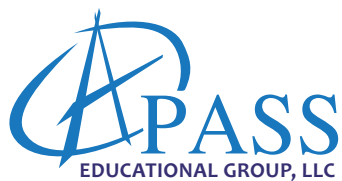# Technical Hurdles to Widespread OER Acceptance

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Since open educational resources (OER) appeared on the educational scene in 2002, they have generated great intellectual interest, billions of dollars in investment, and ongoing development by high-profile institutions. Yet acceptance of OER, even at the university level, has yet to reach the jumping-off point from which these resources can start to achieve their potential. Some of the hurdles to such acceptance are technical in nature; some are pedagogical. In this paper, we look at the technical aspects.

Funding Issues

The earliest successful OER repository was OpenCourseWare, launched by MIT in 2002. With its complete catalog of 2,300 courses online and the ability to reuse and update materials, MIT has set a very high standard for its competitors. However, it is important to note that MIT funds this initiative through corporate donors, private



Receiving Money
Vector Icon EPS10

foundations, and a considerable endowment. It is extremely difficult to create and maintain resources such as MIT's without these sources (Pena, 2009).

Twenty-six states in the United States have earmarked taxpayer funding for OER repositories. For example, in 2012 New York paid four vendors a total of $36.6 million out of its Race to the Top award to provide standards-aligned content for its program, EngageNY. Judging by its volume of users—by 2016, there had been 45 million downloads by users in New York, the rest of the country, and other nations—EngageNY has been a significant addition to the OER landscape.

Unfortunately, those millions of dollars were for initial development costs, not ongoing maintenance, expansion, or public outreach. These activities have been taken up by UnboundEd, a nonprofit foundation started in 2016 that has received millions of dollars in funding from other nonprofit and corporate sources (Cavanagh, 2015; Heitin, 2016).

Rights Issues

The question of how to fund development and upgrades to OER sources leads right into a discussion of copyright. New York's original request for proposals (RFP) included strong language that copyright to any materials created for EngageNY would be held by the state, and no vendors chose to respond. Judging that private companies felt there was no room for profit with that restriction, New York revised its RFP so that vendors who create the content would hold the copyright. Anyone downloading
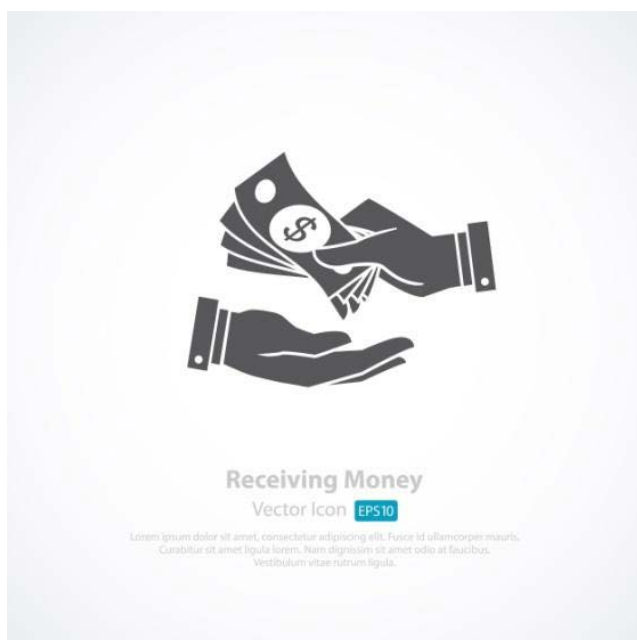
materials from EngageNY could do so with no charge, but the vendors were allowed to profit from their materials through other product offerings. Thus, one of the vendors markets printed versions of the EngageNY materials to entire school districts. Another vendor charges districts to provide staff with professional development and coaching on its EngageNY materials. Kate Gerson, a former senior fellow at the Regents Research Fund, a nonprofit which supports the New York State Education Department, noted that when discussing the quality of the EngageNY materials, "You have to solve the who-pays-for-it question, if you're going to develop good material" (Cavanagh, 2015; Heitin, 2016).

Another obstacle to true open access is the current regime of digital rights management (DRM), in which authors and institutions restrict how consumers can copy, repurpose, and redistribute digital media they've purchased. Educational institutions and their faculty members sometimes use DRM systems to protect the content they generate. Since educational institutions invest heavily in creating and distributing such content, they have an abiding interest in how it is shared. Individual creators also want to get credit for their work, maintain the integrity of it, and even get paid for it. Thus, self-interest, as in the case of EngageNY's vendors, limits the adoption of open access for distributing content unencumbered by restrictions (Berkman Center, 2005).

Quality Issues

Beyond funding and rights concerns, many authorities feel that more needs to be done to ensure the quality of resources before teachers and school districts will embrace OER. One idea is to create an edit/design network, similar to the voluntary model used by Wikipedia, to assess existing and new OER as to their academic quality, educational effectiveness, and certain social aspects that may need attention such as cultural context, language, gender stereotypes, and so on. Although individual repositories carry out these tasks to a greater or lesser extent for the materials they curate, and some regional and national organizations are developing standards, there is no overarching infrastructure across the entire industry (Teachonline.ca, 2015).

Although it may seem like establishing industry-wide standards would be the holy grail of OER, some progress has been made. A 2013 study of 80 OER repositories elicited 10 indicators of quality assurance that are necessary (Atenas & Havemann, 2013):

- Specially featured, high-interest resources
- User tools for resource evaluation
- Peer review of resources
- Identification of authors and their backgrounds
- Availability of comprehensive keywords for easy searching
- Use of standardized metadata
- Support for multilingual users
- Ability to share resources through social media

- Use of Creative Commons licenses

- Ability to download original files or source code of resources for adaptation

Although these indicators are all characteristic of multiple repositories, the only one to approach being universal is availability of keywords. Only three others (Creative Commons licenses, identification of authors, and social media support) were found in even half of the surveyed sites.

Linkage Issues

Since OER repositories are by and large curated by separate entities, each with its own purpose and standards, there is limited connection between them. Therefore, unless a potential user has a cheat-sheet of resources that the various archives control, any search for materials is likely to be somewhat incomplete.

In fact, the search could actually be more cumbersome than a regular canvass of the Internet: the user must find a likely archive, search through its topics to see if it might have what the user is seeking, and then evaluate a seemingly appropriate resource and probably move on to the next repository to try to find something better.

In addition, feedback loops between repositories and clients are not always user friendly. Sometimes—especially if the client is a trusted user of the repository—the client can upload changes to archived materials, which will then be vetted by the repository staff. In other cases, the user is directed to contact the owners of the site, who will determine whether to consider changes to old material or additions of related sources. And unless a repository has an active program to search out new material or new ways of interpreting old material, updates may be infrequent, especially if the total number of sources in the archive is very large. In that case, it falls to the users to update the materials for themselves, essentially defeating the purpose of the archive.

Conclusion

The potential of OER for increasing worldwide access to learning cannot be ignored. The industry is still very young, and is only starting to attract necessary funding, develop resources, and accept standardization. Although there are myriad technical hurdles to overcome, the value of a positive outcome is certain to keep OER proponents striving to achieve their vision.

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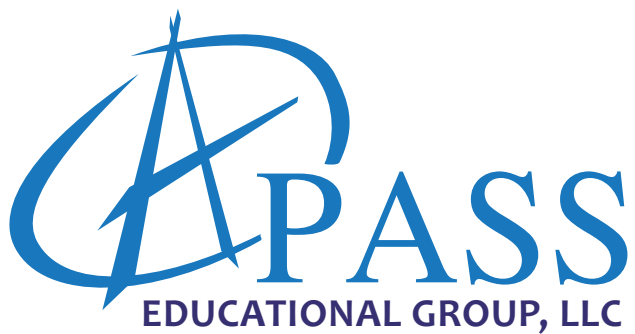
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