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# Inspiring Creativity in Organisations, Teachers and Learners through Open Educational Resources

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## Abstract

The design of educational material has a history of allowing people to present an individual expert view (the researcher as academic teacher) and a published base of knowledge (the academic teacher as text book writer). As learning has moved online and has now become more open a new dynamic of communication is emerging from the teacher to the learner, from the teacher to the teacher, and from the organisation to the world. In exploiting these new dynamics there are changes in motivations for creating and designing materials, but are there also chances to embrace a new creativity? In this paper we use an activity theoretic approach to look at three sources of evidence for impact from taking an open approach to learning resources. First impact on an organisation to identify its role as an enabler for creativity and change. Second on the educator and the way reuse of content allows selection of new patterns of design. Third impact is on the learner as open educational resources blends content with social. The cases present evidence that seeing open resources as change agents can lead to the release of creativity for organisations, for teachers and for learners.

**Keywords:** Open Educational Resources, OER, OLnet, OpenLearn, Activity Theory, Creativity

## Planning for a more open approach

Higher Education has always required a mixture of skills from the participants. The learners are expected to be self-motivated, able to use existing knowledge base, and be entering a learning community with concepts of "Graduateness" (Walker, 1998) as well as of learning the content. The teachers also have expectations on them; that they are themselves experts, well connected with the field, have a sound basis of shared understanding, and also that they are able to communicate well. These skills may not always be in place and in a series of studies by Trigwell, Prosser and Waterhouse (1999) they have shown how the engagement of the teacher and their belief in the ways that students can learn are important indicators of how they function as teachers.

There is also a third perspective, that of the organisation. Universities are established as the primary providers of higher education and they are founded as "schools of education, and schools of research" (Whitehead, 1929) on the basis of acting as repositories of knowledge, developers of knowledge and building the base for future knowledge. In this view universities have an altruistic basis for their identity which has helped to lead to a more open approach to content exemplified by the position of the William and Flora Hewlett Foundation, summarised as "It takes a hardy and callous soul to reject the UN's millennium goal of education for all. We argue that one important step toward this goal is to provide high-quality digitized, free educational materials to everyone in the world." (Smith & Casserly, 2006) and as set out by Charles Vest, President of MIT at the time they launched their OpenCourseWare initiative, as having the core aim to "enhance human learning worldwide" (Vest, 2004).

The Hewlett Foundation has acted as a major funder of Open Educational Resources (OER). OER are free resources that have include clear permission for others to reuse. In the Open University UK we have been working with ways to make our resources more freely available as OER. In the OpenLearn initiative (McAndrew et al, 2009) content was both released from existing courses and new material developed for free access. In the research strand for OpenLearn we looked at the impact this had on the organisation, the educator and the learners who used content. A follow-on project, OLnet, has built on this experience to draw further lessons from the worldwide move to embrace more open methods.

The move to openness has an impact on each of the three perspectives. For the learner there are new sources of information available and new communities that they can connect to. The *always on* approach of the Internet competes with the more traditional time bounded concept of taking courses and the requirements of the work place move from a factual base to skills and competencies (Trilling, 2001; P21, 2002).

For the teacher the change in available sources of content mean that they lose some of the privilege of

being a conduit for facts and arcane, on the other hand they are also faced with a multitude of options for sources that they need to select from and use to provide the keys for others to learn from.

The organisational position in this new world can seem hard to justify. If learners can find resources themselves, demonstrate their own learning outcomes, and connect with expert communities for feedback and participation the value of the experience and accreditation offered by a university can seem much reduced.

## The Role of Creativity

Dictionary definitions of creativity refer to the use of the imagination, original ideas and inventiveness and so the concept leads to a hope of the more unexpected or individual, but perhaps the more useful interpretation comes from (Robinson, 2011) who focuses on creativity as a “process of developing original ideas that have value”. Robinson argues that creativity can be found in anyone, provided the conditions are right. The spark of creativity can help transform the individual as they spot innovations in how they can act. Can that spark also apply to institutions and staff? Arguably the greater the number of people involved in an organisation then the greater the inertia and the more likely that creativity will be stifled by the scale of operation and ingrained methods. On the other hand the impact of allowing innovation and creativity can be greater as the scale increases.

Establishing more open practices appears to remove constraints that match to some of the conditions for creativity: extended reach, changes and relaxations of rules, and the chance to make a difference. In this paper an activity theory framework is used to provide some tools that help understand the impact of those practice. For each of the three domains examples are presented that indicate how openness has led to a more creative approach. First from an institution as it implements access to open resources and how this is reflected in other institutions internationally. Second, how individual educators are responding creatively and the way in which consideration of how and where we design the learning experience can encourage use and reuse of the available resources. The third aspect is to consider the learner perspective and see the emergence of new behaviours for learners grouped around the presence of free content as well as the use of free content.

## Using activity theory as a theoretical framework

Extracting results and evidence from examining case studies has some difficulties (Yin, 2002). The studies carry context and can only be reported in brief so the reports inevitably carry some of the researcher's own perspective and the way they have drawn out relevant findings. In the case of open approaches to learning and teaching these challenges for research are amplified by bringing together three already difficult aspects: the systems are complex combinations of technology and practices; learning is multi faceted process where it is difficult to isolate factors; and, the openness of systems means that there is no formal link between the researchers and those providing them with data.

The primary framework that has been applied to studying these cases is drawn from Activity Theory, and in particular Engeström's interpretation of Activity Theory. This framework helps analysis to consider the combination of factors that influence any subject trying to reach any objective. The factors are identified by Engeström (1987) as interactions between the nodes and mid points of an activity triangle labelled as *Tools*, *Rules*, *Community* and *Division of Labour* impacting on the *Subject* and the *Object*. We have applied a variation of this form of analysis by using pairs of activity triangles to develop alternative perspectives on the same situation (McAndrew, Taylor, Clow, 2010) to help communicate the tensions in complex learning systems. In Figure 1 this dual perspective is illustrated with the front, semiotic, triangle showing the usual labelling recommended by Engeström, while the second, technological, triangle brings out elements of a user experiencing the system. In principle this multi-layered view can be repeated an number of times to represent difference perspectives, though in practice it has been applied only using two different view points. The value of an activity based approach to analysis is that it helps to take into account multiple data sources such as the view of those undertaking action research (Somekh, 2006) and anecdotal evidence alongside more usual forms of evaluation data such as semi-structured interviews, survey data and observed behaviour.

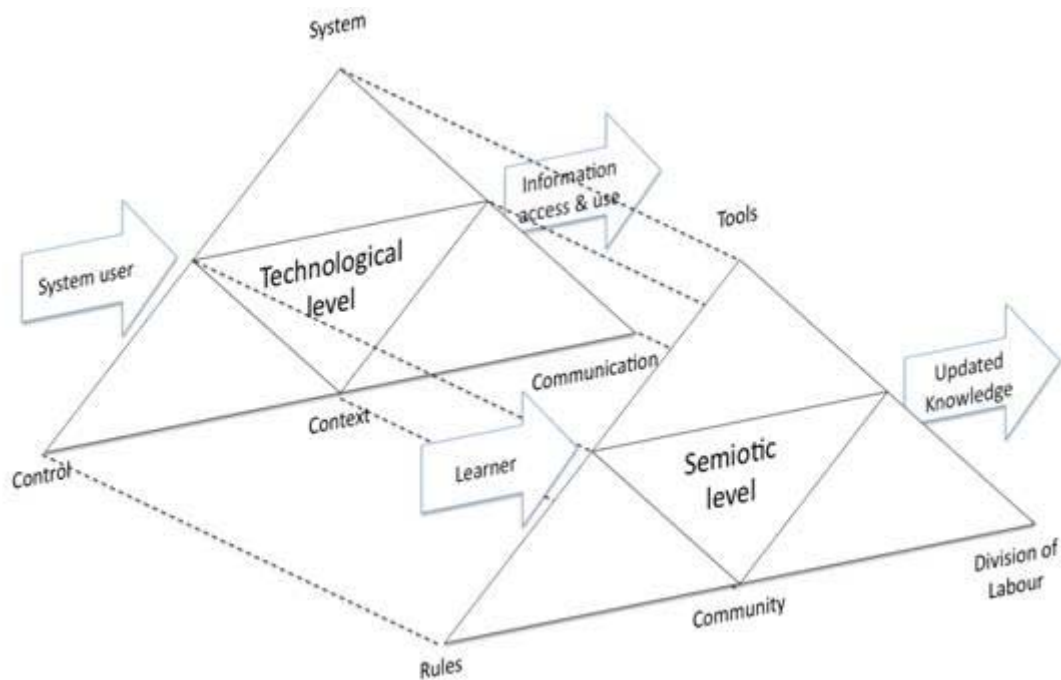


Figure 1: Activity triangles viewing a situation from alternative perspectives

Engeström's work offers a way to review situations while paying sufficient attention to key contextual factors and balancing the identification of negative indicators, such as contradictions and tensions, with the way in which objectives can be achieved. He has also pointed out the relationship with creativity in stating "... most important aspect of human activity is its creativity ..." (Engeström, & Miettinen, 1999:26). Other researchers working with activity theory have also used it to examine creative situations (Tikhomorov, 1999). This paper will only touch briefly on the analysis itself as the expansion of each case study into factors and examination of the evaluation data for confirming factors and contradictions is difficult to present within the context of a single paper. The use of activity theory in the analysis of OpenLearn in particular is described more fully in (Godwin, McAndrew & Santos, 2008; McAndrew et al., 2009) and applied to particular cases in (McAndrew, Santos & Godwin, 2007) and (McAndrew, Santos).

It is also worth considering the way that Engeström (2001) has linked Activity Theory with an expansive view of learning and methods of working (Engeström, 2008). The value of the expansionist view is to understand how actions can build into a beneficial cycle that can bring effective working and opportunities for learning. In our work the expansive view of learning can be identified in both the way that educators can operate "Social Production" of open materials and in how learners can move through both independent content driven and social stages in learning using OER.

In setting out this framework we have emphasised the use of Engeström's view of Activity Theory as the basis. In practice other references and forms of analysis were also applied including terminology and methods from Discourse analysis, applied to interpret the messages and positions of those involved in the OER movement ([Santos – flatworld]), Systems thinking to set out the design aims for OpenLearn ([Lane – systemic or the the proposal]), Grounded theory (Glaser & Holton, 2004) to develop the interview-based rich case studies used as underlying data to understand users, and Cluster analysis, to pick out the different attitudes of learners. Such an holistic approach to combining research data is both a consequence of a relatively large project in action where researchers bring their own background and skills, and also an aim in itself to allow results to emerge from different sources. The strength of Engeström's work and other developments from it are that it addresses both analytic techniques and also communicative and explanatory roles. In the case studies that follow we also hope that having set out the theoretical lens that it will help them to act together as a set of evidence.

## Influence of OER on an organisation

The impact of adopting a more open approach is examined primarily by reviewing recent experiences at The Open University. In 2006 The Open University launched the OpenLearn site to offer free access to educational material. OpenLearn was constructed as an experiment to explore how offering free content could be achieved. In the proposal to the William and Flora Hewlett Foundation, which supported OpenLearn financially in its first two years of operation, it stated:

*The University has an extensive reservoir of high-quality learning materials available in a variety of formats. It proposes to explore how best to make some of these freely accessible in an international web-based open content environment and, in so doing, to advance open content delivery methods and technologies by:*

- *deploying leading-edge learning management tools for learner support;*
- *encouraging the creation of non-formal collaborative learning communities;*
- *enhancing international research-based knowledge about modern pedagogies for higher education.* [Ref proposal?]

A key element in this description is that the initiative was designed to “explore” approaches and to enhance knowledge about what it meant to work with OER. In the period of funding there were no explicit aims for the University to gain directly from working with OER though it was certainly hoped that reasons would emerge for it to be able to sustain the activity beyond its time as an externally funded initiative. In practice this meant establishing an action research approach to working on the project and gathering evaluation data from a range of participants in OpenLearn through project meetings, interviews. A total of more than 70 public reports and presentations were produced and released, and many less-formal events also took place, these operated as a mix of gathering data, awareness raising and dissemination activity.

Reviewing the impact of OpenLearn across the institution (McAndrew et al, 2009) revealed that The Open University had gained in several areas by contributing to open educational resources. These gains can sometimes be measured: student recruitment; new partnerships; awards received; and, new projects. More often they are less tangible but clearly exist: opportunity to experiment; development of staff; low level collaborations; and, enhanced reputation. Some of these gains were as much due to changes in attitude and working practice as in a direct result of having released open content.

For example the way in which OpenLearn needed to operate as a large project that had been brought together in a very short period of time meant that people from different sections of the university were working directly together often for the first time. Academics, technical support, copyright specialists, researchers and communication teams all needed to interoperate and achieve ambitious targets in a short time. The benefits of this were brought out in an interview with the technical director mid way through the project who stated “[for me one of the changes was all working together and getting out of our silos]”. This restructuring encouraged creative solutions and cut through the time taken to reach decisions, the way that content was structured had been under discussion for more than three years, within three months of starting OpenLearn it had been decided and implemented. Similarly the adoption of appropriate licensing for openly available material was achieved very rapidly with the head of intellectual property identifying the new factors of “wide acceptance worldwide, easily understandable terms” as reasons to go outside of in house solutions and legal advice and take the more radical step to adopt a Creative Commons licence (<http://creativecommons.org>). The converse of this spur to creativity in the early stages was that over time OpenLearn generated its own legacy and relatively fixed methods to address work. There was some frustration with time spent checking through content, which was part of early practice. Eventually the work flow adjusted to one of allowing “beta” content to be released prior to final corrections and feedback, but such risks were hard to fit into the overall culture of quality.

The analytic framework supported by activity theory encourages each of the factors tools, rules, community and division of labour to be considered. The framework applies at different levels, for instance the analysis of the way in which content was available for reuse showed how different expectations on the tools and division of labour in reworking content and in particular the rules applied in other organisations about who may be involved in collaborative work meant that an early potential partnership with a South American university was much less fruitful than was hoped. Applying the same framework to the project overall though gives an indication of the factors that made it successful. Rules were relaxed and motivation gained through being part of an international community with altruistic aims, the division of labour brought in specialists to help meet overall goals and tools development was more rapid than is usual within the organisation. The approach also freed up the team to engage with innovative concepts such as the “permanent beta” philosophy that underlies Web 2.0 and the move to less formal models for learning.

## Influence of OER on teaching

The existence of free high-quality learning materials, such as OER, could provide teachers with the opportunity to change the way they teach. Some of the intent of OER was to rebalance their role from creators of content to facilitators of learning and orchestrating the use of materials rather than undertaking the writing and creation of such material. The first wave of OER material, such as that from the MIT OCW, was intended to be a simple transfer of content already used for teaching on campus to make them available for the use of other educators on their campus. As the concept of OER has developed there has been a switch to the expectation that learners will be using the content directly and a second wave of OER 2.0, exemplified by OpenLearn, incorporate material that contains tasks that help it work for self-directed learning and are offered through online learning environments with tools that help learning happen.

The design of material on OpenLearn is based on the distance learning material that has been used for independent learning. This arguably makes it more transferable and indeed there has been take up as intended by those who developed the OER idea. For example, as described by Issack (2011), OpenLearn materials have been used in the context of both undergraduate and Masters level courses for the VUSSC in Mauritius. The use described includes “as-is” transfer of content with rebranding on to local servers, “repurposing” to include additional material that gives local context, and “value-addition” where the original content is used as a model for a derived version, with emphasis on preserving the *pedagogic design*

rather than the format and modality of the original material.

In a study by Wilson (2009) she reports on the attitude from a range of educators to OER content and notes that seeing the content as able to slot in “as is” into curriculum is viewed as particularly strong when transferring from the original country (UK) context to international, while similar “as is” use is seen as an adjunct to existing course materials within the same country. This indicates a possible reluctance to accept replacement of content where the content is sourced from an organisation competing in the same market. In activity terms, the explicit *Rule* of OER that permits such use is contradicted by the implicit *Rule* of individuality and local ownership of course content that inhibits the adoption of content. In examining data from a review of Web 2.0 approaches Conole & Alevizou (2010) note the apparent paradox of the opportunities mixed with misgivings that new technologies and methods for learning bring, leading to “lack of understanding of the implications of adopting more open approaches and ... fear of openness”. Addressing such issues requires a change in culture and practice rather than needing formal changes.

Such contradictory feelings and pressures can therefore only be partly addressed by the provider of open content, when the rules and custom applying to the recipient also need to change. However, one issue of the reuse of open content is whether it can be made clear to another educator that they can understand the intent of open resources and how the design is meant to work in the context that they are considering. Research carried out in OLnet (Dimitriadis et al., 2009) explored the ways to represent learning materials as designs with mixed results. The representations did increase the way in which the original intent in materials could be communicated, this matched with positive results for using a learning design approach to constructing teaching materials in teams (Conole & Weller, 2008). However, any representation has limitations and can also act to enforce a particular approach while the openness of OER and the lack of a direct connection from the supplier to those reusing the material encourages greater freedom. In activity terms the act of providing such designs can give rise to a contradiction between the *Rule* of openness, the *Division of Labour* where a design is supplied and the *Community* that is expected to own the reuse process. This can be mitigated by generating additional designs that can then be shared back.. The benefits of such an approach can be seen in the community sites that are focussed on exchange of “lesson plans” such as <http://www.thegateway.org/>. However, building well represented learning designs is usually time consuming (Koper, 2006) and not part of the existing work pattern of higher education.

An alternative is to consider a patterns approach to identifying ways to support learning with OER. A study by Dimitriadis et al. (2009) worked mainly with collaborative patterns and then carried out focus group sessions that gathered feedback on both the use of designs and patterns by experienced teachers. In contrast to the use of designs where there was resistance to the model of teaching imposed by the design, patterns were felt to offer a manageable range of options that could inspire new uses of content breaking through both the original design and implied sequencing of the order of material. As the patterns are themselves generic and describe learning situations rather than specific to content they are more reusable and fewer patterns are needed than the content linked designs. The activity model that this leads to is a form of “social production” as shown in Figure 2.

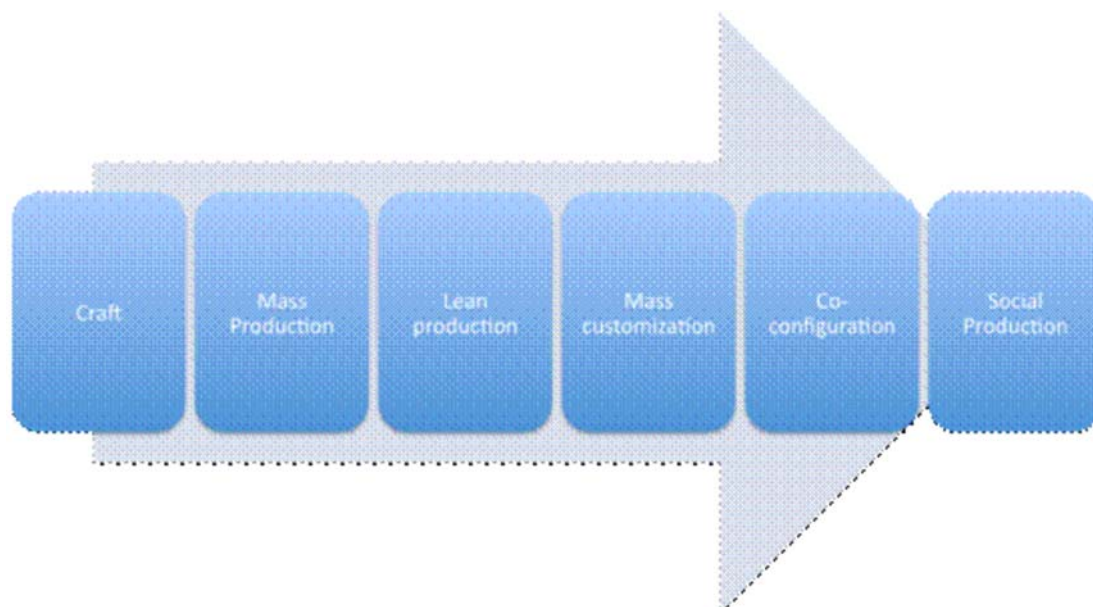


Figure 2: evolution of production methods (simplified from Engeström(2008))

The sequence illustrated in Figure 2 considers a sequence of different methods of production and working argued by Engeström (2008) as a natural evolution with openness a key component of social production. As with other examples of social production, the social approach to producing educational content is in its infancy and so the working practices have yet to be finalised. However the steps in the evolutionary sequence also imply an increase in the opportunity for creativity and influence; the individual teacher or the organisation can both take the chance to adopt materials from a large number of sources, and also

change or initiate their own content back into the system. For example academics at a university in Brazil (Mendonça and Santos; 2010). first adopted the use of some content from OpenLearn, then translated to Portuguese for local use, then added back in those translations, then extended the material with new content in both Portuguese and in English. The same group then went on to develop outreach courses to support learning by their students' families using the open resources to keep costs as low as possible.

## Influence of OER on the learner

The most important user in OER is the learner. Unless the content and structure can act to support learning then the rationale for OER has no basis. The previous sections have considered how organisations can act to adopt and use OER to change their practice and draw greater value from existing work producing content, and how the educator can mediate OER to take them from one context to another. However OER also provide a more direct link from learners to resources. The openness and free-from-cost route to access content lowers significant barriers to opportunity for learners and obviates the need for explicit relationships with either an educator or an organisation. In an early survey of a sample of users of OpenLearn we found more statements that related to “free” and “fun” rather than as a “taster” before more formal learning or to learn particular “content” (Ravenscroft & McAndrew, 2007). The typical response “I like the idea of learning for pleasure as opposed to learning to achieve targets.” outweighing those who aim “To upgrade skills ... and to meet the requirements for the jobs” or “...to try OU course units before registering for the course.”

OER also enables the overcoming of physical barriers of distance and health. One example that showed how working openly was different occurred shortly after we set up OpenLearn. In examining logs of data from the server, which represents too much data to sift through in detail, we picked an unusual entry where someone had accessed the site quickly but for a lot of files. As the person was registered as part of the OpenLearn community, and had given permission to be part of the research element of OpenLearn they could be contacted. On making the contact and asking about their use of OpenLearn, it was found that they worked for the local Government of an island in the middle of the Atlantic and had been downloading content as quickly as they could while they had a usable connection and then printing the content to learn together with colleagues and address the lack of locally available material.

This story both provides an illustration of the reach of the OER content, and of the partial data that we have as researchers – there are over 14 million unique users of OpenLearn and it is impractical to ask them all what is their motivation or experience. Rather it is necessary to find a way to include isolated examples such as these alongside more targeted research on groups of interest. Cases that were examined included looking into the experience of disadvantaged groups, the young and the elderly. The value of OER to groups such as those who are past normal age for tertiary education came through in survey responses such as “This is a way of keeping my brain active, whilst my body deteriorates ...” or to those who have difficulty accessing education for practical reasons “I am currently in the Army on a 6 month tour ... difficult for me to get computer access consistently but when I have been able to go on open learn I have enjoyed the opportunity ...” Organisations such as University of the Third Age (U3A) have also been able to plan actions to use OER to support blended learning building links with their existing face to face meetings of U3A and the online learning clubs that OpenLearn can set up around content of common interest.

In this way OER can be argued to provide an additional access route to learning even facilitating access in prisons (Hancock, 2010), but does it also lead to new ways of learning? The lack of restrictions on the content have enabled new groupings for learners to take some control themselves. On OpenLearn this is reflected in “Learning Clubs” which allow anyone to start their own interest group and link together resource sets, additional guidance and a schedule of activity without any imposed control. We also explored the motivations of the learners using OpenLearn in a variety of ways. One that was particularly revealing was a cluster analysis of features used and desired that showed two different categories of user: volunteer students who were interested in the course structure and facilities, and social learners who were more interested in the community and tools to share opinions (Godwin & McAndrew, 2008; McAndrew, 2010). In the Peer to Peer University (P2PU) they have gone further with their tag-line of “Learning for everyone, by everyone, about almost anything” to allow learners to construct their own structures around modules that have an open sign up. P2PU still retains their reference to course structures, cohorts and fixed timetables but also bring out the social element in depending on participation and peer activities for most of the learning. The explicit design of content varies across P2PU, however an implicit design of ‘read-think-reflect-share-comment’ occurs in how groups were expected to operate (de Liddo & Alevizou, 2010).

Openness gives the chance for learning to go outside the usual boundaries of cohorts and content from instructors, so called Massive Open Online Course (MOOC) offer the chance for learners to follow a set sequence of activities guided by resources and a lead “teacher” but often with their choice of where and whether they carry out the tasks. The MOOC approach assumes that learners can find their own place to blog their assignments, or play with software, tools and video to give alternative reports. Links between learners are controlled by the identifying “tag” that helps track activity and outputs. The eventual success in completing the course is then evident in the posts and outputs each can show, though in some cases there is an option to pay for these to be reviewed and receive credit. This view of individualised learning has been taken further by those who set out their own agenda for learning, again relying on the openness of their



work to act in place of formal accreditation (Kamenetz, 2010).

The activity of learning in the open therefore has been addressed in two ways by both creating online experiences that feel like they are formal courses, and by those that depend on social connection and reduce the role of content. Even with more individual actions the trigger is often the shared interest in a topic and in learning. Content then acts to bring such people together and remains an important aspect in creating the critical mass of participation that helps social learning work.

## Conclusion

This paper has looked at the experiences of use of OER from the three perspectives of the organisation, the educator and the learner. An underlying activity theoretical approach has brought out how in each case the move to openness can help to align actions with emerging rules, communities and ways of working, but also be inhibited by conflict with existing practice and expectations.

For organisations the initial opportunity is in using OER as a change agent by relaxing rules and offering alternative motivations that also bring benefits to the organisation. The potential is also to realign to a more forward looking model of social production that brings in educators (and others) who are beyond the boundaries of the organisation. This is starting to happen but the culture of being an academic means that there is some uncertainty in engaging with all the chances the openness gives.

For the learner too there are alternatives. Seeing OER as part of a continuum of learning to fit with other studies, provides options for individuals to bridge more formal learning with many options for subject and source of support material. More revolutionary is the chance to change attitudes and include creative actions in the open and social exchanges alongside designed learning activities. For the individual learner the reduction in control allows them to follow their own path and make individual decisions, however the overall structure of learning is not without benefits in guiding and scaffolding the learning process. The alternative to control can be chaos. Openness and choice can lead to multiple paths, potentially as many as there are individuals, and among the chaos there will be the “bad”, aimless and time-consuming, as well as the “good”, constructive and creative. Openness along with enough resources of value and examples of practice may offer a route to learning at the edge of chaos that fits with other changes in society and reduces the dependence on ingrained institutions and approaches.

The opportunities for organisations, teachers and learners to leave behind some of the limitations of developing content and curriculum are apparent. For the organisation there is the chance to create new ways to learn or to teach with it; if the existing universities and educational institutions do not take that chance then others may or indeed learners and teachers may bypass the need for conventional accreditation. Openness offers many paths for the future of learning, that future may indeed be a bit more complex and chaotic, but could also offer the seed for inspiration and creativity by all involved.

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