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## **Open Content: when is it effective educationally?**

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### **Abstract**

Open Educational Resources (OERs) are often seen as a subset of Open Content. This raises the question of what characterises OERs and distinguishes it from other types of Open Content? And if the content is deemed educational then what makes it effective in promoting learning in a prospective learner?

### **Introduction**

Open content is largely digital stuff (music, images, words, animations) created by somebody that has attached an open license to it (I recognise that analogue versions of open content can exist and be used by people but the re-use of such content under the open license is extremely curtailed by their analogue format). The creator of the stuff 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, etc.) and what they themselves want to achieve through creating it (personal fulfilment, reputation, income, influence, etc.).

The user of the stuff also has at least two purposes for it, what they personally want to gain from it as it stands (entertainment, information, education, etc.) 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 as the primary creator). 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 (a secondary creator) without seeking the direct permission of the primary creator.

### **Teacher-content interaction**

It follows that open content becomes an open educational resource (OER) where the creator, most likely a teacher of some form, had education as a major purpose or intent for that open content. It also follows that a user of open content, a learner or a teacher, can declare it to be an OER 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 to learn the subject matter it covers as a learner or learn how that subject matter has been structured or presented as educational material as a teacher?

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 (e.g. that dogs have fur), through more complex information or knowledge (e.g. why dogs have fur and why different dogs have different types and amounts of fur on their bodies) to the drawing out of generalisations from the particular (e.g. the conceptual reasons why all mammals have fur and the general models or hypotheses which enable predictions to be made for new examples of mammals). This external knowledge, where information and experience taken from the world has already been transformed, analysed, tested, evaluated and stored in some form, is the basis of education. An educational resource is one where the creator(s) 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 where the structure or design of the resource is aimed at increasing the chances that an inexperienced or less knowledgeable learner can both internalise 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 (a recent and detailed review of interaction in computer mediated higher education is given by Godwin, 2005). This engagement and interaction can be achieved by the creator including specified learning outcomes (that is statements that set out what the creator is expecting the learner to learn from engaging with the educational resource) and by including activities within the resource that are aimed at getting the learner to demonstrate (to themselves at least) that they have probably learned what was expected of them. This is a basic tenet of learning design as has been well explicated by Dyke et al (2007), but it is important to recognise how limited are the opportunities for creator designed learning activities if the interaction is solely by the learner with the content, and not also the learner with a teacher and the learner with other learners as well (as explained by Moore, 1989). Of course, more knowledgeable and sophisticated learners are able to instantiate their own 'learning activities' by which they internalise new (to them) knowledge.

The major limitation for learning activities that a teacher embeds within educational resources is that any feedback that is provided to the responses that a learner makes to an activity either have to be pre-determined or left to the learner to judge for themselves. This is even the case with many 'intelligent' computer based systems as such sophisticated feedback systems are still based on an, albeit, greater range and style of pre-determined responses to the learner's behaviour. In this sense there are no direct opportunities for the learner to use dialogue with someone else to help re-communicate or negotiate their own interpretation of what they have learned. This can hinder less confident and inexperienced learners who have yet to develop their meta-level 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 (ODEL) style resources seen on OpenLearn ([www.open.ac.uk/openlearn](http://www.open.ac.uk/openlearn)) from the UK Open University, where the resources are designed so as to help less sophisticated learners readily engage with them (which matches the UKOU's aims to widen participation in higher education). Another distinction is that the UKOU has placed the content in a learning environment which does encourage some learner-learner interaction and possibly learner-teacher interaction, so adding to the range of activities and tasks that can support learning.

### **Learner-content interaction**

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 (e.g. text) or dynamic (e.g. animation), is linear (e.g. audio) or non-linear (e.g. a concept map), it only becomes interactive 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 i.e. 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 a given assignment).

It is this testing or assessment element that can most enhance the educational effectiveness of content, as 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) need to be tied to learning outcomes (what I want you to know) 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 learning educational materials tended to be print based, but the essence of digital OERs 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 an informal distance learner and not part of a structured, taught course. There is greater opportunity to shift from informal learning being a private, individual activity to a public, more social activity. Thus a key feature of OERs are that they have the capability to be interactive 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 (Conole, 2006).

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 that the creators (teachers) need to think carefully about the learning design of their materials but also that users (learners) also need to think or be helped in understanding their own learning processes and both collaborate or co-operate in that learning design. In effect both creators and learners need to realise that content is merely a mediating object between all those involved in education and is not the repository of learning in itself. 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 learning (Wenger, 1998) can be expressed through the collective, additional sense-making that user generated content by a community of practice enables (Buckingham-Shum, 2005).

## Conclusions

The effectiveness of open educational material is usually improved where there is a clear sense making structure, a narrative which 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 user to construct their own narrative and implicit learning outcomes without the help of a mediator (teacher). Ideally, an OER should be presented in an environment which 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.

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