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Title: The Emergence of Open School Education: The Case of Open Discovery Space Portal

Year: 2014

Version:

THE EMERGENCE OF OPEN SCHOOL EDUCATION: THE CASE OF OPEN DISCOVERY SPACE PORTAL

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Abstract

Nowadays, open schooling is considered an education paradigm with increasing popularity, which focuses on the learners and offers more freedom in education outside of the physical and other types of barriers such as accessibility, flexibility, affordability and availability of teacher/tutors, classrooms, schools and educational institutions. The main elements that define Open Schooling are flexible learning, based on fully exploring the potential of ICT to improve education and training systems quality and efficiency, aligning them with the current trends on ICT in education, distant learning and life-long training.

The aim of this paper is to present the current status of Open Schooling mainly in the EU, but also globally, and to identify the future trends in the field by analysing the data from the use of Open Discovery Space Platform as an Open School initiative case study. In this study, various portals, initiatives, and actors/stakeholders active on Open Schooling and Open Education are identified, classified into categories according to their content, services, and positioning in the EU school education landscape. Moreover, these open school innovation services are studied, resulting in a comprehensive overview of the current status of Open School initiatives and a discussion of the future trends in the field.

1 INTRODUCTION

The term "Open School/Schooling" refers to the act of opening the educational system, processes and services to everyone without restrictions towards a learning process in which learning process, technology, tools and time are more under the learner's control [1].

Open Schooling is defined by two elements:

1. the physical separation of the school-level learner from the teacher, and

2. the use of unconventional teaching methodologies and information and communications technologies (ICTs) to bridge the separation and provide the education and training.

The "open" in Open Schooling refers to the openness of the system; usually there are no rules dictating student ages, prerequisites, content of courses or number of courses in which learners must enrol. As a result, Open Schooling meets the needs of a broad range of learners:

- Young people who missed out on schooling in their childhood can pursue a secondary education without having to attend classes with much younger children.

- Young mothers can learn at home and attend tutorials when necessary.

- Working adults can study while continuing to earn a living.

- People of all ages can acquire new skills and knowledge to improve their livelihoods.

Open Schooling is increasingly recognized as a viable alternate solution to the lack of qualified teachers in the schools. Nowadays, open schooling is considered an education paradigm with increasing popularity, which focuses on the learners need and offers more freedom in education outside of the physical and other types of barriers such as accessibility, flexibility, affordability and availability of tutors, classrooms, schools and educational institutions. The main elements that define Open Schooling are flexible learning based on fully exploring the potential of ICT and learning technologies to improve education and training systems quality and efficiency, aligning them with the current trends on ICT in education, distant learning and life-long training.

The two basic elements that define Open Schooling are the physical separation of the learner from the teacher, and the use of unconventional teaching methodologies and information technologies to bridge the separation and provide the education and training [2]. Thus, Open Schooling is considered an education paradigm with increasing popularity, which focuses on the learners and offers more freedom in education outside of the physical and other types of barriers such as accessibility, flexibility, suitability, affordability and availability of tutors. Moreover there are no restrictions regarding learner ages, skills, duration, class-time and content of courses or number of courses in which learners must enrol [2].

The Open Discovery Space project (ODS) platform allows teachers to compile personalised sets of learning activities and materials; to constantly monitor progress without having to interfere in the learning process; to re-align learning objectives and strategies in response to progress made; and to use a vast variety of engaging and interesting learning activities, materials, scenarios, learning technologies and tools. The ODS platform is supporting open school initiatives to scaling up education through the services it will provide.

The aim of this paper is to present the current status of Open Schooling mainly in the EU, but also globally, and to identify the future trends in the field by analysing the data from the use of Open Discovery Space Platform as an Open School initiative case study. In this study, various portals, initiatives, and actors/stakeholders active on Open Schooling and Open Education are identified as well as the contribution of ODS to Open Schooling is described through various success-stories scenarios. The afore-mentioned lead to an overview of the current status of Open School initiatives and a discussion of the future trends in the field.

2 OPEN SCHOOL TRENDS

Open School is one of the most significant trends of the modern education not only in Europe but also globally [3]. Open Schooling is expressed through six main Open Learning Initiative enablers [3] [4]:

- open source code, open multimedia content and the community or institutional structures that produce or enable them;

- the growth of what we is called participatory systems architecture;

- the continuing improvement in performance and access to the underlying information and communication technology (ICT);

- increasing availability and use of rich media, virtual environments, and gaming as well as the emerging deeper basic insights into human learning (both individual and community) that can be informed and validated by pilot projects and action-based research

- Open Educational Resources (OER) also infiltrated in its own right into the secondary education in the Commonwealth countries: the Commonwealth of Learning (COL) started an initiative of OER for Open Schools - Expanding ICT Expertise and Quality Secondary in Education as early as in 2008.

Almost every Open School implementations in every curricula offers high school courses, but a growing number are offering middle and elementary school courses as well. Most Open School implementations provide supplementary the official curricula courses [5]. Finally, Regarding the Marketing activities related to the Open School Initiatives, the target market are mainly students/young learners and their parents, while the administrators of these initiatives also seek to influence key policy makers [5]

3 OVERVIEW OF OPEN SCHOOLING INITIATIVES

Open Schooling initiatives are expanding both in Europe and across the world. They gain popularity, among the educational (teachers, students schools etc.), single parents and policy making communities, as they represent an educational system which is accessible, of good quality and affordable, meeting this way the requirements of learners and providers.

Our review of some of the indicative open schooling initiatives (Table 1) reveals that they target a diverse community of stakeholders ranging from students to teachers and policy makers, aiming to cover their needs. They either specialise upon a particular educational level (i.e., secondary education) or cover all educational levels. Similar findings can be seen in the context of their thematic areas that they cover, which are either subject-specific or general, covering a variety of themes. It is interesting to note that the type of resources that they offer in some cases go beyond e-learning material, notes, tools etc. to collaborative projects between schools (i.e. Dissolving Boundaries). Furthermore although the English language seems to be the most prominent one, one can also identify an array of other languages such as Spanish, Dutch, Arabic and Indian etc.

It is interesting to note the majority of initiatives represent the collaborative effort of a consortium of partners (i.e., foundations, ministries, academic institutions, etc.), which offer their services free of charge and only the National Institute of Open Schooling offers some paid services in addition to free ones. Access to all initiatives takes place via websites and only one initiatives utilises the TV as well (the case of Telesecundaria).

Table 1: Indicative overview of Open Schooling Initiatives

Criteria	Open Schooling Initiatives					
	OER 4 Open Schools	**National Institute of Open Schooling**	**Dissolving Boundaries**	**Telesecundaria**	**Educational Content Chain (Kennisnet)**	**PATHWAY**
Target Audience	Teachers, Learners	Students, Teachers	Primary: schools Secondary: teachers and students	Primary: Students, teachers Secondary: content /videos providers, programming and transmission council	Teachers	Teachers, students, policy makers, scientists, researchers
Education Level	Secondary Education	All education levels (OBE, Secondary, Senior Secondary & Vocational)	Primary & Secondary Education (K-12)	Secondary Education	Primary & Secondary (K-12), Vocational Education	All education levels
Subject	General (17 subjects)	General (variety of subjects)	General	Sciences, Mathematics, Spanish, History, Civics & Ethics, Geography	General (variety of subjects)	Natural sciences, Physics
Type of Resources	Self-study materials, print-based	Printed self-instructional study materials supported	Collaborative projects between	Digital books , notes, videos, audio and	e-learning materials, videos, tools,	Methods and exemplary cases of

Criteria	Open Schooling Initiatives					
	OER 4 Open Schools	National Institute of Open Schooling	Dissolving Boundaries	Telesecundaria	Educational Content Chain (Kennisnet)	PATHWAY
	versions available on CD-ROM, practical handbooks, workshops, digital resources	by audio- video programmes and a semi-annual Magazine "Open Learning"	schools	interactive TV	online workshops, etc.	effective introduction of inquiry to science classrooms
Language(s)	English as a common language (OER material in English)	English, Indian, Urdu, Marathi, Telugu, Gujarati ,Malayalam	English	Spanish	Dutch	English
Country	OER materials are accessible for use in: Botswana, India, Lesotho, Namibia, Seychelles and Trinidad & Tobago	India	Ireland	Based in Mexico – Available also in Costa Rica, El Salvador, Guatemala, Honduras, and Panama. (Pilot programs in: California, Colorado, Pennsylvania, Oregon, Florida)	Netherlands	EU (based in Germany)
Date Released	2009-2012 (COL became operational in 1989)	1989 - Established as the National Open School (NOS) by the Gov. of India. Re-established as the National Institute of Open Schooling (NIOS) in July 2002	2000	1968	2005	2007
Access Point	Website	Website	Website	Website, TV (some programmes)	Website	Website
Partners	Consortium of partners (i.e.,	National Consortium for Open Schooling	School of Education in the	Education material from the Ministry of Education - Mexico	Kennisnet represents the Netherlands in	Consortium of partners (EU-funded project)

Criteria	Open Schooling Initiatives					
	OER 4 Open Schools	National Institute of Open Schooling	Dissolving Boundaries	Telesecundaria	Educational Content Chain (Kennisnet)	PATHWAY
	Foundations, Ministries, National Institutes, Colleges, etc)	(NCOS)	University of Ulster, Coleraine and the Education Department in the National University of Ireland, Maynooth.	Television programs on channel 11 of the six channels of Edusat of the Ministry of Public Education (SEP, Secretaría de Educación Pública) of Mexico	European Schoolnet1. Partners also with Wikimedia Foundation, and other international organizations.	
Revenue Model	Free	Free: Some courses are free Paid: Some courses require admission fees	Free	Free	Free	Free

4 THE CASE OF ODS

Open schooling is an approach targeted and followed by many initiatives. Within this article we explain how the project "Open Discovery Space" (ODS) support open schooling. Open Discovery Space project (2012-2015) deals with open educational resources (OER), re-use of resources and community building in European schools. While the project deals with improving the use of E-learning and ICT in schools, one of the major aims is to build a platform for schools to adopt. This platform, ODSP, aims to offer open educational resources (OERs) that are collected throughout school curriculum across Europe as well as from different parts of the world. In addition to provision of resources, the platform offers tools for networking, collaborating and communicating with other teachers as well as services for production of lessons plans and learning scenarios.

The activities and tasks within the project are taken to support open schooling and open movement in general. These range from supporting schools across Europe to measure their readiness to adopt ICT in education and to make plans to increase their competences for resource-based learning, knowledge sharing of good practices and usage of ODSP as a tool to facilitate these actions. Currently, ODS is bringing together over 800 schools around Europe and works closely with them through national coordinators who are active in their own countries. One of the major aims for open schooling is to connect and integrate rural schools that have limited access learning technologies and resources. ODS has facilitated and run activities and workshops in over 20 countries to raise awareness on open schooling and potential uses of ICTs in education to meet the different educational needs and objectives which has positive social and economic impact. Some of these workshops have been situated in Greenland as well as in rural areas in Greece, spreading some of the best practices derived from teacher communities to remote areas. These success cases are shared within the teacher communities as well as within the OER

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[1] http://www.eun.org/

movement in general to share inspiration on education. Within this article we will focus on the role of the ODSP to support open schooling.

As explained, some of the key principles of open schooling relate to accessibility, flexibility, affordability and availability. On a technical level ODSP supports all of these in a variety of ways. The platform that was released less than a year ago has grown as a large access point for finding OERs for school education. At the current state, the platform connects to over 660.000 curriculum-related resources that are distributed in different databases and websites. Such integration of learning resources is a vital part of broad accessibility within open schooling.

However, these opportunities provided by ODSP do not guarantee a successful uptake of the platform in open schooling. Many of the previous initiatives have released sophisticated tools and services for open education but still suffered from lack of adoption [6]. Such cases have been witnessed for both repositories that provide OERs for a particular topic and environments that build social functionalities around the resources. In the end it comes to activeness of educators and students. Such environments cannot be successful without communities that share their resources and experiences within the system. In this article we present 3 success stories of such active communities within the ODSP. The success stories represent communities on different levels: 1) national and local, 2) thematic and 3) international.

4-1 ODS Success stories: National Communities - Case Serbian teachers

One of the most successful case of using the ODS platform for community building and open schooling has come from the Serbian teachers' community. Open educational resources in Serbian has before not been available in large quantities and similarly, teachers have been lacking a common platform to communicate, share and re-use their teaching materials. ODS platform has provided them with a window to opportunities not only in their own country but also within Europe. Through the ODS platform they have had access to open resources, but also to innovative open pedagogical solutions and peer support. Over 170 Serbian teachers have gone together to set up the community space in the ODS portal actively, setting up their groups and events. The Serbian teachers have also been uniquely active in creation of learning objects and scenarios, based on the needs on their own community. With the ODS Platform tools they have been co-designing their Open educational ideas into lesson plans with the ODS Authoring Tool. A concrete sign of the success of the ODS approach on the Serbian community has been that half of the ODS Spring 2014. Contest scenarios have been submitted by Serbian teachers. More info: http://portal.opendiscoveryspace.eu/community/srpska-ods-zajednica-1618

4-2 ODS Success stories: Thematic Communities – Case Entrepreneurship education

ODS platform provides support for various opportunities around Open education: Not only for national teachers' groups, but a space also for thematic areas, for existing communities as well as for new partnerships. ENTREDU (Enterprise Education) Community is an example of teachers coming together to work on their ideas around the common topic and interest of entrepreneurship education. This topic is hot and emerging with agile learning materials which demands constant updating and flexible curricula changes while the industry grows alongside with entrepreneurship education. Therefore there has been a definite need to create opportunities for such collaborative space, which ODS portal provides. More than a hundred teachers have already joined the discussions and activities of the community. The ODS tools have also been customizable which has been the key for existing open communities transformation to the portal communities.
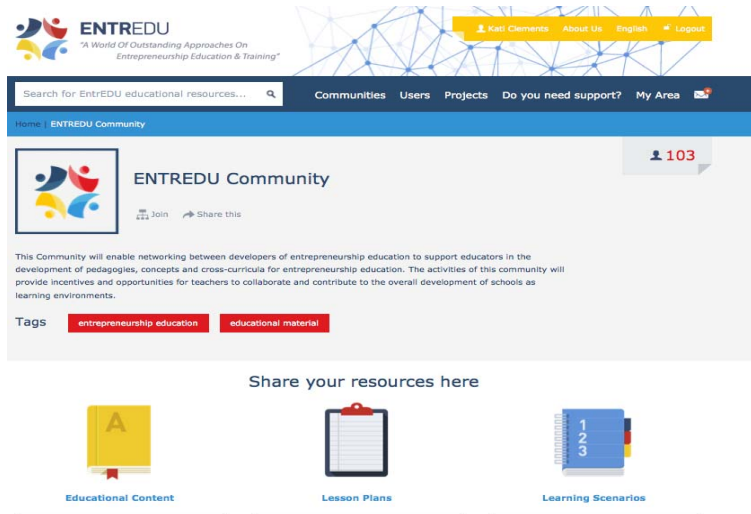
Fig 1. ENTREDU Community site in the ODS portal

4-3 ODS Success Stories – Case International open schools collaboration

In March 2014 Schools all over the world were asked to measure the Earth's circumference by performing the experiment of "Eratosthenes", originally carried out in the 3rd century B.C. Over 120 schools registered to participate to the event. At their respective noontimes on the equinox day - 21st of March - the students measured the length of shadows cast by sticks, then consulted the observations made by others at the same latitude. By sharing this data, invoking the properties of right triangles and applying proportional reasoning to angular distances, the students will obtain a good measurement of the planet's size. A photo contest was also organized alongside with this massive experiment, which successfully engaged students all around the world through open schooling.
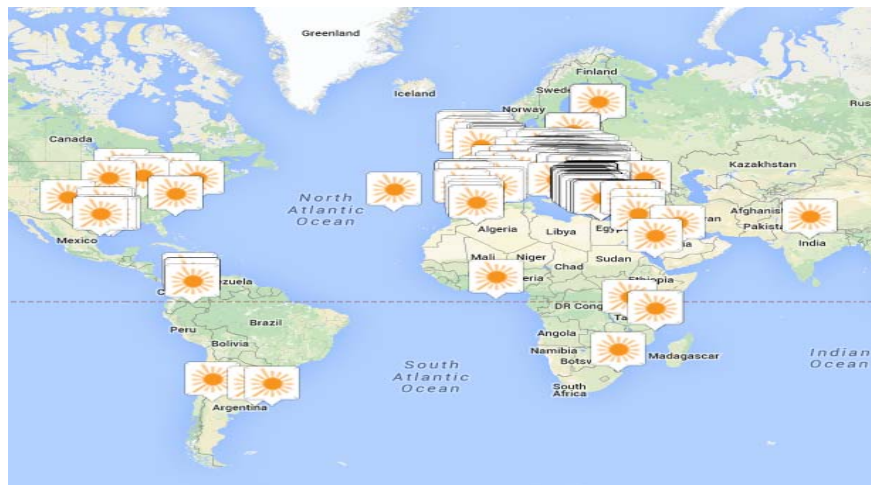

Fig 2. Eratosthenes Experiment reporting on world map

5- CONCLUSION

Open Schooling is becoming more and more popular as well as the flagship of the education policy makers aiming to the educational reformation and modernisation. In addition Open school initiatives can

increase the efficiency of current educational curricula, cost effectiveness, provide further learning support and unrestricted access to educational processes for everyone.

This research unveiled that current Open School initiatives although they are addressed to a wide range of users they are focused on and specialise upon a particular level of education or thematic area without offering materials that cover other levels or areas restricting the usability and availability from the user's point of view. While these restrictions may seem increasingly important, Open School Initiatives add another dimension in educational processes/activities adding social network applications, live cooperation tools and specific cooperation spaces/ virtual environments.

The ODS project is supporting every aspect of the Open Education movement, creating a huge community with steady steps. Supported by the evidence of the success stories presented in this case-study-like research, it is safe to support the opinion that the educational community is more than interested in getting involved in the Open Education concept and the results regarding the inter and intra school collaborations are encouraging. Future research will provide more information on the Open School initiative' effectiveness and purpose achievement.

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