

The missing link in Education (Part 2): ICT and Open Educational Resources as a means to boost learning

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Abstract

Information and Communication Technologies (ICT) are a powerful tool for interaction, learning and production. Thanks to technology students and teachers can access online to resources, lessons and classrooms, to achieve professional competences and to improve the user's performance. In addition, Open Educational Resources (OER) democratise learning and teaching, provides access to an almost infinite pool of materials and gives voice to anyone so that everyone can contribute. The second part of this article about educational innovation concentrates on the use of ICT and OER in Education as a huge breakthrough for social progress.

Keywords: Innovation cycle; Transgenic learning; Informal learning; Open education; Open Educational Resources (OER); ICT and Education

The role of ICT in educational innovation

Teachers are in revolution. They claim an active role in new ways of learning and teaching. Usually, through the use of ICT in the classroom, wherever that classroom is, face-to-face or online. They claim, fight for and push for means, time and capacity decision in the innovation cycle in Education. They can be disruptive through the use of Open Educational Resources (OER), live analysis of learner data and, of course, ICT tools in the classroom and long list of activities and services.

Literally, this revolution is happening everywhere. We count parallel events in Sidney, Ljubljana, Buenos Aires, Beijing, London, Salamanca, Visakhapatnam, Paris, Toronto, Tallin, Bogotá, and a long list of places. Thousands of school and university teachers want to do better, perform better, support better. They are committed and determined. This is an overall force that requires global awareness and action, National policies, regional contributions, peer-to-peer interaction and a key role from every character in the setting: from learners to administrative staff, principals, tutors, parents and sympathizers. And, of course, from the teachers.

In this context, ICT can be the secret ingredient to facilitate that healthy revolution. From a basic use to an advanced tool creation, teachers can integrate communication, interaction, assessment, innovation, content and any other element of any educational cycle. This revolution is very much alive and kicking, and it will bring a real change in Education.

OER as a means to boost education

Which seems clear is that we need an agreement. In OER many issues are at stake yet: accreditation, credit recognition, access, etc. All of them emerge from practice, from the community of practice, from the actual users (i.e. students, teachers, professors, management staff, etc.) We all are very committed to provide an open environment, with the various interpretations of what "open" means. We discuss, design activities, organize congresses, create content, give lectures, write documents about educational policy, review papers, work with Governments and regional departments, publish books and share out thoughts with blog-posts like this one, to name a few actions. Furthermore, we all look for a pro-active, fruitful, interesting and intellectually spicy environment that supports learning, competence building, and integration, along with personal and group development.

However, *open* means also *controversy*. Nobody argues against the good-willing approach to the various pillars of openness: access, content, data, research results, licensing, policy and technology. However, it seems that *open* quite often means *unregulated*. And *unregulated* might mean *whatever*. And this should not be the case when we deal with OER. We, the community, must be sure that content, access, technology and the other pillars provide the user with the best quality and, above all, with a minimum threshold for quality.

This approach would require a list of requirements and metrics to meet by every OER to ensure that threshold, based on an agreement amongst the various stakeholders. We need to normalize that approach, to make it sensible, reachable and useful.

Furthermore, we need to get an agreement to make the user feel safe and inside a quality framework, every time that this very user takes an OER. OER must be a seal for quality content and quality education and the OER community can reach a consensus about this basic right.

MOOCs, as an example of OER, applied

Informal learning and social interaction are receiving increasing attention in current eLearning campuses and platforms. Massive Open Online Courses (MOOCs) are no exception [Bry 13]. In plain online campuses, students now have a wide range of

options for social actions and group collaborations at their disposal: post/answer questions in forums, start their own activities, create their own sites, wikis, invite colleagues, comment on someone else's job, score jobs made by others, incorporate external materials to their knowledge repository, fill in questionnaires, participate in WebRTC sessions with teachers, et cetera. Small Private Online Course (SPOCs) and locally deployed Learning Management Systems (LMS) already allow almost endless possibilities in humble environments. These can grow exponentially in an x/c MOOC setting which can potentially manage thousands of learner accounts around common learning material.

Open licensing, proprietary content

Nowadays, one key discussion point is about open licensing. The bottom line is that resources created out of public funding should be open and free. This funding comes from tax payers for the greater good and no one could make business or restrict access to these outcomes. This means, for instance, that professors of public universities, being civil servants, develop resources and provide them to the community openly. They keep the intellectual property, but not the exploitation rights or the ownership.

On the other side, when private funding is used to create resources, it depends on the author and-or owner the way to use them and to put them in the market. They can be open or free or universal or nothing at all or a combination of these. This owner has no obligation to make them available to the community as if they were supported by public funding. There is a claim from a section of the OER movement that everything should be open and free ever, no matter who is financially supporting the resource or the educational process. However, a balance should be reached to guarantee the exploitation rights and the sustainability of the creations, when they might come from various sources. Public funding means public resources; but private funding means the need to find an agreement about service and access with the owner.

The innovation cycle against insanity

In the author's opinion, there are more parts of this cycle of innovation, such as content, licenses or the exploitation, for example. In theory, the cycle of innovation runs like a clockwork: turns and turns inside out and outside in trying to understand and improve. Sometimes, to give more laps will not a real good and it does not make any progress. Other times, giving turns is like a clock based on a Nautilus shell, as a Fibonacci series, where you get more knowledge and better application after each iteration. However, this is not true.

They have sold us something that is not accurate. Engineers, entrepreneurs and bureaucrats wanted to parameterize a process useful for them. However, it does not provide an additional value to the educational community, if it is not properly contextualised. If we apply the spirit of the full cycle of evaluation we should be using semesters or full years to check whether the measures are useful or not. And so long seems eternal at ICT in Education, where everything changes from one month to the next one.

The reality is quite different: there is no cycle of innovation in education. We must break it and innovate now, without waiting, hungry for change and improvement. Innovation must be cyclic by itself. And a form of innovation is through "Transgenic learning". It is a metaphor, a simile, only a provocative title to explain an equal transformative reality but much less conflictive than the original term.

In education, the key innovation that will mark an era, the transgenic learning, the disruptive innovation, right now, is the combination of formal education with informal education: How to integrate educational resources outside the official programme with those very programmes. How to take advantage of a permanent connection of a student so that they can learn and practice anywhere at any time. How to use free educational resources as a significant part of the official curricula in primary education, secondary education, high school, University, vocational education, etc.

Albert Einstein said that "The definition of insanity is to do the same thing over and over again and to expect a different result". There is no need to use an industrial cycle of innovation in the educational innovation cycle, which has a very specific profile and needs. We must break the inertia, we must innovate in education, and we must do it now.

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