

Who Puts the Education into Open Educational Content?

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The concept of open content was first mooted by David Wiley in 1998.¹ Although he was referring to all types of content, he was mainly thinking of educational content because of his interest in enabling easier construction of educational materials from a repository of learning objects. When MIT decided in 2001 to make freely available on the web, under an open license, much of the content used or produced by its faculty to support their teaching, it chose the term OpenCourseWare for that content (see <http://ocw.mit.edu/OcwWeb/Global/AboutOCW/our-story.htm>). In 2002, the term open educational resources (OER) was adopted at a UNESCO forum² and is becoming the term used most often for this phenomenon.

What Is Open Educational Content?

Whatever term may be applied to this phenomenon, open content is largely digital stuff (music, images, words, animations) created by somebody who has attached an open license to it. (I recognize that analogue versions of open content can exist and be used by people but the reuse of such content under the open license is extremely curtailed by their analogue format.) In other words, the content is openly available (it can readily be found or discovered), is openly accessible (it is in a form in which others can take it away), and is openly reusable (the user can easily modify it and is allowed under the license to do certain things with it without having to ask the creator's permission first). This is in contrast to full-rights-reserved copyright, where reuse is always closed to users unless they seek and are granted permission, and where rights holders normally restrict the content's availability and accessibility in many different ways to avoid illegal use of the material. That is almost all I will say on the rights issues around open content because I am more interested here in exploring the conditions under which any content, open or closed, may be educational, before looking at the additional implications of open content.

Who Creates Educational Content?

The creators of any digital stuff (my wider term for content) will have had in mind at least two purposes for the stuff: what they expect users of the stuff will use it for (entertainment, information, education, and so forth) and what they themselves want to achieve through creating it (personal fulfillment, reputation, income, influence, and so forth).

The users of the stuff also have at least two purposes for it: what they personally want to gain from it as it stands (entertainment, information, education, and so forth) and what else they might want to do with it for themselves or to share with others (which may be the same set of purposes that the primary creator had in mind). While this same argument applies to closed, or fully copyrighted, stuff, the effect of an open license is that users are not just primary consumers of the stuff, they are also enabled to use the stuff as feedstock for creating their own stuff (as secondary creators) without seeking the direct permission of the primary creator.

This principle of a community of users, all creators and consumers at different times, underlies the whole philosophy of the creative commons, where everyone (in theory) can build upon the work of others for the greater benefit of all by creating more stuff that helps the wider economy and is not locked away or underexploited.

It follows that open content becomes an open educational resource for which the creator, most likely a teacher in some form, had education as a major purpose or intent for that open content. It also follows that users of open content, learners or teachers, can declare it to be an open educational resource if they also are primarily using it for educational purposes, even if the primary creator did not have that in mind. In principle, all stuff can be given an educational purpose. So, what makes it effective at educating or enabling someone to learn from it as it stands—whether as a learner, to learn the subject matter, or as a teacher, to learn how that subject matter has been structured or presented as educational material?

To explore this further I will use the simple idea that content is a mediating object between a teacher and a learner, with each interacting separately with it. In many open or distance learning situations, and especially with OER, all the mediation occurs through the content as object. In face-to-face or computer-mediated-conferencing teaching and learning situations, there is the added benefit of interactions between the teacher and the learners and between fellow learners around that content as a mediating object.

Teacher–Content Interaction

The first aspect to consider is the degree of meaning associated with the content. Thus, content can be primarily concerned with simple data or information (for example, that dogs have fur), through more complex information or knowledge (for example, why dogs have fur and why different dogs have different types and amounts of fur), to the drawing out of generalizations from the particular (for example, the conceptual reasons why all mammals have fur and the general models or hypotheses that enable predictions to be made for new examples of mammals). This external knowledge, where information and experience taken from the world have already been transformed, analyzed, tested, evaluated, and stored in some form, is the basis of education.

An educational resource is one in which the creators have made sense of the existing public information and experiences of others to create something that embodies their own interpretation of that information and experiences in a structured way. An effective educational resource is one in which the structure or design of the resource is aimed at increasing the chances that inexperienced or less knowledgeable learners can both internalize that external knowledge and be able to demonstrate their own interpretation of that knowledge (I deal further with the learner's capabilities below).

The second aspect is the degree of engagement and interaction that learners are encouraged to have with the structured digital content (detailed reviews of interaction in online learning or computer-mediated higher education are given by Wallace³ and Godwin⁴). This engagement and interaction can be achieved by the creator's inclusion of specified learning outcomes (that is, statements that set out what the creator is expecting the learner to learn from engaging with the educational resource) as well as inclusion of activities within the resource that are aimed at getting the learners to demonstrate (to themselves at least) that they have probably learned what was expected of them. This is a basic tenet of learning design that has been well explicated by Dyke and his colleagues,⁵ but it is important to recognize how limited are the opportunities for creator-designed learning activities if the interaction is solely by the learner with the content, and not also by the learner with a teacher and the learner with other learners, as explained by Moore.⁶ Of course, more knowledgeable and sophisticated learners are able to instantiate their own "learning activities" by which they internalize new (to them) knowledge.

The major limitation for learning activities that a teacher embeds within educational resources is that any feedback to the responses that learners make to an activity has to be either predetermined or left to the

learners to judge for themselves. This is even the case with many “intelligent” computer-based systems, because such sophisticated feedback systems are still based on predetermined responses to the learner’s behavior, albeit a greater range and more styles of responses. In this sense there are no direct opportunities for the learners to use dialogue with someone else to help recommunicate or negotiate their own interpretation of what they have learned. This can hinder less confident and inexperienced learners who have yet to develop their metalevel skills in learning to learn and managing their own knowledge in a specified field.

This distinction in the way educational content is structured for different purposes can be clearly seen in the differences between OpenCourseWare in the style provided by MIT (<http://ocw.mit.edu/index.html>), consisting largely of educational resources without pedagogic structure or learning design that require sophistication in the user (which can be expected in other educators and graduate-level students, who are their primary targets) as compared to many of the open, distance, and e-learning style resources seen on OpenLearn (<http://www.open.ac.uk/openlearn>) from the UK Open University (UKOU), where the resources are designed to help less sophisticated learners readily engage with them (which matches the UKOU’s aims to widen participation in higher education).

The majority of OER developed so far have been of the MIT OpenCourseWare (OCW) type. These are basically resources derived from and supporting a classroom-based approach to teaching, where there is a single teacher or tutor involved in teaching a course. This approach (which I have called OER 1.0) has many entailments.

First, it is interesting to other teachers and lecturers because it relates closely to what they have to do, providing lesson plans, reading lists, and so forth from acknowledged leaders in their field.

Second, it is of interest to current MIT undergraduate students choosing their next course, prospective undergraduate students who can more clearly see what they will be signing up for, and students from other higher education institutions who can compare these resources with what their institution provides.

Third, however, OCW is not as readily accessible and understandable by those lacking confidence and formal qualifications and is not ideal for self-study unless you are a skilled self-studier or independent learner. OCW constitutes a set of resources, not pedagogically designed open learning materials.

Fourth, while OCW is translated, used, and adapted by others, it is largely on a bilateral basis between individuals and the originating institutions and between two institutions. The software support environment

does not easily facilitate the collaborative development of OER because each wants to have a highly localized version rather than work on a single common version. In a similar vein, there is no supporting environment for learners to engage with each other over the study of these resources.

The second major approach to OER (OER 2.0) is that of creating self-study materials whereby the content has been designed to be more accessible to study without significant prior educational experience or qualifications in that subject and has been placed in a learning environment that does encourage some learner–learner interaction and possibly learner–teacher interaction, thus adding to the range of activities and tasks that can support learning. This approach brings in additional entailments that I deal with below.

Learner–Content Interaction

The abilities and motivations of learners are much influenced by their previous educational experiences, often measured by their success in gaining educational qualifications, the value placed on learning by their families and social/cultural group, and the amount of time and space that can be afforded to learning within their work and home commitments. Further, there is the distinction between formal learning, where achievement is recognized through assessment practices and has value in the labor market, and nonformal learning, where self-assessment is a bigger feature and provides self-gratification but where it is harder to demonstrate that “success” to others, particularly employers. All these features can influence how much time an individual learner will take to achieve the given or self-set learning goals.

With educational materials, the presumed level of understanding involved in terms of the complexity and sophistication of the ideas presented and need for prerequisite knowledge is mixed up with the form in which such material is presented to the learner, in particular the levels of interactivity and integration.⁷ To some degree, where there are stated learning outcomes, these provide another measure of knowing when learning has been achieved; where there are not learning outcomes, the task becomes more open ended. Even so, different media influence the style and amount of information that can be absorbed and then processed by the learner.⁸

Learning can arise from the interaction between the learner and the content and is a property of the learner, a change in their “knowing” about the world as they interpret it. Whether the content is static (for example, text) or dynamic (for example, animation), is linear (for example, audio) or

nonlinear (for example, a concept map), it becomes interactive only when a learner engages with it. It is through interaction that learners make sense of what they are interacting with, reconfiguring their mental map of how things fit together and the nature of the links between them.

The degree of sense making resulting from these interactions, whether it is surface learning or deep learning, depends on the abilities and capabilities of the learner. With content that is designed for educational purposes, then, the creator has already provided a sense making structure to the material and learners are either accepting this given sense making structure or adding new sense making structures of their own, that is, providing a new interpretation or formulation, either internally as part of their mental map or externally in the form of a new piece of content (most obviously as their own notes or as the product of a given assignment).

Teacher–Learner and Learner–Learner Interactions

It is this testing or assessment element that can most enhance the educational effectiveness of content, because it is the testing of the meaning of new knowledge against existing knowledge within a learner's mental map that is a key aspect of learning. That is why assessment activities (show me what you know and can do) need to be tied to learning outcomes (what I want you to know and do) and often why less experienced learners benefit a lot from discussion with teachers or other learners, as they test their understanding of new knowledge against the understanding of the teacher and other learners. Until recently, open educational materials tended to be print based, but the essence of digital OER is that computer- and web-based technologies provide greater scope for learners to be able to interact with more than just the content if they are informal distance learners and not part of a structured, taught course. There is a greater opportunity to shift from informal learning being a private, individual activity to a public, more social activity. Thus, a key feature of open educational resources is that they have the capability to be dynamic rather than passive in nature, are supportive of communication between users rather than simply information sharing, and move away from just individual interaction with the content to more social engagement with a shared discourse.⁹

A consequence of the increased opportunities for sharing and creating new content, whether that is new versions of existing content or new material supplementing or augmenting the existing content, is not only that the creators (teachers) need to think carefully about the

learning design of their materials but also that users (learners) need to think about or be helped to understand their own learning processes as well as collaborate or cooperate in that learning design. In effect, both creators and learners need to realize that content is merely a mediating object between all those involved in education and is not itself the repository of learning. Individual learning lies in the minds of people and is demonstrated in the sense making that lies within the content they produce by themselves, but social learning¹⁰ can be expressed through the collective, additional sense making that user-generated content by a community of practice enables.¹¹

Ensuring Quality of Open Educational Content

I have articulated some basic design principles that teachers can use for creating effective educational content, but how do I know it is good quality teaching material as a (naïve) learner (or even teacher)? Building upon what I have said already, there are three main features of quality that need to be considered when answering this question:

1. Is the material academically sound in that it appropriately covers the body of knowledge and meaning for that topic?
2. Is it pedagogically robust in that the way the material has been structured matches a stated pedagogical model and sets out appropriate learning outcomes and ways of assessing those outcomes?
3. Is the way the material is presented through the chosen media helpful in enabling learners to meet the learning outcomes?

For many OER the quality assurance is carried out by the originating institution since the materials are derived from mainstream teaching activities that are already subject to quality assurance processes. Some aspects, such as academic and presentational quality, may be left to other authorities to manage, for example, publishers of textbooks. In essence, the overall quality of OER sourced from universities comes from existing procedures of small-scale peer review within the university community and the institution acting as a gatekeeper.

This is different from those OER that are derived from the efforts of either individuals (as in the Connexions site) or a broader community (as in Wikiversity), where the overall quality of such OER is judged using open peer-rating or -reviewing mechanisms. In some cases the nature and form of the authoring and publishing environment means that the presentational quality and some parts of the pedagogic quality can be reasonably

assured. It is the academic quality that has to be earned, either through the existing authority of the originator or by proving oneself to be an authority by the ratings of this broader peer community.

What Makes Open Educational Content Effective (Again)?

I have argued above that the effectiveness of open educational material is usually improved where there is a clear sense making structure, a narrative that relates to explicit learning outcomes. It also helps to have formal or informal assessment tasks or learning activities linked to those learning outcomes. A single image or video clip will usually lack an explicit narrative or learning outcome and therefore places much greater demands on the users to construct their own narratives and implicit learning outcomes without the help of a mediator (teacher). Ideally, OER should be presented in an environment that allows different users (learners and creators) to communicate with each other, to develop a discourse that adds another sense making layer to that present in the original material.

Evaluating the effectiveness of just the assets cannot be done without taking into account the context in which they are used. First, OER can be a replacement for closed educational resources, that is, ones developed by teachers for their own use. Second, they can also be a supplement where educational resources are scarce.

In both cases they can make a difference to teachers because in principle, institutionally quality-assured and/or collectively developed resources should be much better than those individuals can develop on their own (the wisdom of the crowd). This will free the teacher from being a major developer of resources (teacher-centered) to devoting more time to being a supporter of learning (learner-centered). This may lead to greater levels of achievement by the learners, but a more significant measure will be teacher and student satisfaction levels with both the learning resources and the teacher support. The happier they are, the more conducive will be the learning environment.

Some learners can still achieve whatever the environment, but others need support. Open educational resources do not ensure that overall standards will be higher, that a greater proportion of students will achieve the highest grades, but they can increase the absolute numbers of people participating and provide a greater range of ways for people to learn, to give them more control of when and how they learn rather than having to fit in with selective, predetermined opportunities.

So who puts the education into open educational content? At the moment the teachers do most of this, but they also need the learners to play their part. And if we accept that there is a large informal and nonformal side to education that can be nurtured by OER, then in theory, and hopefully in practice, everyone can be a teacher as well as a learner and put the education into their own open educational content.

Endnotes

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