The pedagogical dimension of virtuality

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Pedagogy is not new to education; the Internet, however, is. Yet if we asked at this very moment what network technology we should use to learn something specific, we will be opening a Pandora's Box of wide-ranging and highly sophisticated, but ephemeral, online learning applications. For every learning need, and with varying success, finding a technological answer is relatively simple thanks to the Internet. If, however, we were to ask an old acquaintance of education, pedagogy, what educational principles and models may be employed to learn and teach online, it is quite likely that the answers will be less extensive or will often reflect a conventional classroom educational culture. In other words, when we look to learn and teach online, technology has many faces, but pedagogy is now starting to show its face.

Although technological development tends to favour rapidity and multiple options for online learning, pedagogy is not, nor can be, a knee-jerk reaction to this situation. Pedagogy does not provide algorithms to solve educational problems. Pedagogical knowledge, unlike so-called "technological solutionism" in the "education sector", which assumes that all that is technologically feasible is educationally relevant, tends towards the search for valid and valuable constants anchored in fact to rethink education on the Internet; in other words, the ability of human beings to educate and be educated alongside online socio-technological actions.

This pedagogy of virtuality, with its questions and proposals, swings the focus of the debate back to educating at the core of praxis in today's technological maelstrom. It is not, therefore, a waste of time to ask about the educational constants within this technological variability; the true waste of time would be to commit to technology without first asking and answering basic and necessary questions about why, what, how, with what, when, where, with whom and how to evaluate when learning in an online educational environment. It is not about the artefact in itself, but rather about building the symbolic components with which to represent opportunities for learning in a rich networked environment.

As such, the construction of a pedagogical approach underpinning the educational use of the Internet has just begun. Although many of the formal and non-formal educational processes incorporate the Internet, to varying degrees, in their learning designs and experiences, it is now becoming clear to those involved in the field of pedagogy that the use of the Internet in education does not only mean changing one set of educational materials for another. The central theme of pedagogical assistance is understanding that the Internet represents a genuine prospect for social and cultural development. It accommodates our actions and projections and, intended as an educational environment, it opens up different – though not complementary – learning opportunities from the way in which we were accustomed to learn in the classroom. On reflection, the pedagogy of virtuality – digital pedagogy or e-pedagogy – paves the way not only to understanding the Internet in educational systems, but also to understanding that the Internet is generating new learning cultures and ecosystems. It is in this context that one may speak of a pedagogical dimension of virtuality.

The central task in looking for the pedagogical dimension of the Internet does not, therefore, only consist of finding new educational tools: this would reduce the pedagogical approach to furnishing answers to the question "what to learn with?" The pedagogical approach follows on from the issue of what educational function can – and should – be added to the technological system created by the Internet; it is a process that works both ways. In the field of pedagogy it is important to understand what educational need is being met

when a technology is introduced to the educational edifice. This means analysing whether it has educational utility or is nothing more than technological noise. In this way, the pedagogy of virtuality attempts both to provide answers to, and to rebuild, some of the key issues of traditional pedagogy. The journal @*tic. Revista d'innovació educativa* of the University of Valencia has decided to publish this monograph in order to contribute to the construction of this edifice.

This monograph brings together, under the title "the pedagogical dimension of virtuality", five articles that provide a pedagogical view of the educational uses of the Internet. This monograph is not, however, intended to define a pedagogy of virtuality, as this would require a great deal of work, rather, to contribute to this embryonic line of pedagogical thought. The five articles are sourced from different disciplines and research methodologies, and together gain a tentative insight into the approaches that, sooner or later, may be taken into account in the development of online educational practice.

The article "Didactics: from methodological dichotomies to the new challenge of virtual education", by Daniel H. Ospina Ospina, Diana C. Calvo Marín and Luis E. Peláez Valencia, offers a critical review of the evolution of didactics and addresses the challenge of rethinking the status of this pedagogical discipline in the context of virtuality. Not a simple task, as the question "how to teach in a virtual environment?" is articulated together with other questions that pedagogy must address. However, by drawing our attention to the semiotic nature of instrumental mediation on the Internet, the authors have identified a great capacity of virtuality to promote pedagogical changes in educational content, activities or relationships. Through this line of theoretical development, together with the empirical study that seeks to define emerging didactics in higher education, the authors underline didactics not only as a response, but also as a problem. The consideration of didactics as a problem in the Internet age must go beyond the dichotomous debate between the present and the virtual, and point rather to the understanding of a single pedagogical transformation without losing sight of education as an inclusive activity.

In turn, Rosario Medina Salguero and José I. Aguaded Gómez, in "Pedagogical support in MOOCs: a new approach to tutoring", propose a pedagogical reflection on the role of the tutor in the evolution of online learning: from e-learning platforms to massive open online courses (MOOC). As well as addressing the general need to understand the role of the student-centred tutor, the authors take the discussion to a new level, describing tutoring in an environment where collective online participation is a social condition of learning. The question may be characterised thus: what is the role of the tutor when the student can reuse, revise, remix and redistribute information for their own learning in a socially open online ecosystem? The role that the tutor may assume in the educational macro scenario of a MOOC is not without dilemmas. With this in mind, the authors analyse various types of documents that describe the actions, experiences and opinions of MOOC tutors developed through their research, to then establish that the change in the tutoring paradigm presupposes a change from the role of facilitator of learning, specific to e-learning, to the tasks of guidance and interaction in the design of the MOOC learning process. MOOCs will not change basic learning principles, but they are changing the perception of the tutor in online self-learning processes.

Marta Fuentes Agustí and José Luís Muñoz Moreno Correo, in "Knowledge creation and management networks: agents and processes", embark on a pedagogical analysis of the processes involved in knowledge creation and management (KCM). Drawing on the most significant findings from the study "Agents and processes in knowledge management networks" (R&D), this article seeks to define the functions and roles of the main agents in KCM, identify key processes in this social construct and make proposals for improving KCM. This generally means understanding online social participation not only as socialisation, but as an opportunity for human coordination. However, human coordination is not a technological attribute and is rarely spontaneous. According to this article, there are a number of basic elements and minimum points of convergence in the processes for discussing effectiveness in KCM that, with the appropriate approach, may be taken up by the field of pedagogy with the aim of promoting open, non-formal learning. These elements range from understanding the functions and roles of KCM agents (participants, knowledge manager, IT manager, institutional manager and network promoter) to the synergy of these agents in the planning, development and dissemination processes of a KCM network.

The article, "Ibero-American teaching experiences of research methodologies in videoconferencing", by Vladimir Martínez-Bello, Wilman Jaimes-Sastre and Mike Barreto-Becerra, attempts to define the design, process and evaluation of the pedagogical use of videoconferencing between two Ibero-American countries. Besides the impact on teaching culture and research practices in the field of physical education, sport and recreation, with particular emphasis on Colombian universities, this paper contributes a pedagogical model that, in addition to the standard components of videoconferencing, addresses a number of elements in educational audiovisual communications. The elements that may be used by the field of pedagogy in design development include: understanding audiovisual simultaneity in tutorial interaction; verbal and physical behaviour in educational interaction; ways to present information when the intention is to develop and manage research; cultural frameworks that are taken into account in assessing bi-directional messages. Videoconferencing alone is not enough to simulate presentiality: pedagogy must also understand, by structuring the other pedagogical elements in online learning, the symbolic and non-declarative aspects of nonverbal language. If the components of audiovisual communication are not considered it is likely, as noted in the article, that videoconferencing will be seen as the best way to simulate both the positive and negative aspects of presentiality.

"The e-evaluation of learning through the Virtual Classroom platform of the University of Valencia", by Inmaculada Chiva-Sanchis, Genoveva Ramos-Santana, María Begoña Gómez-Devís and Adolfo Alonso-Arroyo, tackles the ever-complex issue of learning evaluation, and beyond that, the evaluation of online learning. Drawing on the most significant aspects of "learning-oriented e-evaluation", the authors, supported by a study carried out in conjunction with the Eval-Aula Educational Innovation project at the University of Valencia, seek to highlight not only the use of technology in learning evaluation processes, but also the features of an emergent process that is rethinking the culture of evaluation. The results show that e-evaluation primarily involves: new roles and skills and a greater effort on the part of teachers and students; the use of an extensive range of

tools that widen evaluation activities; a range of options for managing evaluation information that promote processes of self-evaluation and peer evaluation; and finally, virtuality enables the creation of common spaces for teacher reflections on online evaluation. In pedagogical terms, if e-learning exists, then e-evaluation should also be studied and developed.

In conclusion, as pedagogy is neither downloadable software nor a search algorithm that may be accessed with a click, these articles will need to be reviewed by other professionals and researchers. This monograph is therefore an invitation to continue to construct a pedagogical approach to online learning. Here we have five ideas from research and educational development to continue on this path.