OER in Portugal as agent of curriculum innovation and technological change

Inducing practices of "new" teaching standards

Paulo Manuel de Matos Pereira
Caramulo's School.

Abstract

This research project aimed the following goal: promote the creation, use and disclosure of OER in a Group of Schools, involving schools and teachers from different learning levels, expecting to test and validate the use of OER, in a learning-teaching model towards curricular innovation. Defining as a starting point different subjects and teachers from distinct academic areas, we have implemented a set of activities leading to the creation of OER supported, when possible, in FLOSS tools. We adopted an action research methodology with a dual purpose: to act within a community of teachers and students, while increasing at the same time their knowledge, as well as the researcher's. The activity was developed cooperatively in order to process a certain reality of the teaching-learning process, through practical/reflective action towards it and inducing its implementation by others in the Portuguese School System, based on the production and sharing OER.

Keywords

curricular innovation, educational-research, technological innovation, Open Education Resources, Portuguese schools

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Introduction

This research project was pioneer in Portugal in introducing and maximizing the use of Open Educational Resources (OER) in a comprehensive manner, while introducing at the same time the concept and principles of OER in the Portuguese education system. It aimed a change in educational practices and a change of mindset in the closed and very traditional national education system. It acted towards answering the following question: why not promote the creation, use and disclosure of OER in a Group of Schools, involving different schools and teachers and from different learning levels? We´ve acted in the way to transform theclassroom into a "laboratory" for teachers' professional development, where investigation was seen as a model of lifelong learning, increasing and improving digital literacy. It also aimed leading teachers to become interested in teaching pedagogical aspects and, at the same time, motivating them to integrate research into their traditional teaching practices, getting at the same time practical and immediate results, while introducing Information and Communication Technologies (ICT) in the act of teaching with and for the students. The use of an action- research methodology to solve problems allowed educational practices experimentation in contexts of real classroom, and it has facilitated collaboration, knowledge exchange, cooperation and immediate feedback to the teachers involved. Thus, it transformed the classroom into a privileged place where changes happened and where technological and curricular innovations were geared towards the improvement of education's quality, as well as the quality of learning and it also increased the use of technology through OER. So it went with the goal of an amendment/change of a learning paradigm, towards another one more engaged with the technological innovations, the social principles and sustainability of OER.

Starting point

Throughout my teaching practice I have noticed with some surprise teachers' resistances to update their knowledge, to integrate information and communication technologies into classroom and, above all, to share their own knowledge, information and resources, not only inside their own schools but, most of all, outside their school's boundaries. We observe that, at most, some resources are shared between teachers from the same department or subject, but it is rarely done in a focused and organized way and almost never, in a systematic sharing out of school boundaries and in an open/free way possible to be used by any person or learner. Moreover, in recent years we've seen an intensive technological equipping in hardware resources of our schools, with the growth of Internet and digital culture, application-oriented teaching and learning. However, little came translated into the classroom in functional activities and practices carried out by teachers and in the act of teaching. As an example, we have the ambitious measures of the so called Education Technological Plan, which is being implemented in Portuguese public schools and on all levels of education, but unfortunately, very little seems to have changed the state of education in Portugal

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and, more specifically, the teaching and learning experiences. It was based on these conceptual considerations, the reasons attached to them and the need to innovate in education, that we arrived at problem- situations on the basis of this research and that we can summarize the following points.

- The reduced number of digital educational resources produced by teachers or by teachers and/with their students;
- The lack of a "sharing spirit", for spreading and opening of created materials
- Little interest/motivation in the creation of educational resources in digital format;
- Lack of a digital culture associated with the creation and sharing of educational resources and the use of information technology and communication in the classroom.

Aims and goals

The purpose of this research was the creation of a Community of thinking Educators, creative and proactive in Open Educational Resources (OER), for children aged between 6 and 15 years old, from primary to basic education, demonstrating the feasibility of adopting the principles of Open Education, first, in Caramulo's Group of Schools and subsequently, serving as a leading example, in the national educational system and capable of implementation in other schools. Moreover, and as a consequence, we set out a responsible and productive growing use of information technologies and communication technologies and Web2.0 in the classroom. This work had as main objectives:

- The widespread use of Open Educational Resources, incorporated into the Learning

Pedagogical Model of Primary and Basic Education Schools (from 6 to 16 years old);
- The creation of a local Education Community of Teachers and Students, which promotes the collaborative development of Open Educational Resources (OER) and make them available freely on the format of learning objects and learning materials, centering on a group of schools;
- Contribute to a wider use of educational materials production tools and communication tools (privileging FLOSS) using Web2.0 features, specific to each type of class and content to produce.

Motivations and operationalization

At a time when technology is permanently deployed in society and in schools becomes a reality more and more present each day, there is no way we can alienate ourselves from it. With projects more or less daring and effective, the computer and digital education came, in fact, into school and into day-to-day for both teachers and students. The rapid development and the constant uprising of new technologies, with potential use areas in the classroom, new processes and new methods of knowledge creation, is leading to a rapid obsolescence of knowledge, what emphasizes the need and establishes the challenge of changing educational paradigms, *"education and job training for a lifetime, to the new paradigm of lifelong learning"* (Forsyth, 1996). There is

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thus a need to seek out new models and new strategies for both teaching and learning, in order to be able to meet the demands of an emerging "new education" and "a new knowledge society" in cyclic evolution and change, where each cycle gives birth the new cycles, new strategies and new learning tools. This is the context of the Information and Communication Society, constantly changing, requiring teachers to rethink and renew their teaching practices and where Open Educational Resources arise as a paradigm of excellence.

Let us also add that education cannot be seen as a purely technical activity and disconnected from reality and social, moral and political problems. Quite the opposite, the act of teaching and educating should be seen as committed and connected with moral and social values, leading teachers and educators to question themselves and their educational practices and how do they provide the knowledge that they produce. It thus becomes necessary to amend the teacher's figure, the student's and even the teaching and learning process. Submerging in Carr and Kemmis's critical-social conception (1988) and complementing with the ideas of Schön (1992) about reflection in action, we believe that education and the act of teaching, must move towards reflecting on educational practice and in adopting a critical position correlated with the social and with the act of learning. Undoubtedly, our goal was a change in the teaching and learning practices, implying therefore questioning in a critical way, the relationships between education and society, becoming each teacher a researcher of its own teaching and learning process. We intended that this questioning act, critical and socially correlated, would lead teachers to innovate, improve, to learn by questioning, to understand the educational contexts in which they move, having, as its ultimate end, the increasing quality of education on its all.

We developed an investigation at the school and from the school, conducted by teachers and with the teachers, involving students, aiming to clear the problem-situations of their own classroom, from each student and each school. Not forgetting the correlation between the social, the moral and educational, and in response to the arguments above, it became logical for us the use of Open Educational Resources, supported by free software and/or open source software to achieve our goals and in response to our motivations. With the digital creation of Open Educational Resources (OER), we establish the classroom as a "laboratory" for teachers professional development, accomplishing this way that investigation, rather than seen just as a methodology for solving problems, it was also seen and accepted as a training model, enhancing and improving digital literacy, in short, making teachers to become more interested in the pedagogical aspects of teaching and motivating themselves to integrate research into teaching, while, at the same time, integrating it in a practical way and with immediate results. Furthermore, when sustained this practice with the use of free software, not only we promoted the principles of sharing and shared creation, but we also responded to school's difficulties in acquiring proprietary software for the specific needs of each discipline. This way, the school ceased to be so dependent on its economic conditions, and at the same time, promoted in its teachers and students, the principles of shared creation, developing a social function co-responsible in the act of creating in a "free way" and with free tools, threads and knowledge structures that are now available to any learner, virtually anywhere in the world via the school's Moodle platform: http://aminhaescola.net/moodle.

Furthermore, using an action-research methodology project, for all its features and the importance given by it to self and shared creation, and to the improvement of teaching practices, it was applied to the group of Caramulo's schools and to the entire school community claiming by acting that it may establish itself as a "learning paradigm", possible to adoption by other groups of

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schools along the country. Based on the objectives set for this project, the use of an action-research methodology seemed to us to be the most appropriate, since its emphasis its place on solving educational problems - the scope and core of this research - with direct and active intervention of the researcher. Let's add that it was extremely important its contribution to the practical knowledge and personal understanding of the researcher as well as all of those involved in the research project, being they teachers or students, and it is even compatible with the condition of the researcher as teacher on this group of schools and soon, too, directly involved in research.

It was also quite appealing, because it allowed practice trials and experimentation in real classroom contexts, while at the same time it facilitated collaboration, knowledge exchange, cooperation and immediate feedback to the collaborating teachers. Since this is a method that, by definition, is directly linked to innovation with an effective potential to put into practice a conceptual critical model of curriculum innovation, together with the creation and use and disclosure of OER, immediately transformed the classroom into a privileged place where the changes happened and where the technological and curricular innovations were geared towards the education quality and improvement, as well as the learning quality. Therefore, it went towards the amendment/change of a learning paradigm, towards a more concerted one with technological innovations and social changes that we experienced then in our schools and where the OER became both agents and products of an educational innovation project.

This social innovation, this change in teaching ways and learning, this change in mindset through OER, has led to a greater personal and professional satisfaction, to an improvement of academic programs and academic knowledge, to a greater diversification of school strategies and activities, contributing to knowledge sharing, overall and socially open, leading to more prepared and better students learning in a "motivated educational", interested success and recognized by all stakeholders as capital gain both in a personal, social and moral ways.

As stated Morais et al (1989), "if teachers, key players in this process, remain anchored to the methods they learned during their training and do not adapt to new realities, then the school's future will be the same as the school's present and its past."

It is therefore towards a school of the future, different and innovative, questioning and socially and morally concerned that we move, we believe, we struggle and we strive to achieve…

Conclusions

Given the national context, we believe that Open Educational Resources can be an important tool for the universal knowledge dissemination, from public and private universities, but more important than that and according to the objectives of this project, in the different grades of basic and primary education. We must start acting earlier, in earlier ages and preparing these children to an open and shared society, giving them the social and moral tools they need to carry out the use, disclosure and dissemination of OER throughout their learning process.

As researchers, teachers and partners in developing this research we had the capacity to innovate, to concern and differentiate pedagogies, the ability to reflect on and change our teaching practices, always aiming on providing more innovative and learning methods to our students. Acting on the ground and with key stakeholders - teachers and consequently their students - had to

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intervene and positively transform a particular school in a different reality: more reflective, performing, innovative and empowering of different learning experiences, which not only sought practical improvements, but also, and essentially established themselves as agents of change and critical self-critical, ultimately changing their own environment and being themselves changed in the process. Thus, through the change and learning from the consequences of the change itself, we develop in ourselves an involvement in research and in a dynamic movement of knowledge construction. The success of the use and development of Open Educational Resources in this group of schools enabled previewing clearly and demonstrated that one's approach might be to create an infrastructure that supports collaborative development and publication of open content in national schools. At a time when so much is said of ICT skills and where their mainstreaming in the teaching-learning and school curricula have so clear objectives on education systems almost everywhere in Europe - as we note in the principles of the Lisbon Strategy, in the Portuguese Great Plan Options 2007 and the National Strategic Reference Framework 2007-2013 - we think we have demonstrated that this could be one of the many paths to be followed in a performing and innovative way, a provider of new knowledge and tools to help technological modernization of education and schools in Portugal, with an effective and active integration of ICT in teaching and learning, in fact of interacting with the main actors of the system, making them at the same time, researchers, learners and generators foreground.

OER has also established itself as a way to break with traditionalist conceptualizations of teaching, based on the teachers figure as knowledge holder. I would add that, in our opinion, this could be a practical and functional way to maximize teachers and students digital skills, in a process intended to be performing, reflective, personal and collectively shared, making the school what it should be: a source of knowledge accessible to all, freely and free. We can say that is now universally accepted the idea that, for a society in permanent change, we can only accept a permanent change in school too. And it also serves to note that when trying to find new models and new methods of learning at the threshold of the XXI century, ICT will play an increasingly active role, possibly being our earlier students themselves, and our teachers to be engines and poles of analysis so that new opportunities are created and new and guidelines could and must be found.

Moreover, it was a joint reflection of all the involved that the philosophical concepts of openness, sharing, dialoguing and shared creation that are the essence of the concept of Open Educational Resources, are not only an educational challenge but also a moral and social one. With OER there are emerging a set of unlimited collaboration possibilities, attitudes and ways of being/acting both in schools as well in life, just not only for teachers, but, above all, for learners. What matters above all is to educate for citizenship, with human moral values and with the best they have to offer to the world. We cannot forget that our "today students" are the man of tomorrow, and they may carry inside them the seeds to transform knowledge and the way it is spread and shared. They can and they must make the difference.

We finish transcribing part of the "Cape Town Declaration", which summarizes clearly and enlightening, the principles we believe in and that carried us along our journey:

> "We are on the cusp of a global revolution in teaching and learning. Educators
> worldwide are developing a vast pool of educational resources on the Internet,
> open and free for all to use. These educators are creating a world where each and
> every person on earth can **access** and **contribute** to the sum of all **human**

knowledge. They are also planting the seeds of a new pedagogy where educators and learners create, shape and evolve knowledge together, deepening their skills and understanding as they go.

This emerging open education movement combines the established tradition of sharing good ideas with fellow educators and the collaborative, interactive culture of the Internet. It is built on the belief that **everyone** should have the freedom to use, customize, improve and redistribute educational resources without constraint. Educators, learners and others who share this belief are gathering together as part of a worldwide effort to make education both more accessible and more effective."[1]

So, let's not wait until they are in Universities… let's act when we really make the difference, when children are still constructing their personality and their moral and social values. That was our goal, our challenge and the challenge we leave here to other educators around the world.

Notes

1. http://www.capetowndeclaration.org/read-the-declaration (verified in September 14, 2010).

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About the author

Paulo Manuel de Matos Pereira

Caramulo's School.

Born in Angola on 8th September 1971, I've studied in Rhodesia, actual Zimbabwe. At the age of six I came to Portugal where I started my academic studies in a small village. True my academic life I've been engaged in many different projects, from Music groups to students Associations and other social movements. I graduated as an English and Portuguese teacher in 1994. I've been teaching these subjects since then – for sixteen years now. But soon I started integrating and experimenting technologies in classroom and always been a curious and a self learner on these matters, doing my own research, going to different conferences and events ICT related. Yet not fulfilled I engaged a Master Degree In Multimedia in Education at Aveiro's University and developed a leading project with teachers and students from different school levels, on the disclosure, use and implementation of OER in a group of schools.

Largo da Igreja nº 50
3465-190 Vilar de Besteiros
Portugal
oluappereira@gmail.com

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