

# OER as a Model for Enhanced Teaching and Learning

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## Abstract

This article presents preliminary findings from a research study conducted by the Institute for the Study of Knowledge Management in Education on the role of open educational resources (OER) in transforming pedagogy. Based on a study of art and humanities teachers participating in an OER training network, the study reveals how exposure to OER resources and tools support collaboration among teachers, as well as new conversations about teaching practices. These findings have implications for engaging teachers in adopting new OER use practices, and for how OER can be integrated as a model for innovation in teaching and in resource development.

## Keywords

Open Educational Resources, OER, teacher professional development, knowledge sharing, collaboration, social networking tools, Ning, teaching and learning, pedagogy

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# Introduction

A growing body of literature in the field of education offers insights into the ways that open educational resources (OER)—defined as freely available resources with non-restrictive licensing—create accessibility and cost benefits for teachers, learners and the institutions of which they are a part (Bateman, 2006; Allen, 2008; Seidel, 2009). In an effort to lend to the sustainability of OER and support communities of users who are able to engage in OER materials, much of this literature has also focused on identifying the structures and process that support OER creation, findability and reuse (Stephenson, 2006; Petrides et al., 2008; Petrides & Jimes, 2008). Less prevalent in this scholarship are empirical studies on the role that OER plays in teaching and learning, and as a transformative force in education.

This article presents key findings from research by the Institute for the Study of Knowledge Management in Education (ISKME) that examines the use of OER in transforming pedagogy. The point of departure for the study is that OER, as digital and dynamic resources, have the potential to enhance teaching and learning practices by facilitating communities of teachers who collaborate, share, discuss, critique, use, reuse and continuously improve educational content and practice (Petrides & Jimes, 2006; Frydenberg & Matkin, 2007; Geser, 2007; Petrides et al., 2008; Casserly & Smith, 2009). Additionally, the study draws on conceptualizations of school change and reform presented by education scholars including Grubb and Tredway (2010). Grubb and Tredway argue for the importance of more participatory, teacher-generated professional development in assessing and improving teaching practice—wherein teachers make meaning for themselves and each other as they participate in interactive problem solving about teaching practice. Through analysis of data collected on teachers participating in an OER training network, this article explores the role that OER—as a potential support teacher knowledge sharing and engagement—plays in teacher professional development, meaning making and interactive problem solving about teaching practice.

## Methodology

Since 2005, ISKME has conducted research on the impact that engagement with OER has on teaching and learning. The findings presented in this article are based on a segment of this data, collected over 12 months, on a group of art and humanities teachers participating in a comprehensive OER training network from March 2009 to March 2010. The network included a program of training on OER access, use and implementation in the classroom, as well as on using collaborative technical infrastructure to support teacher knowledge sharing and access to OER materials. The technical infrastructure included an OER Ning, where teachers could share, discuss and post information about resources and resource use in their classrooms; a resource platform, OER Commons, where teachers could find resources, rate, review, and share knowledge about use of resources; and a Wiki, where teachers could create new OER individually or in groups.

The primary object of study for the research included the Ning activities of 136 teacher participants in the OER training network. Ning discussion threads were analyzed to assess types and frequency of interactions, types of knowledge being shared through the Ning, including indications of participants' experiences developing and integrating OER into their work. Content analysis was also conducted of all artifacts created on the Ning to assess the types and formats of materials and information being shared, such as blog posts, discussion threads, events, photos, and videos. Additional data were collected through participant observation on the Ning by a researcher who posted discussion forum questions to assess participants' challenges faced in engaging with OER and stories of how they were or had been using of OER.

Sixth months after teachers had been introduced to OER through the training network, ISKME administered follow up surveys and conducted interviews with a subset of the teacher participants. The aim of the survey was to assess teachers' use of and experiences with OER, and how their engagement with OER impacted their teaching practices and perceptions of their role as teachers. A total of eighteen teachers responded to the web-based survey, which was administered through email to teachers who had participated in the networks' OER training workshops and training webinars. Interviews were further conducted with eight participating teachers, selected due to high level of engagement in the project—as teacher leaders who demonstrated and shared knowledge about OER use to other teachers in their schools. The interviews sought to add depth to the survey and Ning data, specifically in terms of assessing how engagement with OER supports new teaching and learning practices and perceptions.

## Findings

The sections below provide preliminary evidence that reveals how participation in the OER training network—with access to, training on and technology for OER resources—supported teacher knowledge sharing, collaboration and access to adaptable resources to meet classroom needs. It is important to note that this study does not attempt to provide a comprehensive assessment of the impact of OER on teaching and learning; instead it aims to explore some of the ways a particular group of teachers—that is, those participating in the OER training network from March 2009 to March 2010—discussed, shared, and collaborated around open educational resources toward enhanced teaching and learning.

### Teacher Knowledge Sharing

Analysis of the OER Ning associated with the OER training network revealed a community of 136 participants engaging around learning resources, ideas about use of those resources, challenges and successes in their teaching practices, and other teaching or professional development-related issues. In total, the OER Ning community posted 349 teaching and learning artifacts, a breakdown of which is provided in Figure 1.

Further analysis of the above artifacts to determine their content themes revealed that Ning participants shared ideas about learning resources (33 percent of artifacts), teaching challenges and teaching ideas and approaches (30 percent combined), and other issues related to teaching and to teacher professional development, such as policy issues related to teaching (11 percent) and teaching events and opportunities (10 percent), outlined in Figure 2.

Examples from the artifact analysis that illustrate the above themes—and specifically the teaching challenges and teaching ideas and approaches themes—include a posting where a participant posted a question on the discussion forum asking how to help students overcome shyness in class. Six other Ning participants described their own methods, with one participant responding with a link to a game that had been successful in working with timid students. Another participant posted a discussion question about how to address waste management in the classroom, and three participants responded with similar concerns or suggestions for tackling the issue. One participant responded by thanking other participants and relating how she planned to implement one of the suggestions discussed. One of the most active discussion postings (with 10 postings total) centered on the challenges of assessing students' assignments for art class, without judging or stifling their creativity. Teachers shared their own approaches to assessing the arts in the discussion thread, and posted relevant documents or links to resources.

## Collaborative Learning

The analysis of artifacts on the Ning also revealed evidence of emergent, concrete collaborations around projects between participants. For example, one participant posted a discussion thread titled “Creativity Challenge” in an attempt to instigate a group to share each others' art and stay innovative. Five participants responded with interest in joining or to thank the original poster. Another participant posted possible collaborative project idea between teachers, and a participant responded looking for art history collaborators for a different project.

The interviews underscored these findings. Six out of the eight participants interviewed mentioned actual or potential collaborative activities resulting from their engagement with OER. Specifically, participants discussed the potential for and actual collaboration among teachers, across disciplines and beyond their school networks. One-half of the participants discussed OER in the context of connecting to others, networking or addressing isolation. According to the interviews, current education priorities and cuts in programs have created a greater need for an alternative community for teaching artists outside of the school setting. Some viewed OER as a way to address this need. Three participants provided examples of how OER enhanced or could enhance their possibilities for multidisciplinary work.

The interview data also indicated that OER has the potential to drive an evolution in the roles of teachers and their students. Four of the participants indicated that OER helps teachers become learners by exposing them to new tools, resources, and skills, and two suggested that the possibility of teachers and students working together to create content that enables students to take more responsibility for their own learning

## Access to Sharable, Adaptable Resources

Analysis of the interview and survey data further revealed that OER served as a mechanism for participating teachers to gain greater exposure to lessons, best practices and new ideas to adapt and incorporate into their teaching. Specifically, two survey participants on an open-ended survey question reported the benefit of OER to be the availability of lessons that can be copied and edited to fit teachers' needs. Impacts of OER discussed in interviews included opening up the definition of resources and increased documentation of teaching practices tied to OER use. One interview participant spoke of sharing OER content with others and framed it as a way of supporting the production of nimble resources that would help drive higher level school reform.

Analysis of survey data to assess participants' frequency of engagement with OER revealed that most participants had engaged with OER at least once during the six-month period following their initial training on OER. As revealed in Figure 3, 66 percent (12) of survey participants reported that they had used OER, with a combined total of 33 percent (6) using OER weekly or monthly, another 33 percent (6) using OER approximately 1-3 times, and 33 percent (6) not having used OER.

Nine of the survey participants further indicated that they had incorporated and used OER in several ways as part of their teaching process (the remaining nine survey participants did not answer this survey question). As shown in Figure 4, preparing for lessons and sharing with colleagues surfaced as the most frequently mentioned uses of OER (both at 67 percent). The survey also indicated that to a lesser extent (22 percent), teachers incorporated OER into presentations for students; none of the teachers indicated that they require or encourage students to use OER as part of their school work.

Furthermore, when integrating OER into their teaching practices, the greatest percentage of survey participants remixed OER content by combining it with their own or other's educational materials. Specifically, when asked about how OER materials were reused by teachers, 67 percent (6) indicated that they had remixed OER, 33 percent (3) indicated that they used OER content "as is", and twenty-two percent (2) reported that they had edited OER to meet their local classroom needs. Figure 5 details this breakdown.

## Conclusions and Implications

The analysis revealed that teachers' engagement with OER has the potential to support enhanced teacher collaboration and curriculum development activities as well as information sharing about resources, practices, and teaching challenges. Participation in the OER training network and engagement with OER not only reduced teacher isolation, but also helped expand teachers' roles and to become more active innovators as they shared and learned from one another. OER—as resources that lend themselves to collaboration, knowledge sharing about practices, adaptation and reuse—support conversations and practices that may not traditionally be available through professional development.

The findings have implications for engaging teachers in adopting new curriculum development practices—including documenting teaching practices tied to OER use and having students use OER as part of their school work. The findings also have implications for how OER can be integrated as a

model for innovation in teaching—particularly in terms of the design and implementation of professional development and training models. The findings indicate the importance of identifying and assessing ways to inspire teachers—beyond an initial group of OER leaders or champions—to form OER communities around personal teaching challenges and pedagogical approaches for collaborative problem solving. In light of the innovations and knowledge sharing that resulted through the network of teachers engaged around OER, continuing this model of teacher collaboration and supporting teachers through professional development becomes central.

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## Tables

Category	Percent (n)
Photos	46% (161)
Discussion forum postings (questions or responses)	41% (142)
Blog postings	6% (20)
Events	5% (16)
Videos	3% (10)

**Table 1. Artifacts posted on the Ning by participants, over a 12-month period (N=349)**

Category	Percent (n)
Teaching and learning resources	33% (53)
Teaching challenges	15% (25)
Teaching ideas and approaches	15% (24)
Personal information (background, teaching experience, and other information)	14% (23)
Policy issues related to teaching	11% (18)
Upcoming event or opportunity related to teaching role	10% (17)
Teaching tools	1% (2)

**Table 2. Themes of artifact postings on the Ning (N=162)**

Level of engagement	Percent (n)
Daily or almost daily	0% (0)
Once or twice a week	22% (4)
Once or twice a month	11% (2)
Approximately 1-3 times	33% (6)
Never	33% (6)

Table 3. Level of engagement with open educational resources (N=18)

Ways OER is integrated in practice (Participants select all that apply)	Percent (n)
Use OER to prepare for lessons	67% (6)
Share OER with colleagues	67% (6)
Incorporate OER into presentations for students	22% (2)
Have students use OER as part of school work	0% (0)

Table 4. Ways that OER is integrated into teaching practices (N=9)

Forms of localization (Participants select all that apply)	Percent (n)
Remix OER by combining with own or other educational materials	67% (6)
Use OER "as is"	33% (3)
Edit OER to meet my needs	22% (2)

Table 5. Ways that OER is localized to meet teaching needs (N=9)

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