

## Looking for Quality in Open Educational Resources

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**Abstract:** This paper briefly identifies and considers the implications of six quality categories that must be confronted when seeking to use Open Educational Resources in course design and development: content, presentation design, level of openness, resource size, use of technology, and “findability.” Based on the experience of the “Look OER” searches, it then offers several recommended strategies to overcome and address these quality-related issues when searching for and using OERs.

### Quality and Open Educational Resources

The development and sharing of open educational resources (OERs) has been described as a movement with the potential to “stimulate, facilitate and catalyze growth of the pool of learning resources on the Internet which circumvent barriers to access and lift restrictions on usage, thus improving education” (Wikieducator, 2009). If this movement is to take hold, however, OERs must be and be seen to be of high quality (D’Antoni, 2008). Achieving a high level of quality will either involve the development of OER markets that include “mechanisms for ensuring or certifying quality” (Johnson, 2003), or rely on teachers and learners who “are themselves able to assess the quality of the content that can be drawn from the repositories” (Geser, 2007).

Yuan, MacNeill and Kraan (2008) identified three possible approaches to assess the quality of OERs: an institution-based approach in which “the brand or reputation of the institution to persuade the user that the materials on the website are of good quality, such as the OpenCourseware initiatives and UK Open University’s OpenLearn initiative; a peer-review approach like that used in academia; and an open users’ review approach in which users rate resources and/or describe their use, or sites show the number of downloads for each resource on the website, such as Rice University’s Connexions project.

Whether used separately or in combination with one another, these approaches are all dependent on a thus far elusive definition of OER quality. Geser (2007), for example noted that “quality criteria and assurance will also, and perhaps particularly, play an important role in the provision of open educational content” and alluded to the importance of mechanisms such as “automatic provenance detection and quality assurance,” but offered no insight into what the actual criteria would be (p. 23).

Often the term quality is defined in terms of the accuracy of the content. Content quality is perhaps the most salient aspect of OER quality; a learning resource is of little or no use if it is well designed in all other respects, but its content is inaccurate or misleading (Leacock & Nesbit, 2007). Connexions addressed the importance of content quality through the inclusion of lenses that “enable both organizations and individuals to give their stamps of approval to content in the Connexions repository, allowing for user-driven quality control” (Connexions, 2007).

Nesbit, Belfer and Vargo (2002), however, argued that content quality is only one of many quality-related criteria of educational resources. They proposed a more thorough series of quality criteria for e-learning resources, the Learning Object Review Instrument (LORI). An online form consisting of rubrics, rating scales and comment fields, it took a more comprehensive view of quality and identified nine categories for quality evaluation: content quality, learning goal alignment, motivation, presentation design, interaction usability, accessibility, reusability, and standards compliance. Using this more comprehensive definition of quality as a starting point, we set out to identify high-quality open educational resources.

## Open Educational Resource Search

The “Look OER” project was a joint Athabasca University-University of the West Indies project seeking to use Open Educational Resources to build online post-secondary courses. As part of this project, the first two authors as graduate research assistants were asked to conduct six Internet searches to locate OERs that could be used to build a series of post-secondary online courses in the area of Instructional Design – courses of interest to both UWI and AU.

Over a 10-day period in February 2010, they performed three Internet searches related to one module of a new course. The course modules searched included (1) Designing and Developing Online Courses: Models for Developing Online Courses and Learning Strategies in Online Learning, (2) Emerging Technologies: Social Software and Games in Learning, and (3) Leading and Managing Instructional Systems: Organizational Plans (Strategic, Tactical, and Operational) and Quality Control and Assurance.

As OERs were located, a report was entered using a template the third author created in Survey Monkey. For each OER, we recorded the object name, URL, how it was located, its length and any available copyright information. We also included the FOG Readability Index rating, and a short description of the item and its recommended use. We held a brief review of the results for each module before going on to the next search. After completing all three searches, we reviewed our results, and selected our “top OER picks” for each module. We then created a table for each module listing the name of the asset, important positives and negatives related to the asset, the survey number for that asset, and the potential use for the asset .

## Quality Issues Identified in our OER Search

Prior to this search, the research assistants had both looked at, evaluated, and constructed online educational resources in the context of AU’s Master of Distance Education Program (Richards & Nesbit, 2004). Thus they had previously considered many of the quality-related issues discussed above. During the OER searches, however, the prospect of selecting “good” OERs for someone else introduced a new perspective on the question of quality.

At the beginning of the search process, the conception of quality was largely based on the LORI scale (Nesbit, Belfer & Vargo, 2002). Some of the OERs found clearly met many of its criteria for quality: They were accurate, well-presented and relevant. For example, in the Models for Developing Online Courses search, a complete open course on the ADDIE model of instructional design from Utah State University was unquestionably a high quality resource in terms of content, organization and presentation. But was it what the course-writer was looking for? Would the audio and video files present accessibility issues to learners in the West Indies? Was its scope too narrow or too broad? Would the links to copyrighted material present problems? Could it be modified?

As the searches continued, it became apparent that some of the LORI quality criteria were more relevant to the search than others. The nature of OERs also led to consider quality criteria not in the

LORI scale including the level of openness, size and “findability.” Moreover, it was quickly discovered that the importance of context and subjectivity in determining the quality of OERs in searches could not be understated. Objective rating of OER quality gave way to a process of categorization and subjective comparison based on what was perceived to be the needs of both the course designers and future students. This experience supported Nesbit et al.’s (2002, para. 3) assertion that ...it is insufficient for reviews to return only numeric quality ratings: Reviews can most strongly benefit users by elaborating on pre-existing metadata to describe the situations and contexts in which the objects can be appropriately used.

The following section describes six recurring quality-related categories that arose during the search process: content quality, presentation design, level of openness, resource size, use of technology, and “findability.”

## Content Quality

Before the searches, identifying high-quality content had been considered a priority. The accuracy and applicability of the content within OERs, however, presented several problems.

### Accuracy

Clearly the accuracy of the information within an OER is an important indicator of quality. Questions that should be asked when assessing the accuracy include: Who wrote it? Do they have expertise in this field? Does it contain any mistakes? Does it present a full picture of the issue in question? Is there another perspective on this topic that should also be represented? Unfortunately, these questions were often left unanswered in our searches. Since many websites, blogs and learning objects were unaccredited, a determination of accuracy and credibility was often impossible. To compound this difficulty, many wikis cautioned that their content “may contain errors”. How much does one rely on content that comes with a warning that it may be incorrect? In addition, it appears that many OERs are being developed by individuals in their spare time. A large number of these are obviously incomplete or “under construction”—again making accuracy difficult to assess.

### Applicability

Two main questions arose with respect to applicability: How closely did the OER content match the learning objectives of the new course; and how many changes would be required for the OER content to meet the needs of learners? Context again reared its head—while the academic level of learners was known, other information was lacking that would have helped to accurately pin down their needs and characteristics. Nesbit et al. (2002) suggested that to rate applicability of a learning object, there must be “an emphasis on the importance of context, which is defined in terms of learning outcomes, characteristics of the learner, and placement of the materials within a learning strategy” (para. 24). Without this information, the ability to accurately determine the applicability of OERs is severely impeded.

### Presentation Design

In our searches, we attempted to locate a cross-section of print, audio, video and slide presentations; some searches were more successful than others. Perhaps not surprisingly, social software offered the

most diverse open content, with quality assurance resulting in almost exclusively print-based resources. Moreover, within print-based resources themselves, the presentation quality varied significantly ranging from large blocks of undifferentiated text in some wikis, blogs and other sites, to professional-quality textbooks and study guides that elegantly employed headings, charts and tables, and advanced organizers to structure their material. Thus, although content was identified as a high-priority early on in this project, a push-pull relationship between content and presentation often came into play when considering the quality of an OER. Is it, for example, easier to begin with a fairly generic but nicely presented and well-structured OER and then improve and/or customize the content, or to locate the most accurate and applicable content and then develop the course structure and presentation?

## Level of Openness

By definition, openness should be a criterion by which OERs are selected. In our searches, however, we consistently (with perhaps the exception of the Social Software search) found the level of openness of OERs to be problematic. In fact, the lack of clarity, complex referencing, and ambiguity of web content copyright was the most surprising revelation of this entire undertaking. Copyright laws vary from country to country, and their implications are complex. Moreover, “open licences” such as Creative Commons also have varying degrees of restrictions including, but not limited to:

- Open with attribution
- Free documentation licence
- General public licence
- Share alike
- Non-commercial
- No derivative works
- Public domain

Although the practical implications of these restrictions for an educational institution developing courses are beyond our area of expertise, it is clear that many OERs are often not fully open. Geser (2007) noted that about two-thirds of content made available under a Creative Commons license carried restrictions on their commercial use. Moreover, Daniel, West and Mackintosh (2006) warned that this “can have the effect of closing open educational resources to just the type of use that the originators would like to see, especially in developing countries” (p.641).

In addition, many OERs link to external academic articles, textbooks, and other copyrighted materials. These links are potential barriers to post-secondary institutions seeking to build online courses using OERs; an OER that provides study questions for students related to a copyrighted article, for example, would be useless without permission to use the article itself.

Again, context will determine whether selecting OERs with higher levels of openness is preferable to choosing a resource that would, according to other criteria, be considered to be higher quality. Similarly, depending on the context of use, a particularly relevant resource might be worth the additional time and money required to clear copyright if the object carries sufficient information to ascertain ownership.

## Resource Size

Like most of the other quality-related issues discussed thus far, the size of a resource can be qualified as neither good nor bad without considering its intended use; different sized resources can have very different, though equally important, roles in course development. South and Monson (2002) stated,

“Determining the degree of granularity of what should constitute a learning object is a foundational decision for any project. There is not necessarily a correct level of granularity... The optimal level of granularity must be determined for each project based on its individual goals” (p. 2). Although they were referring to the development of educational resources, their comments are equally applicable to their identification and application. It may, for example, be difficult for course developers to scale down a full-length course to create a single module on the same topic. Conversely, during our searches an excellent 30-second video clip was filtered out in the sorting process because it was deemed to be too small to include as a “top pick.”

## Use of Technology

A variety of technical issues also have an impact on the overall quality of OERs. The poor technical quality of some media clips was a significant, and least subjective, source of problems. Several resources were so poorly recorded that they were completely incomprehensible.

Another important quality issue related to the use of technology involves the level of Internet service and computer hardware available to learners. Slow Internet service, limited bandwidth and the use of old computers or small, handheld devices might make some sophisticated presentations of content, including video and audio, inaccessible to learners; depending on the specific learning context, simple text-based OERs might represent a higher level of quality with respect to the use of technology.

## “Findability”

Perhaps the most important, quality-related issue for OERs is “findability”; if it can’t be found, an OER can not be re-used. After 60 hours of combined searching, we both happened upon the same, excellent open resource outside the scope of this project. Moreover, even locating the repositories themselves can be a challenge. We started our searches with a list of 48 links to OER-related sites. We then identified many more through our searches. Just after the end of this project, an article surfaced about the SLOOP repository’s efforts to develop a tool that would simplify the phases of design, edit, share, search and use of open content (Fulantelli et al., 2008). In a fitting bit of irony, neither of us had come across SLOOP in all of our work on this project. These accidental finds suggest that we need to sharpen our approach to finding OERs, developers must post their material in a way that it (and the reviews) can be found, and organizations storing OERs must work harder at working together. Clearly, the lack of an economic model to sustain the warehousing and distribution of OER poses both a short and long-term implications.

## Recommended Strategies to Address OER Quality Issues

Given the six quality-related issues discussed above, the definition of OER quality is clearly closely tied to its intended application. Although the specific needs of each individual project will be different, a series of strategies to address OER quality issues developed during the “Look OER” project should help to future searchers identify quality in OERs. It is recommended that OER searchers have expertise in the field of the search, use a multi-stage filtering system, and develop agreed-upon quality criteria before searching.

### Have Expertise in the Field of the Search

Online distance education information is ubiquitous, and there are many inferior websites that claim to be experts in the field. Some sites have peer review ratings, however these appear to be underused.

As a result, selecting resources high in content quality requires a relatively high degree of knowledge about the search topic including its theory, practice, and history. Most of our OER searches related to recently completed coursework in Athabasca University's Masters of Distance Education program. The knowledge and experience derived from our graduate studies helped us to identify the relevance, accuracy and potential applicability of the OERs. The Games in Learning search was, however, an exception. With no previous knowledge or experience in the field, determining the content quality of OERs for that module was nearly impossible. Ultimately, it required a preliminary search of the field's literature to define the field, before seeking out relevant OERs. Therefore, we strongly recommend that searchers ensure they have a relatively high level of knowledge with respect to the field in question before searching out potentially usable OERs.

### Use a Multi-Stage Filtering System

At the beginning of each OER search, we had no idea what we would find. At some points in our searches, apparently high-quality OERs were located in just a few minutes; in others, hours of searching produced only mediocre results. Thus, while completing the initial survey results, it was impossible to determine the relative quality of each resource because we had no idea what we would find next. Moreover, reviewing our survey results with fresh eyes after a break from the search, they often looked better (or worse) than they had in the thick of the search. Re-sorting the OERs located for each module after completing each search was therefore essential in determining their relative quality, and presenting the information gathered during the search into a format usable for course writers.

Although we used a simple survey tool during the "Look OER" search, a moderately more sophisticated, searchable database or social tagging system have great potential in helping OER users to identify resources that meet their specific specifications for quality. Using such a system, a course writer could, for example, quickly pull up a list of all full-length courses related to Quality Control and Assurance and then sort them according to their level of openness or use of technology. The key to the success of such a system would be in its use of categories and descriptors beyond content quality that would enable users to themselves seek out OERs that meet their own specific quality-related needs.

### Develop Agreed-Upon Quality Criteria before Searching

Before beginning our searches, we met briefly to discuss what constitutes quality in OERs. Building on the LORI scale, our pre-search discussion identified many important quality criteria including content accuracy, readability, copyright, and technical problems. These quality categories were an essential starting point for our OER search. More in-depth discussions and consensus-building around the quality-related issues identified during this search would unquestionably improve future searches; knowing what you are looking for makes it much easier to find. Taking the time to determine specific needs in terms of both content and structure early in the process is therefore important.

### Conclusions

Defining quality of an OER is much more complex than simply rating the accuracy of its content. Moreover, when seeking to use OERs to build online courses, what constitutes quality is largely subjective and varies from project to project, based on the audience, the level of learning, learner needs, delivery method, and resources available for project development. In the "Look OER" project search, six different quality categories arose: content, presentation, level of openness, resource size, use of technology, and "findability." This list of categories is by no means exhaustive. Several other LORI criteria, including accessibility and learning goal alignment, as well as the role of dynamic vs. static

content should likely also be considered when determining the quality of OERs for a specific use. Discussion and mechanisms that identify important quality-related categories and issues are therefore an essential first step in selecting and using OERs. Just as we normally spend a good deal of time determining what we are looking for in a new car, so must we devote time considering what exactly we are looking for in an open educational resource.

Open Educational Resources offer the potential to transform and enhance distance education. Moving learning objects and open educational resources into repositories to increase their discovery is an important first step. The long-term key to their usefulness will, however, be determined by the ability to access and use what has been stored to create high-quality online courses able to meet the needs of diverse learners.

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#### References

Anderson, T. & Elloumi, F. (2004). Theory and practice of online learning (2nd ed.). Retrieved from [http://cde.athabasca.ca/online\\_book/contents.html](http://cde.athabasca.ca/online_book/contents.html)

Connexions (2007). Introducing Content Reviewing with Lenses [online article]. Retrieved April 22, 2010 from <http://cnx.org/news/LensesIntroduced>

D'Antoni, S. (2008). Open educational resources: The way forward deliberations of an international community of interest. Retrieved from [http://oerwiki.iiep-unesco.org/images/4/46/OER\\_Way\\_Forward.pdf](http://oerwiki.iiep-unesco.org/images/4/46/OER_Way_Forward.pdf)

Daniel, J., West, P., & Mackintosh, W. (2007). Exploring the role of ICTs in addressing educational needs: Identifying the myths and the miracles. *South African Journal of Higher Education*, 21(6), 632-642. Retrieved from Education Research Complete database.

Fulantelli, G., Allegra, M., Gentile, M., & Taibi, D. (2008). The open learning object model to promote open educational resources. *Journal of Interactive Media in Education*. Retrieved from <http://jime.open.ac.uk/2008/09/jime-2008-09.pdf>

Geser, G. (2007). Open educational practices and resources – OLCOS Roadmap 2012. Retrieved from [http://www.olcos.org/cms/upload/docs/olcos\\_roadmap.pdf](http://www.olcos.org/cms/upload/docs/olcos_roadmap.pdf)

Johnson, L.F. (2003). Elusive vision: Challenges impeding the learning object economy. Retrieved from [http://download.macromedia.com/pub/solutions/downloads/elearning/elusive\\_vision.pdf](http://download.macromedia.com/pub/solutions/downloads/elearning/elusive_vision.pdf)

Leacock, T. L., & Nesbit, J. C. (2007). A Framework for Evaluating the Quality of Multimedia Learning Resources. *Educational Technology & Society* 10 (2), 44-59. Retrieved from [http://www.ifets.info/journals/10\\_2/5.pdf](http://www.ifets.info/journals/10_2/5.pdf)

Nesbit, J. C., Belfer, K., & Vargo, J. (2002) A Convergent Participation Model for Evaluation of Learning Objects. *Canadian Journal of Learning Technology*. Retrieved from [http://www.cjlt.ca/content/vol28.3/nesbit\\_etal.html](http://www.cjlt.ca/content/vol28.3/nesbit_etal.html)

Richards G. & Nesbit, J. (2004 ). The teaching of quality: Convergent participation for the professional development of learning object designers. *International Journal of Technologies in Higher Education*, 1(3), 56-63.

South, J. B. & Monson, D.W. (2002). A university-wide system for creating, capturing and delivering learning objects. In *The instructional use of learning objects – online version*. Retrieved from <http://www.reusability.org/read/#5>

Wikieducator (2009). *OER handbook for educators*. [Online resource]. Retrieved April 22, 2010 from [http://wikieducator.org/OER\\_Handbook/educator\\_version\\_one/Introduction/Why\\_OER%3F](http://wikieducator.org/OER_Handbook/educator_version_one/Introduction/Why_OER%3F)

Yuan, L., MacNeill, S., & Kraan, W. (2008). *Open educational resources—Opportunities and challenges for higher education*. Retrieved from [http://learn.creativecommons.org/wpcontent/uploads/2008/09/oer\\_briefing\\_paper.pdf](http://learn.creativecommons.org/wpcontent/uploads/2008/09/oer_briefing_paper.pdf)