Monograph "Redefining the Digital Divide in Higher Education"

INTRODUCTION

Framing the Digital Divide in Higher Education

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Abstract

This is the introductory article to the monograph "Redefining the Digital Divide in Higher Education". The article describes a comprehensive approach to the phenomenon of the digital divide and digital access, based on Marc Raboy and Mark Warschauer's research. This approach depicts the evolution from mere physical access to effective use of information and communication technologies in the field of higher education. Within this framework, the articles in the monograph are presented highlighting their role in contributing to a comprehensive approach and reflection on the digital divide in Higher Education.

Keywords

digital divide, digital competences, digital skills, digital literacy, higher education

Contextualizando la brecha digital en la Educación Superior

Resumen

Este es el artículo de presentación del monográfico «Redefiniendo la brecha digital en la Educación Superior». El artículo describe un enfoque integral sobre el fenómeno de la brecha digital y el acceso digital, basándose en las investigaciones de Marc Raboy y Mark Warschauer. Este enfoque representa la evolución desde un acceso meramente físico al uso eficaz de las tecnologías de la información y la comunicación en el ámbito de la educación superior. Dentro de este marco de referencia, los artículos del monográfico se presentan destacando su papel en la contribución a un enfoque integral y reflexión sobre la brecha digital en la educación superior.

Palabras clave

brecha digital, competencias digitales, habilidades digitales, alfabetización digital, educación superior

1. What digital divide?

Most articles on the digital divide – and especially one written to introduce a monograph on it – are expected to provide a specific, univocal, sound definition of what the digital divide is, normally relating it to the notion of 'access'. But the digital divide is a flexible, changing concept, particularly when taking into account the dimensions of space and time, the latter with a static or dynamic approach. As regards space, the different conceptions vary depending on countries or even regions of the world[1]; as for time, the advancement of technology has changed the concepts of access and digital divide and has also evolved over time;[2] and finally, our appreciation of the digital divide also varies at any point in time as, when looking at different age groups in the population, what children understand as digital divide is quite different from what their grandparents do.

Faced with such a changing landscape, we believe it is safer to avoid providing yet another definition of digital divide – or, positively stated, digital access – and provide instead a framework in which a variety of approaches can fit while keeping a minimum level of coherence and consistence.

We think such an approach can be achieved by referring to the articles by Marc Raboy[3] (1995, 1998) and Mark Warschauer[4] (2002, 2003), and focusing on what they call the Telecommunications Model, the Literacy Model and the Broadcasting Model, the latter renamed the e-Readiness Model in a previous publication (Peña-López, 2009).

Marc Raboy argues that, in the Telecommunications Model, the "emphasis is on the sender, on the capacity to get one's messages out, and access refers to the means of communication". That is, digital access under this model means mainly making infrastructures available to send a message (literally), to connect to the Internet, to be able to use specific web services, etc. In other words, this approach focuses on hardware, software and connectivity, which are the main components that enable 'reaching out' in digital terms.

It is easy to see that while this is still the approach of many today – especially telecom operators and other service providers – it is an outdated vision of ICTs, where deploying infrastructure is a must and a priority, upon which all the digital content and services that make up the Information Society can be built.

This model – labelled the 'device model' or the 'conduit model' by Mark Warschauer[5] – falls short when adding the human factor to the equation: infrastructures do not work on their own, they need to be operated and, indeed, operated in a specific way by a specific person. It is the Literacy Model that takes into account the individual's capacity and ability to use their infrastructure for their own purposes and benefit.

In a certain way, the Literacy Model focuses on the area between infrastructures and the object upon which these infrastructures are applied: digital content and services. If we take skills and competences as an axis of symmetry, we can go back to Raboy and his definition of the Broadcasting Model, which is the opposite of the Telecommunications Model: "in the broadcasting model, emphasis is placed on the active receiver, on free choice, and access refers to the entire range of products on offer".

Hence, the Broadcasting Model includes everything related to usage, usually even considering the context of this usage. This is exactly the case of the World Economic Forum's Networked Readiness Index (Dutta & Mia, 2009) and the Economist Intelligence Unit's e-Readiness Index (2009), the two most emblematic examples.

How should we understand these approaches or models in the field of higher education?

2. The digital divide in higher education

Though every categorization, every attempt at classification, is necessarily artificial, reality being neither binary nor categorical, we believe that in doing this mapping exercise we can help the reader to locate and, more especially, frame concepts and thoughts so that they can be retrieved easily.

When we speak of the Telecommunications Model in higher education, the first thing that comes to mind is hardware. Wiring classrooms and providing students with physical access to computers – normally desktops – has

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1. See, for instance, RODRÍGUEZ & WILSON (2000), REDING (2007), ÇILAN et al. (2008) or HOWARD & MAZAHERI (2009).

2. See, for instance, the huge gap between ALBERY (1995) and HARGITTAI & WALEJKO (2008).

3. Although Marc Raboy speaks about communications and not strictly about Information and Communication Technologies, his discourse can be easily extrapolated to the case of the digital divide and digital access.

4. All citations and quotes of these authors always refer to the aforementioned articles.

5. The Conduit Model can be understood as an enhancement of the Device Model, where there is a change in philosophy from a concept of access as ownership towards access as use.

been (and, in fact, still is) either a way for institutions to bridge the digital divide or a way of measuring how deep and wide the digital gap is.

Mobile technologies mean that not only desktops but also laptops – and the myriad of other mobile devices like smartphones, portable gaming consoles, etc. – are now being taken into account when considering 'wiring' a classroom.

Yes, "wiring", or connectivity, is necessarily and increasingly a must when speaking about bridging the digital divide inside and outside classrooms. And even though "wiring" meant being connected, wires are being put to one side by the pervasiveness of wireless connections.

Of course, hardware does not finish at an individual level but has to be extended to the collective. Interactive blackboards – on lower levels of the educational system – and overhead projectors – on higher ones – are increasingly supporting the interaction between teachers and students.

As for software: it is not only what makes computers run, but what also extends the classroom to far beyond its walls and its courses. It is a powerful tool to bridge the digital divide in remote areas, provided connectivity is ensured. Hence, there has been a great deal of debate on the topic of Free/Open Source Software (FLOSS) and FLOSS for educational purposes (FLOSSE), its flagship being the virtual learning environments (VLE) and personal learning environments (PLE) which allow for more and better educational programmes.

On the literacy side of things, the first concern is still how to acquire digital skills and, more importantly, how to turn them into digital competences. The debate around digital skills has nevertheless ended quite often in a clash of cultures or, rather, a clash of generations: are students the ones that have to be trained in these skills, or are these so-called digital natives the ones who will end up training their analogue teachers? Probably a bit of both, because, as new educational patterns and theories emerge, neither group completely masters the digital arena.

Moving on to the e-Readiness Model in higher education, these new educational patterns, methodologies and theories have emerged both to provide education with a context in the digital era and with a new type of content and services. Along the lines of FLOSSE, but now applied to content, the debate has focused on open content – with MIT's OpenCourseWare and Creative Commons' licenses as flagships – as a means to provide free and flexible content to all students, and to provide free, flexible and cooperative content to their teachers.

The Telecommunications, Literacy and e-Readiness Models have, of course, all been analysed not only from the point of view of mere access or usage, but their impact on access, measured in several ways: economically, as the returns on investment made in digitizing classrooms; educationally, as the increase or decrease of quality in learning and/or better academic performance, etc.

3. Framing the digital divide in higher education

This monograph relies heavily on the previous conceptual framework. Not that the authors had it explicitly in mind – though they all know these developments very well – but we, as editors, thought it would be useful to carry out a comprehensive review, from simple physical access to infrastructures to the more complex and philosophical challenges of digital empowerment emerging from education.

Though the following articles clearly overstep the boundaries between the models we have just introduced, we have tried to interweave approaches that, put in a logical order, can give the reader an approximate but fairly comprehensive view of ideas on the digital divide in higher education.

Matti Tedre, Frederick Ngumbuke and Jyri Kemppainen are the authors of "Infrastructure, Human Capacity, and High Hopes: A Decade of Development of e-Learning in a Tanzanian HEI", a most interesting article for many reasons. First of all, because southern voices are rarely heard in generic academic journals, i.e. based in non-southern or higher income countries. Secondly, because of their profound knowledge in the field and the duration of the project, the authors have the right to speak of short and long term events, depicting not only the final achievements, but also the whole process over the years. Lastly, because the article begins with the basic components of digital access – infrastructures and our Telecom Model – but quickly moves on to skills training as a necessary next step towards digital empowerment.

Ismael Peña-López takes over from that point with "From Laptops to Competences: Bridging the Digital Divide in Higher Education". He first speaks about the state of the digital divide in Europe in the field of education, warning about the existing bias towards infrastructure-based indicators. He then passes quickly on to several government projects aiming to bridge the digital divide – based on these indicators – and the existing literature that supports or rejects the expected success of these policies. Finally, he focuses on the crucial role of digital skills and competences, and drafts what could constitute the keystone in this field, to make sure investments in infrastructures are used effectively and have an impact on education.

Neil Selwyn goes one step further in "Degrees of Digital Division: Reconsidering Digital Inequalities and Contemporary Higher Education". Arguing within the context of the e-Readiness Model, in new and unexpected ways he lists the complexities of the continually evolving digital divide, and how former conceptions might prove useless as technologies evolve and people adopt, or refuse to adopt them – in new and unexpected ways. He pleads for a redefinition of the educational system as a whole, in order to make it compatible with a new global, digital world that has radically changed since the World Wide Web came into our lives. The importance of Selwyn's paper lies especially in the understanding of the dynamic component of the digital divide and the transforming power of ICTs that are reshaping our daily lives in unprecedented and unpredicted ways.

Our last paper, Jonatan Castaño's "Digital Inequality Among University Students in Developed Countries and its Relation to Academic Performance", focuses on what we mentioned in the previous section: impact. Castaño also begins with a general description of the panorama in higher education in terms of digital development, then goes on to analyse the relationship between usage of the Internet, digital skills and impact on academic achievement. Needless to say, Castaño's point of view should be the beacon to lead all applied research, and the point where all research should converge in the end: we put this monograph together following a path, first laying the paving stones as the necessary infrastructure, then leading to human training, and continuing towards context and reflection. But the whole path, the whole way, should lead towards a goal, towards the improvement of human lives. Poets often say that travellers should enjoy their journeys, and they are right. But clear destinations to set one's hopes on make the journey even more enjoyable.

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