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How to cite:

Okada, Alexandra; Mikroyannidis, Alexander; Meister, Izabel and Little, Suzanne (2012). “Colearning” - collaborative networks for creating, sharing and reusing OER through social media. In: Cambridge 2012: Innovation and Impact - Openly Collaborating to Enhance Education, 16-18 Apr 2012, Cambridge, UK.

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Version: Version of Record

Link(s) to article on publisher's website:
<http://www.ucel.ac.uk/oer12/abstracts/224.html>

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"Colearning" - Collaborative networks for creating, sharing and reusing OER through social media

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Abstract: This investigation focuses on the use of social media tools and personal network environments for engaging learning communities in producing, adapting, sharing and disseminating OER collaboratively. The aim of this investigation is to identify new forms of collaboration, as well as strategies that can be used to make the production and adaptation processes of OER more explicit for anyone in the community to contribute.

Introduction

Social media have been changing the ways individuals and collectives communicate with each other, how they acquire and use information as well as how they create and share knowledge. Web 2.0 technologies have created a sense of “always being in touch or reachable”, enabling at the same time the sharing, remixing and reuse of open content online and new ways of “Collaboration 2.0” (Okada et al 2012). Users, both professionals and enterprise as well as learners and educators can now self-manage and self-maintain their own communities, develop, adapt and share their content together and enable formal or informal learning collaboratively.

An impressive growth of social media can be observed in 2011, increasing from 36% of global Internet users to 59% on a monthly and reaching a total of 2.8 billion social media profiles, equivalent to half of all web users worldwide. The number of Facebook users is currently more than 800 million, with more than 200 million registrations per year. YouTube has become the second largest search engine in the world after Google, receiving two billion views a day. Regarding to content published through social media per week, more than 3.5 billion pieces of content are shared in Facebook, more than 1 billion in Twitter, and more than 604,800 hours of video in YouTube (Social Media Today, 2012; Social Marketing Trends, 2012; Digital Buzz, 2012).

Understanding the creation of interactive and collaborative experiences using social media will be essential for producing and disseminating useful Open Educational Resources (OER). The main claim of this study is that social media can be very useful for the OER production due to several key factors, such as global audience dissemination, instantaneous responses and editing, availability for any web user without specialized skills and training, as well as little or no cost (Okada, 2012; Mikroyannidis et al, 2011b Alexander, 2008; Anderson , 2007).

This investigation focuses on the use of social media tools and personal network environments for engaging learning communities in producing, adapting, sharing and disseminating OER collaboratively. The aim of this investigation is to identify new forms of collaboration, as well as strategies that can be used to make the production and adaptation processes of OER more explicit for anyone in the community to contribute.

Background

Several studies discussing social media and OER have been emerging during this last six years and presenting a variety of theoretical discussions and case studies, in which several social media roles for open education can be described. The discussion about social learning

space for OER, presented by Buckingham Shum and Ferguson (2012), summarises some of the dimensions that characterize the social learning design space. Reflecting on these dimensions and the meaning of “open”, social media plays a key role for providing space for collaborative interactions, in which learning support for locating and engaging with OER can be provided by all participants. De Liddo (2012) emphasizes that social media infrastructure based on collective intelligence presents a relevant role for gathering the evidence of OER effectiveness and providing any user (including policy makers) with a community-generated knowledge base to make evidence based decisions. Based on the study presented by Ram et al (2011), social media is also important for providing a new venue for increasing self-motivated and self-guided learning through open social learning communities. Another significant role offered by social media and networking environment highlighted by Conole and Culver (2009) is to provide a dynamic open environment for finding, sharing and discussing learning and teaching ideas and OER designs. Additionally, Franklin and Harmelen (2008) discuss the importance of social open environments allowing greater student independence and autonomy, greater collaboration as well as increased pedagogic efficiency. Focusing on open communities of learning and knowledge building, Hemetsberger and Reinhardt (2006) explains that media richness is decisive to help users to transform tacit knowledge to explicit and comprehensible knowledge for others through the ability to share widely non-verbal cues, personality traits, rapid feedback, as well as natural language. Interpreting key issues of this study, meaningful piece of content shared through social media can enable reflective discourse, re-experience and participatory learning.

The studies related to this investigation focus on a new and relevant key role social media: co-learning through collaborative networks for co-authoring OER - creating, adapting and reusing OER. Several studies highlight some significant barriers in co-authoring OER to be reused (Collis and Strijker, 2003; Harley et al., 2006; Petrides et al., 2008; Okada and Connolly, 2008, Connolly and Scott, 2009). The majority of best practices with Open Educational Resources in Higher Education (HE), in fact, show more evidence about ‘first use’ quality aspects rather than specifically presenting evidence of ‘re-use’. Recent research about recommendations for extending effective reuse (Okada, 2010) remarked upon significant issues to be overcome, particularly the lack of a culture of reuse, which includes social, technical, pedagogical and legal aspects. Diverse examples were highlighted, such as the lack of interest for reusing and developing OER, the need for efficient tools to facilitate and simplify reusability, the low communication among different stakeholders, as well as the importance of social collaboration for discoverability and credibility around the content. Many barriers were indicated, such as understanding and meeting the changing learners’ needs, designing reusable resources by taking into consideration several requirements, implementing appropriate legal aspects and disseminating clear issues with respect to copyright.

Reusability is a key concept selected in this study for educators and learners that create and disseminate OER to be reused widely using social media. When educators and learners are aware of this meaning, they can design OER with reusability in mind. The definition of Reusable Learning Content (RLC) is defined as *“open educational content designed to be reused, therefore, reproducible, addressable and flexible to be adapted multiple times in multiple ways, in multiple purposes, in multiple formats and in multiple contexts by multiple users. RLC can, therefore, refer to “content of learning”, “learning objects”, “teaching materials”, “rich media content”, “interactive components” and “open educational resources”* (Okada, 2010).

Reusability is therefore an essential feature for OER designers having the facility and flexibility for adopting and/or adapting them. In this context these terms can be defined as follows: adopting can mean selecting the material or part of the material as it is. Adopting

involves finding, accessing and making a resource available to be used. Adapting includes small or significant changes in the content. Thus, the process of reusing OER can be described in numerous forms (such as those listed in Table 1), which define, and therefore, clarify the many different ways in which learning content can be reused (Okada, 2010):


Levels of reusability		Ways of reusing OER
	Recreate content & contribute to new productions	<ul style="list-style-type: none"> • Re-authoring: Transforming the content by adding your own interpretation, reflection, practice or knowledge
		<ul style="list-style-type: none"> • Contextualizing: Changing content or adding new information in order to assign meaning, make sense through examples and scenarios
		<ul style="list-style-type: none"> • Redesigning: Converting a content from one form to another, presenting pre-existing content into a different delivery format
	Adapt part of the content	<ul style="list-style-type: none"> • Summarising: Reducing the content by selecting the essential ideas
		<ul style="list-style-type: none"> • Repurposing: Reusing for a different purpose or alter to make more suited for a different learning goals or outcome
		<ul style="list-style-type: none"> • Versioning: Implementing specific changes to update the resource or adapt it for different scenario.
	Adopt same content, but adapt structure, format, interface or language	<ul style="list-style-type: none"> • Translating: Restating Content From One Language Into Another Language
		<ul style="list-style-type: none"> • Personalising: Aggregating tools to match individual progress and performance
		<ul style="list-style-type: none"> • Resequencing: Changing the order or sequence
	Adopt same content (whole, part or combination)	<ul style="list-style-type: none"> • Decomposing: Separating content in different sections, break out content down into parts
		<ul style="list-style-type: none"> • Remixing: Connecting the content with new media, interactive interfaces or different components
		<ul style="list-style-type: none"> • Assembling: Integrating the content with other content in order to develop a module or new unit

Table 1- Levels of Reusability and ways of reusing OER

Some of the current literature summarised in the study of RLC (Okada, 2010) has been highlighting flexible and pragmatic principles for content development for reuse which have been summarised by the following five issues presented in the list below (LittleJohn, 2003):

- **Clear learning outcomes:** reusable resources can be designed in a way that address our own learner's needs, and then generalised to be hypothetical cases of reuse by others.
- **Well-described granular content:** either small chunks or large sections of courses can be pedagogically effective resources for reuse when their content is simple to understand and makes sense.
- **Opportunities for meaningful discourse:** reusable content can be more significant when it is designed to be scalable, sustainable and sociable.
- **Non-authoritative metadata:** reusable resources can be more helpful when they offer the opportunity for (re)users to contribute to the metadata, for instance, by cataloguing the variety of real cases in which context can be wrapped around pre-existing resources, or can be versioned for particular groups of learners.
- **Principles for accessibility:** accessible principles can be very useful for designing resources that can be reused by users with different needs.

These principles were also applied in the study about the OER Flow (Okada & Leslie, 2012), which presents seven steps for designing RLC and various issues to be considered (Figure 2).

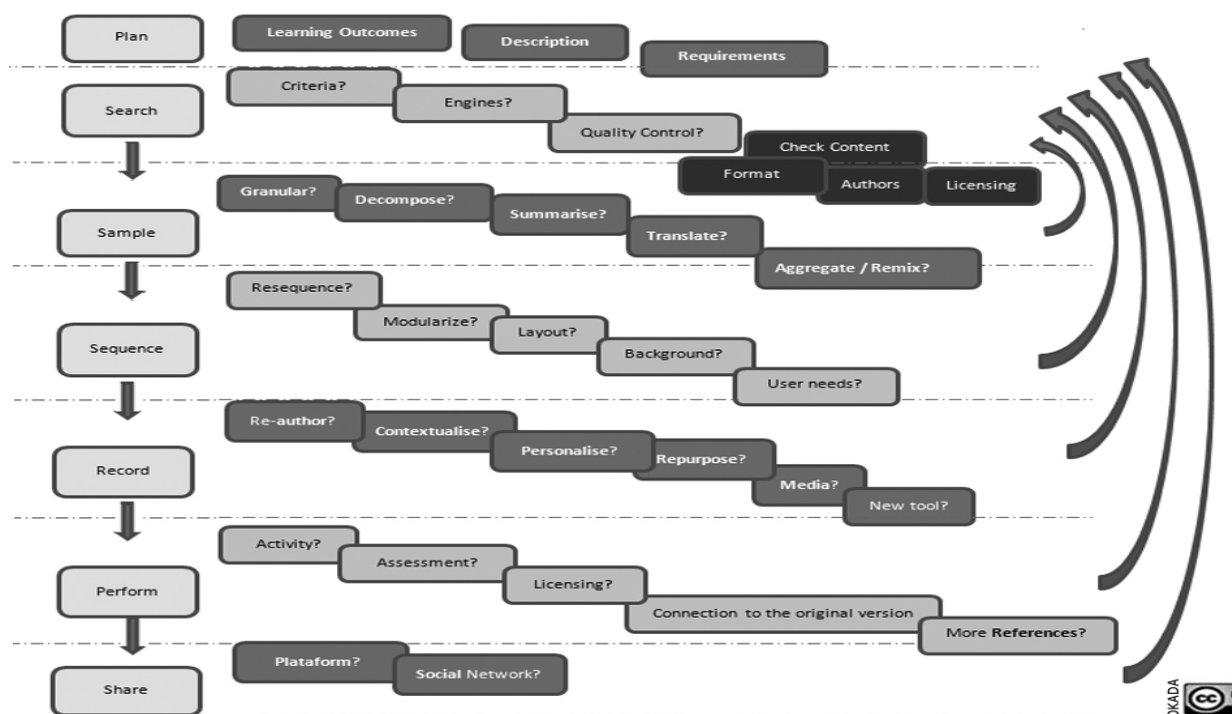


Figure 1 – OER Flow

Grounded on the five principles for OER development for reuse and the OER flow; this study, therefore, investigates strategies that can be used to make the production and adaptation processes of OER more explicit for anyone in the community to contribute. This work also analyses some challenges that co-educators and co-learners may face when producing RLC collaboratively through social media.

Case Study

The participants were approximately 200 Colearn members interested in co-authoring OER using tools in the OpenScout Tool Library. The majority of them are interested in Educational Technology, participatory media and social learning.

COLEARN - Collaborative Open Learning Community - is a Portuguese language community focused on technologies for collaborative learning, which was founded in 2006 during the OpenLearn Project (The Open University – UK). Currently, there are more than 3.500 members who have been using LabSpace (<http://labspace.open.ac.uk/>), an open virtual learning environment based on Moodle. Since October 2011 two hundred Colearn members started to use the OpenScout Tool library, a Social Network platform based on the Elgg framework (<http://elgg.org/>).

The OpenScout European project stands for “Skill based scouting of open user-generated and community-improved content for management education and training”. As part of this project, the OpenScout tool library (<http://openscout.kmi.open.ac.uk/tool-library/>) has been implemented as a social network of people that (re)use and adapt OER (Mikroyannidis, A. et al, 2010, 2011a). The OpenScout tool library aims at bringing together these people and enables them to share their experiences and best practices in (re)using and adapting learning resources. In addition, it aims at supporting case studies and learning scenarios, provided by different backgrounds and stages of the lifecycle of learning resources, including adaptation, collaboration and communication tools, in a perfect articulation with the OER principles of use, re-use and sharing contents, including multilingual access.

In order to accommodate the sharing of stories and resources, the Elgg social networking platform has been extended with plugins that enable this functionality. In particular, we have implemented a plugin extending the Elgg object class, in order to define a tool object in the tool library and provide a dashboard widget for searching, browsing and adding tools. Similarly, a second plugin has been implemented for contributing a story to the tool library. If the story is about using a particular set of tools, then the user can associate the story with tool objects in the tool library.

There is the opportunity for users to tag, comment, rate and recommend stories and resources throughout the tool library. Using these social metadata provides a rich method for filtering and identifying the most useful (e.g. highly recommended by peers) stories and resources for a user in a particular situation. For example, based on the format or license of a particular content a user has found, a suite of useful tools can be suggested. Users can also search for tools using the name, terms in the description, license or format.

Differently from the VLE LabSpace, Colearn members can apply the Tool-Library Social Network platform, which provides networking functionalities, to manage their social contacts based on their interests and institutional research groups as well as expand their learning and social ties, in a public or private way.

The Colearn participants who started to use Tool-Library are organised by 30 different academics groups of research in Education from Brazil, Spain, Portugal and England, who are classified in five teams: Doctors (45%), PhD students (10%), Master students (30%), Bachelors (11%) and Undergraduates (04%).

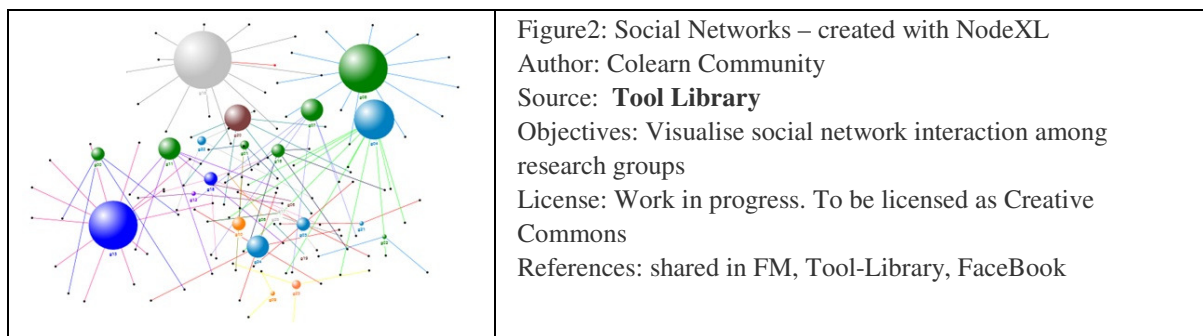
This study is applying two research methods of investigation: participatory observation and Research 2.0. The first method provides us with empirical observation for collecting and sharing data about group and user's behaviors within the OpenScout Tool Library.

Research 2.0 is used to collect and analyze data generated from analytics services such as Google analytics from the OpenScout Tool Library, as well as YouTube analytics and data collected from the initial online survey. In order to promote interaction and collaboration within participants, three important procedures were established by the Colearn Community in the Tool Library:

1. First procedure is a survey for all participants to describe both personal and research group interests as well as academic background, technology skills including experience with social networks.
2. Based on their interests, second procedure refers to production of an open educational media (an image, an audio-visual and a social network map) about the openness philosophy in Education connected to individuals and groups' research themes. This also includes a collaborative reconstruction of the open video clip "Shared Culture" created originally by Creative Commons.
3. The third procedure focuses on developing an OER unit in groups that integrates the open educational media components created by participants, such as open educational image, open educational video and open educational map as well as disseminating the OER production and OER tools through their social media environments.

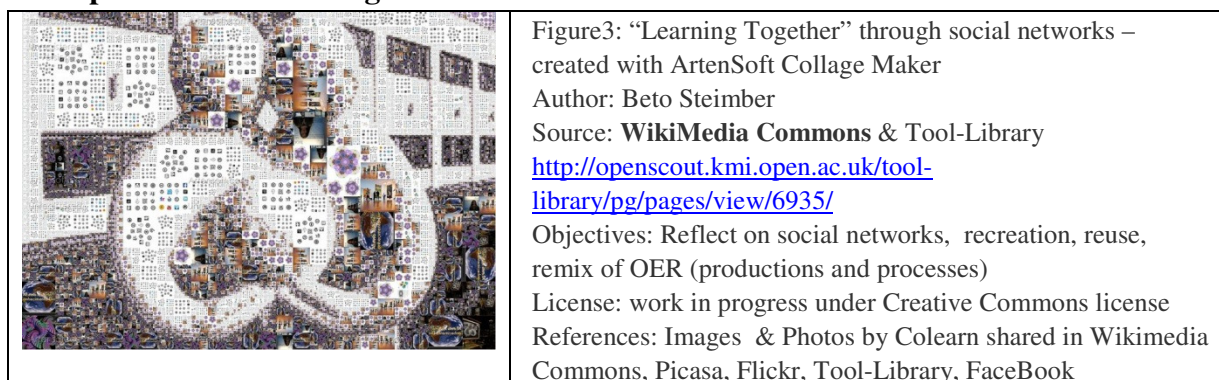
These three procedures helped Colearners to produce six kinds of content collaboratively: open educational information, open educational images, open educational videos, open educational maps, open educational units and open educational collection.

1. Open educational information



Open educational information generated by the Colearn Community has been shared in different social media environments: discussion forums in the Tool Library, individual and group interactions in Facebook, as well as microblogging in Twitter. This information concerns events, news, references and production of OER. Figure 3 shows a social network analysis of Colearn research groups with more than 200 people from different locations of Brasil, Portugal UK Spain and France. This image was developed in NodeXL by users of Colearn and was shared and discussed via the FlashMeeting video conference facility (<http://flashmeeting.open.ac.uk/>) and Facebook. This is part of a collaborative study about Participatory Social Network Analysis by OER communities (Okada, Meister and Mikroyannidis, 2012). The aim of this study is to examine different perspectives of a social network analysis developed by its own users. This case study focuses on the Colearn open social network in Higher Education interested in OER, as well as the application NodeXL, which is an open tool for social network analysis. The key claim of this study is that the ability to collect and analyse the actions of educational social network by its own participants offers useful perspectives on collaborative OER production and learning.


2. Open educational images



Open educational images created by the Colearn Community have been shared in different repositories, such as Wikimedia Commons, Flickr and Picasa as well as social networks Facebook and Orkut. All these images were created by using an open shared template defined by the community to facilitate location and reuse, including better understanding of learning context and objectives.

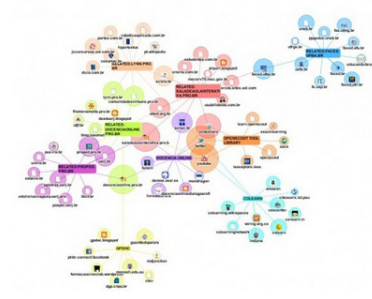
Colearners have been creating these images using a set of diverse tools shared in the OpenScout Tool Library. The community has been collaborating not only by creating open educational images but also adding more information in the OpenScout Tool Library about image editors (e.g. Powerpoint, Picasa, Gimpshop, Myoats, Kaleido, Sumo Paint, Free Online and Photo Editor) and sharing in Facebook. One of the key aims of the community is to understand how to create meaningful images with clear educational purpose explicit and how the image can help colearners construct new meanings as well as new visual interpretations by reusing the same image and different tools.

3. Open educational videos

	<p>Figure4: Web 2.0 OER and COLEARN community - created with iMovie Author: Ale Okada and Izabel Meister Source: Youtube & Tool-Library http://www.youtube.com/watch?v=pKnyuuR7pfQ&feature=related Objectives: Acquire a deep understanding of the OpenScout Tool Library social network and identify ways of contributing to OER book production License: Creative Commons References: shared in Youtube, Facebook, G+. Twitter, Tool-library</p>
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Open educational videos produced by the Colearn Community have been also published in different repositories such as YouTube, Vimeo and TeacherTube. These movie clips were also created through an open shared template. The intention of this template is to help users identify learning objectives and content. Diverse tools for editing and adapting movieclips were shared in the OpenScout Tool Library and its URLs were disseminated then in Facebook by participants. These tools include Picasa, Youtube, Video Editor, Windows Movie Maker/Windows Live Movie Maker, and Camtasia. Another aims of Colearn are to investigate useful strategies to facilitate adaptation of digital films as well as analyse how social media networks can contribute to disseminate and recreate new versions

4. Open educational maps

	<p>Figure5: Collaborative Learning network map - created with Touchgraph Author: Rosemary dos Santos Source: Tool Library http://openscout.kmi.open.ac.uk/tool-library/pg/pages/view/6935/ Objectives: Analyse how graphical visualizations can contribute to understand collaborative learning networks License: Creative Commons Attribution licence References: shared in Tool-Library</p>
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Open educational maps elaborated by the Colearn Community have been shared in Facebook and also in the same repositories of images. Several tools were used to create these maps (e.g. Compendium, Freemind, Mindmeister, Mind42 and Touchgraph). Some versions of these maps are available as in public maps repositories, such as the Openlearn LabSpace (<http://labspace.open.ac.uk/>) for Compendium Maps, as well as the CMap server (cmap.ihmc.uk) for maps created in Cmap Tools. The community is also interested in analysing how different visualizations through maps can be useful not only as educational content for learning but also as an useful method for OER research.


5. Open educational units

	<p>Figure6: Web 2.0 and Open Educational Recourses (OER) into learning and professional development - create in Word & Adobe Author: Colearn community Source: Colearn Facebook, OER Blog, LabSpace, Tool Library http://openscout.kmi.open.ac.uk/tool-library/pg/pages/view/4906/ Objectives: Be aware about openness philosophy and discuss the meaning of OER and social media for widening learning participation. License: Creative Commons References: shared in Facebook, G+. Twitter, Tool-library</p>
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Each research group of Colearn developed an open educational unit, which integrates open educational media components described above. These units have been shared in different repositories such as Openlearn LabSpace, OER Blog and OpenScout Tool-Library. The next

step for the community is to examine what are the key issues for designing the unit by integrating all these educational social media components.

6. Open educational collection

	<p>Figure7: Web 2.0 and Open Educational Recourses (OER) into learning and professional development</p> <p>Author: Colearn community</p> <p>Source: OER BLOG, Colearn Facebook and twitter, http://oer.kmi.open.ac.uk/?page_id=138</p> <p>Objectives: Reflect and discuss how web 2.0 and OER social networks can be used for learning and professional development</p> <p>License: Creative Commons</p> <p>References: shared in Facebook, Likendin, G+. Twitter, Tool-library</p>
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Open educational collection created by the Colearn Community is an example that aggregates all open educational units in order to share the work of all Colearn research groups. This collection constitutes a OER book, which is available in different formats such as WIKI, PDF, HTML, and EPUB for facilitating peer reviews, feedback, reusability and recreation of new work. Future research for the Colearn community is to investigate the key issues for disseminating and adapting a collection collaboratively, as well as strategies for obtaining feedback.

Brief Summary

The rapid increase of social media suggests the importance of investigating strategies for developing social networks around OER, not only for social learning, but also for collective production. All these important roles that social media play are very significant for improving quality and reusability of OER such as: fast feedback, self-motivation, self-guidance, sensemaking, community-generated knowledge and collective intelligence.

There are, however, many important issues to be considered for producing OER using social media such as:

- Communities of practices who share clear and useful ways for co-authoring OER.
- Educators professional development for OER creation & reuse.
- Peer review process to assure quality of OER .
- Participation of learners in selection, reuse and adaptation of OER.

Some barriers observed in this study described by participants which were discussed in the Tool-Library, Facebook and Twitter:

- Lack of time for managing various social networks environments as well as exploring and getting accustomed to the Tool Library.
- Difficulties in the use of collaborative technologies, including finding and selecting relevant OER tools.
- Lack of information about open license, REA and ways to convince the participants' institutions to participate in the OER movement.
- Low experience in creating and sharing OER reuse and low understanding of the benefits of REA and potential impact.

Conclusion

This research has presented meaningful ways of collaborating using social media for coauthoring OER. Social media play several key roles for improving quality, reusability and dissemination of OER. This study summarized some benefits and challenges that co-educators and co-learners face when producing RLC collaboratively through social media. Future research will report progress on important issues mentioned in this study regarding social network analysis, reusability tracking, new strategies and methods to facilitate OER coauthoring and collaborative learning.

Acknowledgment

This research has been co-funded by the European Commission within the eContentplus targeted project OpenScout, grant ECP 2008 EDU 428016 (cf. <http://www.openscout.net>).

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