# Plan CEIBAL in Uruguay

## FROM PEDAGOGICAL REALITY TO AN ICT ROAD MAP FOR THE FUTURE

United Nations
Educational, Scientific and
Cultural Organization

Regional Bureau for Sciences in Latin America and the Caribbean

UNESCO Representation to MERCOSUR

Communication and Information Sector

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ANEP

PEARSON FOUNDATION

OIM Organización Internacional para las Migraciones
IOM International Organization for Migration
OIM Organisation Internationale pour les Migrations

Organización Panamericana de la Salud
Oficina Regional de la Organización Mundial de la Salud

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CHAPTER 6

# Education portals and digital resources

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by José Miguel García | Dánisa Garderes Corbellini | Fabián Martínez | Mª del Lourdes Quinteros

## Introduction

This article develops the concept of education media from the beginning of modern education to current digital resources in learning, and then goes into a detailed account of education portals as pivotal resources. In addition, it provides an in-depth analysis of collaborative learning and learning networks as the major strength of portals.

## Digital resources in learning: past and present

*«Innovative teaching requires better materials from both a technical and an educational point of view.»*
Julio Cabero (2001)

Almost from the very beginning of formal education there have been different materials that were considered educational and used by teachers to support their teaching practice and learning processes. Information and communication media and technologies are much more than simple physical supports that transmit information; much more than channels allowing communication between a transmitter and a receptor. M. Area (2004:75) suggests that they *«also help structure learning processes and activities»*, in line with other authors who consider that information and communication media and technologies *«have the potential to shape thought and its representations; that is, they act as tools in the social construction of culture.»* To think of these media as mere devices that transmit content is akin to conceiving education and learning as the *«transmission of information by the teacher and the medium and, in consequence, the reception of information by the students.»*

### Learning resources and ICT

All digital educational material must comprise at least three characteristics in order to meet the required educational objectives and make a sound and rational use of the possibilities provided by IT support.

**1. Hypertextuality**: hypertext is in itself a fundamentally innovative contribution to the teaching and learning process. The hypertext system, like the hypermedia system, has substantially modified traditional

ways of reading and writing. That is the greatest innovation provided by hypertext: reading is no longer linear and sequential, instead, different blocks of information relate through continuous associations. Associative links are, in the long run, far richer for learning, as they awaken prior knowledge in each individual and this allows the person to understand the meaning of new concepts. The new technologies bring into this process the capacity to define those "leaps forward" in reading as "links" or "hyperlinks", producing in the reader the feeling of instant access to new information. In this way, the creation of texts enriched with links acting as mediators/facilitators of learning is fostered, insofar as these links represent significant relations with the different parts of the text. On the basis of the author's proposal, the reader can choose relations and assign them an order of importance that may or may not coincide with the author's intention. Furthermore, in some systems, readers can create their own links. Thus, readers actively modify the text and can even personalise it; readers evolve from being consumers to being active collaborators in the construction and reconstruction of the text, recreating it according to a non-linear, individual structure, and adding their own concepts and knowledge.

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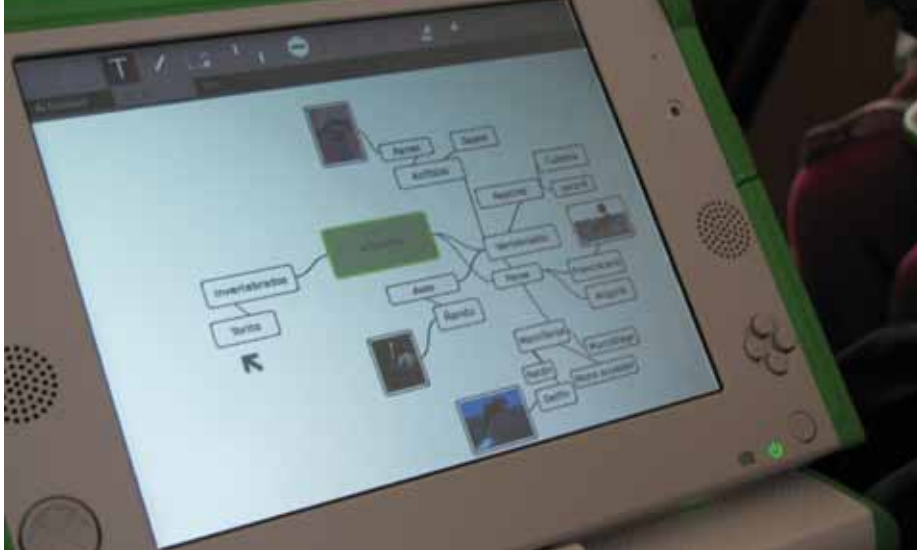
**2. A multimedia structure**: simultaneously integrates different information formats: textual, graphic, audio and iconic (M. Area, 2004:96); thus, «*the reader reacts to overlapping stimuli (colours, form, sound…) that are present in formal structures that he himself selects (…) The screen becomes a perception area where different types of elements appear that basically respond to visual codes that imply a type of learning and the enhancement of the user's communication competence.*»
By integrating different codes, the understanding and learning capacity of a person is enhanced, as different

learning modalities and strategies are included.
Given these two characteristics we can now talk about a **hypermedia** format that is a combination of a multimedia system with a hypertextual structure, an indispensable requirement to tap into digital educational materials.

**3. Interactivity**: Communication with other subjects must be favoured and a higher level of interactivity between the student's action and the equipment's response must be incorporated by providing a variety of activities for the student to carry out. This characteristic is essential to foster relevant learning as, according to the constructivist theories inspired by Vygotsky, knowledge is built through social interaction. In the case of digital educational materials, this interaction also refers to the possibility – unheard of in the case of other educational media – of the receptor modifying in his response the initial message of the transmitter. Interactive environments

grant students some degree of control over their own learning process, which becomes more autonomous and self-regulated (M. Area; A. García-Valcárcel, 2001:416; M. Area, 2004:102).
In the field of digital educational material, we find two presentation formats (M. Area 2004:95-106): CD-ROM or web-based distribution. Though both share the above-mentioned characteristics, they need to be differentiated.
Digital educational material presented in a CD-ROM format is, in a way, a published product, as several copies can be obtained from a single matrix – just like a printed book. It can be transported and disseminated using the same medium and, also like a book, has been designed for individual use. A CD-ROM, however, can produce new types of textuality due to its memory capacity, its multimedia features and its capacity to enable interactivity (M. Area, 2004:98).
The latter characteristic can be defined

as selection-based interactivity: users can build a pathway with the information recorded on the disc, according to their personal usage projects. Access to information is neither linear nor sequential.
On the other hand, we have found some disadvantages with CD-ROMs when compared with web-disseminated material. Whereas CD-ROM production costs are lower than those of a book – and, therefore, they are cheaper to purchase – the material offered on the web can be free in terms of access and use. Should payment be required for access and/or for usage, this can be controlled through user identification and password. The possibility of being free-of-charge gives this type of material a greater advantage over CD-ROMs – as well as over textbooks – as it contributes to diminishing the digital divide and, therefore, enhances the democratization of access to new technologies.



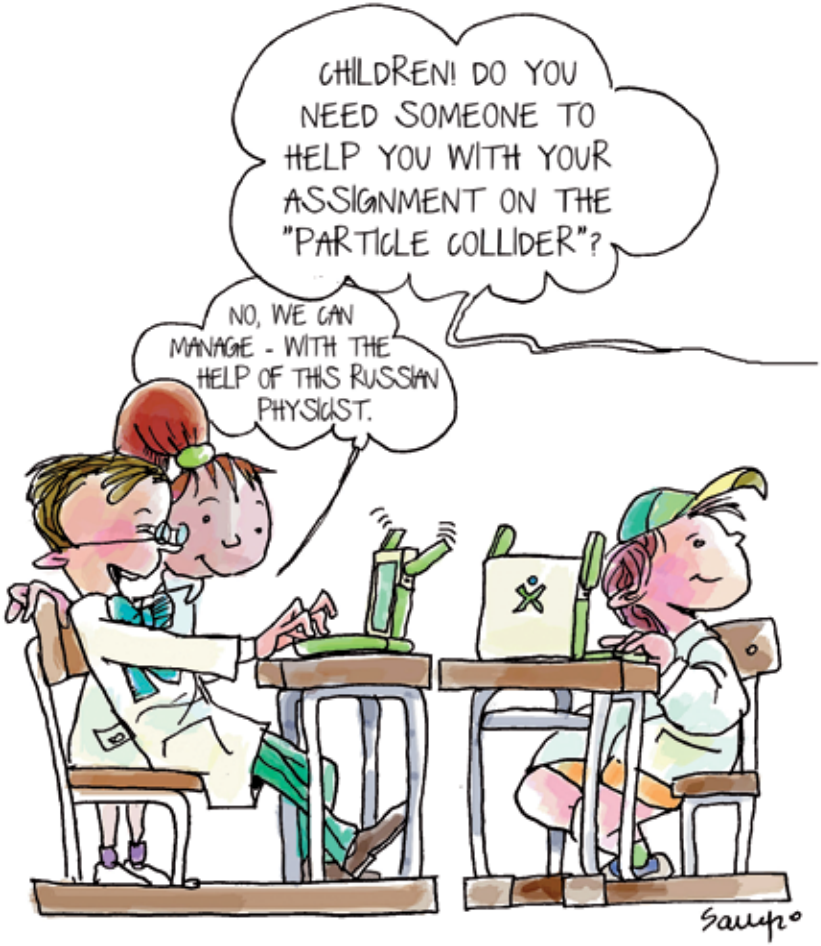
## Web resources: education portals

There are numerous educational websites. Some are informative — institutional websites and databases — while others are formative. Still others are both formative and informative: these are the education portals, which are provided with an intuitive navigation structure, and offer «*information, data search tools, educational resources, tools for interpersonal communication, training, advice and entertainment*» in a comprehensive manner (A. Cuevas; F.J. Calzada; M.J. Colmenero, 2003).
Since their creation over a decade ago, education portals have gradually been incorporated into the language of the education community as a whole, in response to a new reality requiring the immediate inclusion of Information and Communication Technologies (ICTs) in today's education.
In our region, education portals emerged as a consequence of «*the governments' need to disseminate*

*their education policies and bring together the education community in a single virtual space»,* explains Diana Romero (2008), editor of the Education Portal in Medellín, in her article "El Auge de los Portales Educativos" (The Boom of Education Portals).

In the case of European education portals, their objective is to *«promote the use of ICTs in education at European schools, especially by encouraging and supporting cooperation between schools in Europe; offering didactic-pedagogic material and services; supporting the development of teachers; exchanging experiences and examples of good practice; agreeing on and standarising activities.»* (U. Lundin, 1998).

In a review conducted with education portals that are part of the RELPE[1] Network we were able to identify similar principles, objectives and purposes in the development of web spaces where the aim is to promote learning and facilitate access to new ways of thinking in teaching, in this case, building



capacity through the use of ICTs. In Uruguay, the portal that represents us as RELPE members is "Uruguay Educa", whose team members are teachers from all of ANEP sub-systems (Early Childhood and Primary Education, Secondary Education, Technical and Professional Education Councils, and the Directorate for Teacher Training and Professional Advancement) and provides a wide range of resources. Another major Uruguayan portal is the CEIBAL Portal, which offers its own educational resources – in particular, learning objects and treasure hunts – through an inter-institutional team. It also provides projects and opportunities for exchange to strengthen the whole community connected through the Plan CEIBAL.

Portals are aimed at education communities (students, teachers, managers, researchers, families) and their strength lies in the quality and variety of learning resources, concentrated in a single site. Amongst the educational resources provided by education portals to visitors, there are presentations, multimedia material (images, videos, audio), learning objects, treasure hunts, WebQuest and educational software, all of which can be accompanied by methodological proposals aimed at making a better use of the resource. In addition, the portals provide games – mostly educational – articles and interviews with experts, research information and interesting links.

Romero (2008) believes that *«for teachers, portals represent a source of interactive resources that can be used in the classroom with their students, while they are also a source of information for projects and research on education. In addition to this, they also serve as a meeting point for peers.»*

In the case of students, she suggests that education portals are *«a specialised source in the search for school assignments, a meeting point for teachers and students interested in the same topics, a place for entertainment and leisure due to tools such as electronic mail, chat rooms, forums, games, etc.»*

Whereas for parents they *«are a place for consultation on topics relative to their children's education and, in addition, they represent a source of information and advice on how to raise their school children.»*

(D.C. Romero, 2008).

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## Collaboration and exchanges in learning

The Internet has transformed itself into the Web 2.0 which, in brief, is a new way of participating in the Network. It is no longer enough to access information and download it; tools allow us to communicate, produce and share new information. For this reason, education portals represent the ideal point of access to education communities; networks of teachers and students who exchange their experiences and thoughts, who also develop digital resources collectively and make them available to the global community so that they can be modified and improved. Education portals are thus conceived as new spaces for communication and collaboration between different actors in education communities, always aiming to improve the quality of teaching and learning processes.

It is clear that from the very beginning the Internet was conceived to facilitate collaborative work; the worldwide web stemmed from the idea of interconnecting computers; therefore, Internet collaboration has been playing a decisive role from the outset; it was generated to enable resource-sharing activities. Portals provide us with an excellent opportunity to do collaborative work. Through collaborative learning it is possible – using the tools made available on the portals – to walk alongside other individuals who share our same concerns though they might not share our values or ideas because they are part of a different culture.

Collaborative learning can be defined as the socio-cognitive process that is structured on the basis of another individual[2] (in this case, supported by technology) as well as strategies to

foster the development of combined skills (learning plus personal and social development), where every member of the group is responsible both for his/her learning as well as for the learning of other group members. The basic elements are: positive interdependence, interaction, individual input and personal/group skills. Portals provide scenarios that advance social interaction by providing more communication channels and content with a wealth of learning materials.
These collaborative and collective construction attitudes are merely incipient for the majority of the teachers. They entail new teaching practices that imply abandoning the traditional isolation of primary and secondary school teachers to become an active part of a whole that grows and is nourished by the experience and training each has received.
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## *"Fixed desk, collective table"* [3]... Learning networks

The incorporation of technologies in formal education has been marked by different occasions when momentum was gained, but not always sustained over time.

During the course of pedagogical discussions initiated twenty years ago, during the Computer-Assisted Education boom, it was thought that computer-based methods would drastically change education; this idea even led to concern on the part of teachers who felt they might become redundant.

Since then, many different education models have visited our classrooms and they frequently appeared to be methods that would revolutionise our teaching practices definitively. Nothing could be further from what actually happened.

So far, technology – IT especially – had been left out of the classroom; either because IT classrooms were kept locked or because their use was limited to the IT teacher, or to innovative teachers, who were always a minority.

Those who have worked as computer skills teachers in general agree that it has been very difficult to coordinate classroom activities with primary or secondary school teachers, and even more difficult for them to achieve "appropriation" of a class. In short, many teachers had computers at hand but very few adopted them for their own use. *«Rather than becoming a force to undermine these old-fashioned school practices, computers were assimilated (…) Thus schools took up what could have been a revolutionary tool and turned it into a conservative tool.»* (S. Papert in D.S. Bennahum, 1996). We understand, however, that the present situation can be radically different with the incorporation of XO laptops into the classroom.
On this occasion, computers have "overrun" the classroom and the teacher must coexist with them on a daily basis. This reality combines with the fact that pedagogical discourse also includes – although it is not always applied, in practice – the importance of collective work and the building of knowledge. The XO laptop has specific tools to access information and share tasks, apart from a series of activities that facilitate its use in the most varied of daily class assignments. Julio Castro wrote his book *El banco fijo y la mesa colectiva. Vieja y nueva educación* (The fixed desk and the collective table. Old and new education) in 1941 (it was published in 1942). We understand that the dichotomy of the time – symbolised by the image of a desk fixed to the floor, representing the isolation of the learner, while the collective table was an image representing interaction with the group – can today be approached from a new perspective. More than sixty years after the first publication of his book, many classes are still being delivered in a unidirectional communication modality: from the teacher to the student or with some feedback instances that include teacher-student-teacher.
The incorporation of computers with these new functions suggests that all these ideas with regard to interaction and collective work present new possibilities. Interconnection allows access to large amounts of information which is like having an

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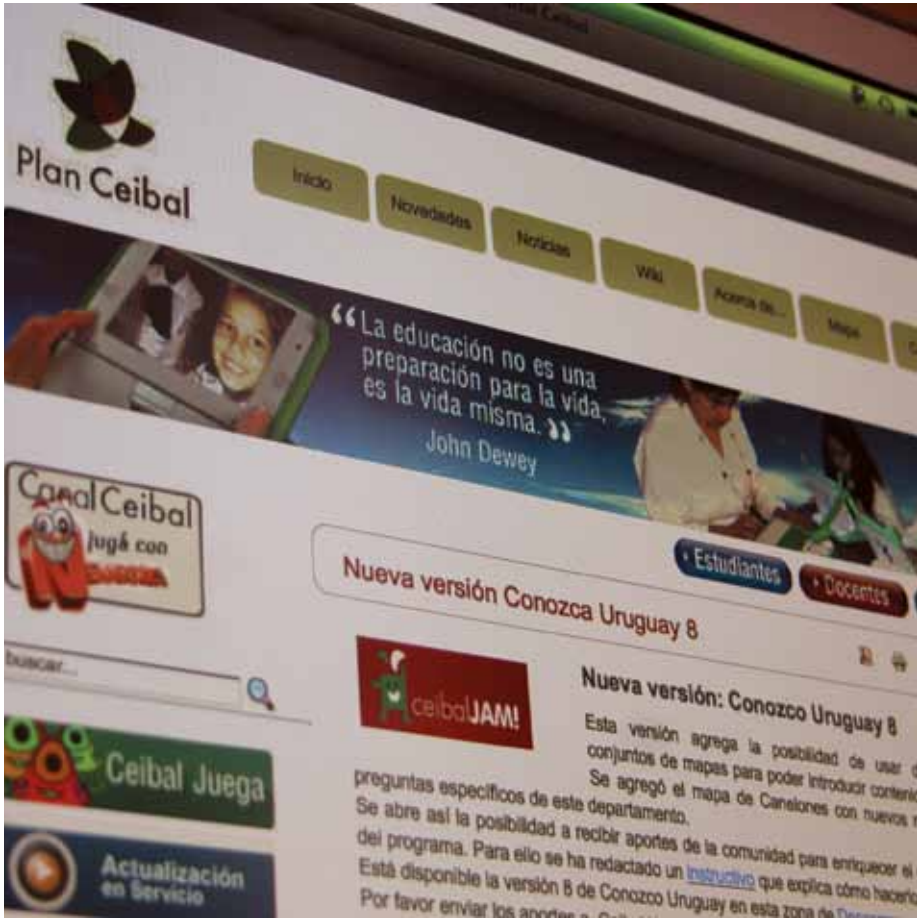
enormous library in the classroom providing images and audiovisual resources. In addition, the tools of the so-called Web 2.0 allow the students to generate information themselves and share it with the world. In this way productions that in the past were limited to the reading of teachers, now include new interlocutors. Collective work as depicted by Castro around his table has now expanded, since it can be carried out with the participation of students in different classrooms or students located in different places beyond the school walls. This means that we are abandoning the enclosed classroom and approaching new learning networks.

The conditions, therefore, now exist from the standpoint of technological capacity, pedagogical discourse and technological context. Yet this does not mean that practices will change radically overnight. Teachers will continue to innovate on the basis of these realities but also on the basis of their daily practices. According to

Mario Kaplún (1998) it is important to be careful not to transform the so-called "banking education" into "an ATM education".
We are certain that there is fortunately no turning back along the path we are treading and that this will allow the school, at long last, to become attuned to 21st century realities.



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[1] RELPE (Latin-American Education Portals Network) is a Network of national, autonomous, public service and free-of-charge portals, appointed by the Ministries of Education in every country in the region.

[2] In the socio-cognitive perspective, the active presence of another person is necessary, as this second person can facilitate socio-cognitive conflict processes; otherwise, there is no learning but merely an accumulation of information.

[3] Refers to the title of a book by Julio Castro: *El banco fijo y la mesa colectiva. Vieja y nueva educación* (1942).

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