the re-use of OERs in the long term might create the conditions of a more democratic management of knowledge in the larger society. However, to fully exploit the potential of OERs there is a need to develop policies and practices able to address a number of challenges raised by the hybrid, participatory, and technology-enabled co-creation, re-use and re-mix of public knowledge.

Keywords: *OER; knowledge building; participatory approaches.*

1. Introduction

The use of Open Educational Resources (OERs) is becoming a growing trend in educational practice. OERs are expected to provide wide access to high quality educational content worldwide. The movement around OERs arises from the idea that knowledge is a public good and that the current development of technology provides a great opportunity to equalize access to knowledge and learning opportunities by sharing and re-using high-quality online resources:

> OER are based on the simple but powerful idea that the world's knowledge is a public good like water or air, and thus access to it should be open to everybody. (Atkins *et al.*, 2007: 5)

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> OER are seen as a way to update and expand education and lifelong learning for the knowledge-based society and economy. (Schaffert & Geser, 2008: 2)

An often-implicit assumption in the discourse on OERs is that such openness of knowledge resources used for teaching learning and research might improve the participation in the political, economic, social and cultural contexts of society (Geser, 2007; see also Deimann, 2013). In this sense, OERs are conceived as a tool for a more democratic approach to education realized thanks to the current development of Information and Communication Technology (ICT), which is expected to have an impact on larger societal processes of participation.

In this article, I will argue that the potential of OERs does not lie only on the increased availability of knowledge for free re-use that is often at the centre of the discourse on OERs. Indeed, releasing educational content with an open license such as Creative Commons (CC) creates opportunities for novel educational practices that involve collaborative construction, re-vision and updating of knowledge content, allowing people belonging to different communities and social groups—professionals and experts in different fields, educators and teachers, students, etc.—to take collective responsibility for the creation and maintenance of public knowledge content to be used for educational purposes.

My proposal is that to fully exploit the democratic potential of OERs we should avoid a dichotomous understanding of formal and non-formal contexts of education. While one question that has been put on the agenda of scholarly discussion concerns the formal vs. informal use of OERs (Olcott, 2012), I argue that informal and formal use of OER are not mutually exclusive categories for the deployment of OERs. The questions, I propose, are not if we should "leave the OER in the non-formal resource category" or if "universities should organize OER inventories so that students can earn formal credits" (Olcott, 2012: 286-287). Rather, I suggest to ask if and how hybridizing the practices of OER use across the formal and the non-formal domain can have any positive effect for contemporary society, in particular contributing to a path toward a democratic management of knowledge. In other words, I argue that there is a need of hybridization of practices between education and the larger society in order to exploit the full potential of OERs.

My argumentation here will focus on four main points:

1. although primarily intended for formal education, the potential or OERs is best expressed in hybrid practices where formal and non-formal contexts are not intended as mutually exclusive;
2. technology offers new opportunities for a democratic management of knowledge, which is only partially exploited if the practices of reuse favour consumption in place of co-construction;
3. a participatory framework for the re-use of OERs in the long term might create the conditions of a more democratic management of knowledge in the larger society;

4. to fully exploit the potential of OERs there is a need to develop policies and practices able to address a number of challenges raised by the hybrid, participatory, and technology-enabled co-creation, re-use and re-mix of public knowledge.

In the next section, I will introduce the ideas that constitute the foundations of my proposal for a hybrid usage of OERs between educational institutions and the larger society. Second, I will briefly discuss some challenges that seem to limit the success of OERs usage and that need to be addressed to fully exploit the potential of OERs as a democratizing force for the knowledge society. In order to discuss these issues, I will adopt a practice based understanding of OER usage, which is called for by many authors in the current debate (see for example, Butcher, 2011; Deimann & Farrow, 2013; Ehlers, 2011). Third, I will theoretically frame a pedagogy based on the active co-construction of knowledge artefacts by learners, both within and outside of formal contexts of education. The argument is that systematically adopting such a participatory approach to OERs in the long term might facilitate the spreading of a democratic and participatory approach to knowledge at multiple levels of social life, from professional communities to democratic decision making, which is an aim currently emphasized by many policy documents. Thus, in the subsequent section of the article, I will discuss the relationship between participatory pedagogical approaches and democratic processes in the larger society. The final section will contain my concluding remarks.

2. From formal to hybrid practices of OER use

In this section, I will introduce the ideas related to OERs that constitute the foundations of my proposal for a hybrid usage of OERs between educational institutions and the larger society. I start from the definition of OERs by UNESCO, which has been—together with the Hewlett Foundation—one of the major promoters of the OER movement:

> Open Educational Resources are defined as 'technology-enabled, open provision of educational resources for consultation, use and adaptation by a community of users for non-commercial purposes'.They are typically made freely available over the Web or the Internet. Their principal use is by teachers and educational institutions to support course development, but they can also be used directly by students. (Wiley, 2007: 3)

This definition states that the primary target of OERs are teachers, intended as teaching staff in formal education. However, the consultation, use and adaptation of OERs is considered open for use by other communities of users, who might be directly students. This conceptualization of OERs, in my view, could be enriched by emphasizing that they are open to a much wider public outside of formal education. This is made possi-

ble by the fact that OERs are released with an open license, thus they are publicly accessible to everyone, including educational staff, professional trainers, students, senior or junior professionals, professional associations, companies, informal groups of citizens, etc. This characteristic of OERs, thus, creates the background for potential usage by both academic and non-academic users.

The discourse on OERs is often based on an assumed dichotomy between formal and non-formal educational contexts, and their use is often intended within academic communities, not taking into account potential benefits of the collaboration between the different types of stakeholders who might have an interest in educational content in the same domain of knowledge. An (incomplete) list of stakeholders who might be interested in re-using and/or co-designing open educational content is as follows:

1. professional communities might have an interest in providing their associates with learning resources that bridge the gap between academic knowledge and professional practice;
2. senior professionals might seek resources for professional development, especially (but not exclusively) concerning the most recent scientific discoveries and technological innovations in their field;
3. young professionals might seek resources to develop their employability skills during the initial phases of their careers;
4. companies might adapt and re-use high-quality OERs to train employees, possibly reducing the costs and efficiency of training;
5. informal groups might be interested in accessing open content in order to gain the knowledge and skills necessary for working on their innovative business idea, which might lead to the creation of a start-up company;
6. groups of citizens, touristic associations or local institutions might be interested in creating, updating and re-using OERs concerning the cultural heritage and natural resources of a place, making them available for either local residents (who might achieve awareness concerning the resources and problems of the places where they live, and perhaps become more active in the political decisions at the local level) or for tourists.

All these groups of people might be interested in OERs developed within the academy, adapting them to fit different types of learning pathways, or in creating derivative OERs that might—in turn —be used within the academy. In this way, OERs can be conceived as "boundary objects" (Akkerman & Bakker, 2011) between different contexts. Rather than pursuing a restricted use either within an only formal or only informal setting, I suggest that academic institutions and different types of stakeholders could build on each other's expertise by means of sharing, re-mixing and re-visiting different types of educational resources through an open framework of collaboration.

In the view I propose here, learning in the 21st century involves being knowledgeable across a variety of contexts, with the ability to connect

to remote knowledge resources, communities and (work) sites no longer bound to one particular context (Damsa & Jornet, 2017). Thus, it is important to understand the connections between scholarly knowledge and non-academic practices and activate cross-boundary arrangements that allow the dissemination of solid academic knowledge and the teaching of scientific theories in ways that connect directly to a range of non-academic contexts. Thus, one great opportunity that OERs provide to 21st century learning is exactly their potential to work as boundary objects, potentially enabling an easier process of boundary crossing between the academic contexts and the larger society.

This step is particularly important to bridge the gap between the academy and the larger society. In this sense, the background of my argument is that often there is a perceived distance between the academy (considered as the place of theory development) and the non-academic world (considered as the place for the development of practice). These worlds are often perceived as disconnected and often additional training is required after an academic degree for increasing the so-called employability skills. In formal education there is a growing interest in going from theory to practice, thanks to competence-based curricula and pedagogical approaches such as the learning ecologies approach (Barron, 2006), connected learning (Ito *et al.*, 2013), problem based learning (Hung *et al.*, 2008), which emphasize the importance of connecting learning within and outside the school. However, still a great deal of learning is "encapsulated" (Engestrom, 1991) either within schools or within closed professional communities and institutions. I propose that OERs might be a valuable additional resource contributing to bridging this gap, in coordination with the efforts just mentioned.

As follows, I propose some examples aimed at clarifying the use of the concepts of boundary crossing and hybrid practices in the context of OER re-use. The simplest hybrid practice of OER use is realized when a set of academic OERs are re-used by professional communities to improve the theoretical and methodological foundations of their practices. In addition, companies might use OERs to provide learning resources for professional traning - especially intended for novices - or professional associations could provide resources for the autonomous learning of their members (possibly cooperating in communities of practice). Besides these relatively straightforward examples, more complex steps of hybridization might be implemented. For example, a professional group might consider a set of OERs released by the university as potentially valuable but too theoretically oriented and of too little impact for professional practice. In this case, professionals have the possibility to re-use OERs in a derivative way, modifying or enriching the OER with supportive content that contextualizes theoretical content within professional practices. For example, the theoretical content could be complemented with the examination of professional situations where the content of the OER is relevant. This process does not involve an acritical adoption of academic content by professional

communities. Rather, it creates the foundation for hybrid practices of using OERs at the boundary between professional and academic worlds. In the same way, individual citizens who use an OER for self-regulated learning, might consider the material not effective from the point of view of a novice in the field and propose a derivative OER including additional explanations or deleting redundant information.

The other way around, knowledge resources developed for professional training, if released as OERs, would allow academic students to bridge the gap between the knowledge developed within a specific academic domain, and the skills required by the corresponding professional practices. For academic students, a coordinated use of OERs developed by academics and OERs developed by experienced professionals could be a great move for improving their employability skills. Platforms such as CommonSpaces (www.commonspaces.eu) provide a first valuable step in this direction. A paradigmatic occasion of hybridization could be a joint venture of academies, companies and professional associations to develop high quality content publicly shared online. Such an endeavour could provide extremely helpful resources to improve employability skills.

In sum, although the current model of use of OERs is based on an "institutional model," "information and communication technologies provide powerful tools to facilitate a wide range of flexible learning experiences in many different types of contexts and settings" (Deimann & Friesen, 2013: 112). The problem, as I will discuss in the following section of this article, is to develop participatory practices of OER use able to fully exploit their potential. In this way, OERs might really support a positive synergy between formal and informal learning, and between educational and broader cultural activities.

3. Potentiality and challenges for the fruitful usage of OERs

The definition that I reported in the previous section of this article reveals that the discourse on OERs is based on exploiting the potential of digital technology, which enables easy sharing of digital knowledge resources. Indeed, while the pedagogical potential of OER is grounded in the tradition of creating distance education course materials, implying an understanding of learning based on the fruition of resources by students, it would simply not have been conceivable before the ICT explosion. This is because thanks to the Internet digital content can be easily created, shared online and copied by others in a way that was not imaginable a few years ago (Butcher, 2011). Such possibilities opened up by technology are not yet fully exploited. Indeed, many reports show that although many OERs are now available on the Internet, in many cases they are not used as much as it would be desirable (Ehlers, 2011). The literature reports many issues that might jeopardise the fruitful re-use of OERs. In the following paragraphs,

I report some of the main challenges that require consideration in order to fully exploit the potential of OERs.

First, the enhanced accessibility of resources gained through OERs might widen rather than bridge the digital divide because of the increased variety and complexity of both technologies and competencies required for participation (Deimann, 2013; Lane, 2009). Nowadays the Internet is full of freely accessible resources—OERs—that can provide learning opportunities based on excellent learning contents, tools, platforms or a mix of these ingredients. These resources are usually not well organized, and for many users it is often difficult to use these dispersed sources of knowledge in a coordinated way. This richness of resources in the Internet demands higher level media literacy skills, which include information searching, selection, adaptation, and evaluation (Butcher, 2011; Terras *et al.*, 2013), but also other competences such as self-direction, creativity, and critical thinking (Geser, 2007). Otherwise, the risk is that learners who are not enrolled in well-organized learning programs might engage into shallow Internet surfing, limiting the learning experience to the consumption of chunks of knowledge. In this respect, the abundance of content freely available online can be overwhelming for individuals who might not be able to profit of such improved accessibility (Deimann & Farrow, 2013).

Second, Clement and Pawlowsky found that there is (at least in some contexts) a low level of perceived quality of OERs, which might be another reason behind the often limited use of OERs. The authors suggest that user-based specific quality instruments (such as peer reviews, rankings, and recommendations) can improve the quality, but there is yet low level of motivation to contribute (Clement & Pawlowski, 2012). The implementation of this kind of quality instruments seem to be particularly challenging, as demonstrated by a paradigmatic experiment on open peer review by Nature magazine:

> In the trial, the papers selected for traditional peer review were, in a parallel option offered to authors, hosted for public comment. In the event, 5 percent of authors took up this option. Although most authors found at least some value in the comments they received, they were few, and editors did not think they contributed significantly to their decisions. The disappointing aspect was not the author participation (which was in line with our expectations) or general levels of interest and web traffic (both good), but the number and average quality of the comments. (Atkins *et al.*, 2007: 30)

Third, a problem for re-use of OERs seem to be related to the coherence between the format and structure of the OERs and the practices of use of the same OERs. On the one hand, some formats in which OERs can be released (such as HTML+MathML) favour users' desires to reuse content quickly and easily while others (such as LaTeX or PDF) allow the initial creators of the OERs to publish content quickly and easily (Wiley, 2007). This implies that the promotion of active re-use of OERs involves also a

reflection on the format in which OERs are released. If the re-use of a resource is complex for the user, it is not likely that it will be taken up even when the overall quality of the OER might be good. Moreover, the solution of this problem might require providing tools for the handling of OERs that are easy to use. On the other hand, the structure of OERs significantly differ depending on the use for which they have been designed. For example, resources to be used for teaching are significantly different from those to be used in studying: resources used directly by learners in learning need to be more comprehensive and detailed, and should not assume too much pre-existing knowledge; resources used for teaching, instead might contain only keywords, visual representations or an overview of the domain, since the details are expected to be presented by the teacher in other forms.

Fourth, it seems that in many experiences of using OERs greater success has been coming from organised groups than from individuals (Lane & McAndrew, 2010; Wiley, 2007). The literature on participation in community psychology is particularly interesting in this respect. Indeed, research shows (see Talò *et al.*, 2014 for a meta-analytic review) that there is a close association between participation and sense of community—defined as a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together (McMillan & Chavis, 1986). This suggests that strategies of community management should be adopted, and probably specific type of support like mentoring should be given in order to enhance fruitful participation to open educational practices. If learners feel part of a community, their participation could be enhanced. In addition, participation to collective action necessarily involves different kinds of restrictions concerning who should be involved, assumptions about the issue at stake, and expectations concerning the outcome of participation and the behaviors of participants (Turnhout *et al.*, 2010). These restrictions, assumptions and expectations play a crucial role for the success of collective action.

Finally, other common barriers to the use of OERs include issues related to copyright and intellectual property protection (Butcher, 2011); the problem of financial sustainability of open educational resources (Wiley, 2007); the lack of awareness about OER; faculty resistance and the lobbying of many publishers who see the OER movement as a threat to their historical business monopoly over content (Olcott, 2012: 284).

The literature quoted above clearly show that adopting OERs is a challenging task, which requires that participants should develop specific skills, attitudes and competences and that the practices of using OERs should be carefully designed to promote active participation to the creation and reuse of public knowledge. In this sense, the focus should not be exclusively on Open Educational Resources, but also on Open Educational Practices (OEP) that are necessary for using their content, including the design of learning pathways, the support to learners, assessment and critical feedback (Butcher, 2011; Deimann & Farrow, 2013; Ehlers, 2011). As sug-

gested by Hakkarainen (2009), technology improves learning only if we transform learning practices: as our relationship with knowledge changes, our approaches to learning should change accordingly. Such a focus on practice requires that the use of OERs should become a specific topic of research (Bacsich *et al.*, 2011). In the following section of this article, I will suggest that participatory practices of use of OERs—at the boundary between academia and the larger society—might create the premises for a more fruitful use of OERs.

4. From transmissive to participatory practices of using OERs

One benefit of the use of OERs is the possibility of co-creating volumes of materials, or of revising and re-using resources shared by others, who in turn can benefit of the revisions made by their peers, progressively improving the quality of educational content. This does not imply that everyone should contribute equally to the knowledge building, since different roles and levels of participation are necessary for collective action (Turnhout *et al.*, 2010). The proposal I make is that research is needed for the development of participatory practices of OER use, which can support different types of social participation to the democratic management of knowledge.

Lane and McAndrew (2010) discuss how such benefits of OERs are implemented at the Open University on UK, where a community of academics working in the same course team often cooperate to co-create and revise educational content. The authors note that OERs would allow to extend this approach to wider collaborative relationships:

> The arrival of OER has meant that both teachers and students are able to more easily find and view in greater depth the teaching and learning experiences of others to inform their own praxis. Open access also lowers some practical barriers so that they are also able to 'teach' more easily around someone else's resources and/or activities (reuse 'as is'). But even more than that, it is becoming possible to rework other people's material and to even co-create (or remix) greater volumes of such material with colleagues around the world. (Ibid.: 956)

Furthermore, some authors recommend that the practices of OER reuse should involve not only teachers and researchers, but also learners as co-producers of educational resources (Deimann, 2013). The shift toward such 'constructivist' approaches, where students are actively involved in collaborative activities rather than passively consuming knowledge, are thought to work well when the students have developed skills in accessing, understanding and appraising information across different media, but also actively reacting to the materials and creating their own learning resources through digital tools (Terras *et al.*, 2013). However, the research in this field is still at an initial stage. Among few examples, Hodgkinson-Williams

and Paskevicius (2013) have examined how some master students assisted their lecturers to adapt lecturing materials as OERs, discussing the challenges they encountered. Even though these students received specific training, the process was not straightforward and the students had to develop their own 'heuristic plan' to successfully create a good OER. One problem was that the students

> were sometimes a little unsure about what actually constitutes copyright infringement, what the regulations are around fair use (or fair dealing in South Africa) and specifically how Creative Commons endeavours to address copyright uncertainty. Students were also more hesitant about the value of alternative licensing than they were about the value of adding descriptive metadata. (Ibid.: 141)

This type of research shows that to implement participatory approaches to OER use is a challenging task, and efforts are needed to promote students' active participation.

An often-implicit assumption concerning this kind of constructivist approaches might be described by using the concept of "pervasiveness," which was proposed by Scardamalia (2002) concerning Knowledge Building (KB). KB is a well-known pedagogy aimed at educating people for living in current societies, characterized by intense knowledge creation and innovation. It was defined by Scardamalia and Bereiter (2003) as the production and continual improvement of ideas of value to a community, as part of broader cultural efforts. KB involves the building of public knowledge artifacts that are progressively refined by the members of a community. It is based on the idea of a democratic and dialogic approach to knowledge, which involves dialogue between the different perspectives and ideas, critical examination and constructive use of authoritative sources, and collective responsibility for the advancement of knowledge building. In this sense, such approach is in line with many of the ideas defended by the OER movement, and it provides theoretical foundations for a pedagogical approach based on the active involvement of students in working on knowledge artefacts, such as OERs. The concept of pervasiveness in KB concerns the fact that the building of knowledge "is not confined to particular occasions or subjects but pervades mental life—in and out of school" (Ibid.: 11). Thus, the idea behind KB is that once students are used to a democratic approach to knowledge in educational contexts, they will be prepared for a democratic approach to knowledge throughout their participation to other knowledge intensive practices that are widespread in contemporary society.

Such a democratic approach to knowledge involves deep reflective practice, not only about the learning experience per se, but also at a higher level concerning one's autonomy and potential for building his/her own future (Deimann & Farrow, 2013). In this sense, Deimann (2013) suggests

that a constructionist approach to OERs could support *Bildung*, that is, a conceptualization of education that goes beyond the acquisition of knowledge and skills, involving also the "nurturing the human person" (Biesta, 2002: 343) in terms of self-determination, maturity, and autonomy. In this sense, a knowledge building approach might create—in the long term—the premises for what I have called hybrid practices of OER use, where people belonging to different social groups, who are educated to a democratic management of knowledge at school, are able to fruitfully cooperate with each other to advance the public knowledge progressively built and refined within the multiple communities to which they belong.

5. From participatory approaches to OER to democratic management of public knowledge

The concept of pervasivity discussed by Scardamalia (2002) is particularly interesting in relation to current policies that are aimed at promoting the active participation of citizens to the management of public knowledge. Some authors argue that democratic citizenship should be "active, participatory and responsible" (see, for example, Goisis, 2015), thus involving active participation as an intrinsic feature of citizenship. In line with this ideal, the European policy documents of the last few years emphasize the need of sustaining the active participation of citizens, in particular concerning the management of knowledge. For example, the 2012 conclusions of the European Council on participatory governance of cultural heritage—which is an aspect very strictly related to the governance of knowledge—are very illuminating in this respect. In this document, the Council invites member states to adopt participatory approaches for the management of the cultural heritage governance, promoting the civic participation of citizens. This type of approach is central in current EU policies that aim at participatory local development. A second example is the 2014 UNESCO declaration of Florence, which goes in a similar direction recommending participatory models that are centred on people and communities and support the direct involvement of citizens in the cultural life, in particular as "creators and producers of cultural expressions."

My main point here is that conceiving OERs as collectively built and progressively updated knowledge resources, adopting a participatory pedagogical approach, might allow to develop the attitudes, skills and competences necessary for a more active, participatory and responsible citizenship. The technological development more and more allows to develop participatory practices where students (and more in general citizens) become co-producers of knowledge:

> The advent of Web 2.0 technology (which includes weblogs or 'blogs', wikis and user-edited encyclopaedias such as Wikipedia) with its ability to sup-

> port considerably greater interaction between individuals, and the immense opportunities it offers for the creation of new, collaborative, user-generated content, presents new challenges to the delivery and effective use of OER (Brown & Adler, 2008). If the potential of OER is to be fully realised then it should capitalise on the opportunities offered by Web 2.0 technology. (Terras *et al.*, 2013: 161)

As suggested by Wegerif (2011) the Internet combines the features of dialogue—enhancing participation and expression of multiple voices—and the features of writing—which tends to transcend contexts. In this way, it allows the emergence of a global, rather than local, participatory Self, provided that appropriate pedagogical models are developed and implemented.

An interesting and recent example of the impact of technology in transforming social practices in this sense is the case of 3D Printers. These are a new type of technology, which allows to build 3D objects that would take special resources, tools and skills if using conventional manufacturing techniques. This kind of technology allows an active approach where users can easily explore different ways of designing an object and share it easily through email with whoever owns a 3D printer. In this way, transforming a design idea into a real object is not anymore a monopoly of highly trained professionals and companies who can invest huge amounts of money in expensive tools. Realizing an innovative object, thanks to 3D printers, could be achieved by learners, or groups of learners who have a good idea and the will to spend a certain amount of time and energy to develop it, exploring and familiarizing with the world of 3D design. In other words, 3D printers might allow to "democratize innovation" (Atkins *et al.*, 2007: 63), since the tools are inexpensive and relatively easy to use.

However, the configuration and implementation of such a democratic approach is not devoid of challenges. Sustaining a participatory model both in education and in the larger society requires a deep socio-cultural transformation and the development of socio-technical systems facilitating dialogue and collaborative work on knowledge artifacts, considering different levels and different types of participation. The effectiveness of OER can only be realised if both providers and users possess and utilise the appropriate media literacy skills that enable them to make full use of the educational content available (Terras *et al.*, 2013). Moreover, such an approach raises basic philosophical issues to do with the nature of ownership, with the validation of knowledge and with concepts such as altruism and collective goods (Hylén & Schuller, 2007), which need to be addressed.

6. Conclusions

Olcott (2012) in his concluding remarks on the emerging issues concerning OERs for universities, recognized that OER are not a panacea for

resolving all the issues in contemporary society or in higher education. However, he expressed quite vividly the point of view of those who promote the value of OER:

> OER are social advocates for cultural and ethnic dialogue; they are capacity building tools for a child's imagination; they are political voices of democracy; and they may ultimately be the genuine equalizer for social inclusion in a pluralistic, multicultural, and imperfect world. (Ibid.: 289)

Enlarging the participation in the creation, revision and maintenance of OERs to a wider public than OER experts, creating a bridge between educational institutions and the larger society, is a valuable prospect for the democratic management of knowledge in contemporary society. The current development of ICT facilitates the development of novel educational practices. However, as I have discussed, a participatory approach to knowledge management requires a focus on the complex socio-technical processes involved, which generate many challenges. To address these challenges the need is to design practices that lead to the education of cohorts of active and responsible citizens, prepared for democratic forms of citizenship that involve dialogue and openness to the Other (Wegerif, 2011).

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