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Debates regarding Technology and Education: contemporary pathways and pending conversations.

Debates sobre Tecnología y Educación: Caminos contemporáneos y conversaciones pendientes

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ABSTRACT:

The main goal of this special issue of RIED is trying to contribute to promoting critical transformation processes in the field of Educational Technology through a collection of nine articles that manage to make, at the same time, a state of the art and an analysis of some of the debates that have gained strength in the field in recent times.

This introduction, for its part, is not intended to summarize these articles, but to offer an overview and, at the same time, to propose a dialogue that includes the points of view expressed in these articles, other perspectives that have surely been insinuated to us in research and even others that seem latent in our praxis. Specifically, we enunciate succinctly, but with a spirit of proposition, seven pending conversations that refer to: 1) To understand educational processes with technology and the use of technologies to understand educational processes; 2) To make educational decisions with technology; 3) Digital agency; 4) The nature of educational institutions in times of technology; 5) To enrich the role of participants in institutions with technologies; 6) To define educational technology; and, finally, 7) To investigate educational technology.

KEYWORDS: educational technology, educational research, digital agency, data literacy.

RESUMEN:

El objetivo de este número especial de RIED es contribuir a promover procesos críticos de transformación en el ámbito de la Tecnología Educativa, a través de una colección de nueve artículos que consiguen hacer, a la vez, un estado de la cuestión y un análisis de algunos de los debates que toman fuerza en el campo en los últimos tiempos.

Esta introducción, por su parte, no pretende resumir dichos artículos, sino ofrecer una visión de conjunto y, a la vez, proponer un diálogo que incluya los puntos de vista expresados en esos artículos, otras perspectivas que seguramente nos han sido insinuadas en investigaciones e incluso otras que parecen latentes en nuestra praxis. En concreto, enunciamos sucintamente, pero con ánimo propositivo, siete conversaciones pendientes que se refieren a: 1) Entender los procesos educativos con tecnología y las tecnologías para entender procesos educativos; 2) Tomar decisiones educativas con tecnología; 3) Agencia digital; 4) La naturaleza de las instituciones educativas en tiempos de tecnología; 5) Enriquecer el papel de los participantes en las instituciones con tecnologías; 6) Definir la tecnología educativa; y, por último, 7) Investigar en tecnología educativa.

PALABRAS CLAVE: tecnología educativa, investigación educativa, agencia digital, alfabetización en datos.

To undertake critical processes of transformation, it is essential to define, even partially, some of the key issues in research on the impact of technology in education. Trying to compile a special issue that serves such a purpose in a publication with the trajectory of the Iberoamerican Journal of Distance Education was a difficult task. It was, however, an invaluable opportunity for educational reflection resulting in the volume you have before your eyes.

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In this issue of the journal, nine articles written by researchers from many domains (geographical, epistemological and professional) have been collected within a common framework of reading, reflection, and debate. They address, in different ways, some concerns that research in educational technology deals with nowadays.

Although these texts discuss issues that could be considered "settled" in the thematic range of Educational Technology, the truth is that many of them approach such topics in a way that may be innovative, especially affirmative or directly problematizing. Some even encompass all three approaches simultaneously.

However, we will not introduce these articles in detail below. We strongly recommend reading their summaries if such a synopsis is needed, or the entire content of them all if one wishes to join the discussion. On the contrary, in our judgement, what is most pertinent is to seize the opportunity to offer a vision of the whole. We intend, as well, to establish a dialogue between those points of view that have been expressed in the documents gathered by us and others that have been insinuated in our research and even others that seem latent in our praxis.

SOME PATHS AND DEBATES

Taking the time to enunciate the pending conversations and contemporary debates on educational technology (henceforth, EdTech) is not so much a matter of defining what we should talk about now when we deal in depth with the relationship between technology and education. Rather, it is about highlighting and pointing out what are the hot spots of the debate. These seem to have passed unacceptably unnoticed in recent times due to our desire to advance, the difficulty of the delimitation of the object (be it related to technology or education) or the intensity and speed with which those same technologies are developed and impact and reconfigure our social reality.

Although these are not the only ones, here are statements we think might be of interest, since they are important. Such statements stand out in the light of research and underlie as a constant concern in our formal and informal debates.

Should we have to conceive a question that would guide the analysis and enunciation of those topics, the question would something like: What do we talk about in educational technology? For starters, we believe that we might talk about:

1. Understanding educational processes with technology vs. technologies that help understand educational processes

One issue that has emerged with great force –and controversy– regarding the relationship between education and technology is the subject of data and its use in the educational world. For the past few years, technology has had an extraordinary capacity to record, obtain, store and operate with discrete data about the activity of people. We have witnessed the rise of a field of great interest in recent years which is generally known as learning analytics (henceforth, LA).

Certainly, and very much in line with the initial concerns of LA explanatory models (we strongly recommend reviewing the Clow model, 2012), one debate that should be more rigorously addressed should be the one related to the question: To what extent is the data provided by the technologies relevant to education?; better yet, to what extent does operating with such data give us valuable information for developing educational processes? (Buckingham Shum et al., 2016).

Some advancements that are being made today, and that fortunately have found their place in this special issue, overcome the classic and initial promise of the automation of educational processes (Bartolomé,

Castañeda, & Adell, 2018). They are mostly associated with the ability of people to use this data for their benefit and as a way to better understand those processes (Ullman, De-Liddo, & Bachler's paper in this issue).

As we have said, the discussion is about how technologies –in this case, LA– can contribute to the cognitive development and to using increasingly complex relationship dynamics that, in an unprecedented way, can be established in these environments. However, it is not about researching how to develop cognition through technology or how technology can benefit from knowledge dynamics (which has already occupied us enough). Rather, we must ask ourselves how to propose technological tools that aim at exploring these new forms of work and that can also offer people new or alternative visions of the reality they make up in their discussion environments (through, for example, visualizations of those processes), always avoiding reductionist simplifications.

We have new processes, unprecedented forms of communication such as network participation and the co-creation of content and debates, but we continue to pay little attention to the organizational structure that supports such processes. We devote little effort to the qualitative reconstruction of didactic strategies committed to them. We pay even less attention to the training of apprentices and organizations in the skills and attitudes to work in depth with these information flows and take advantage of them.

2. Making educational decisions with technology

Similarly, and also thanks to LA, other advancements that set the paths to travel in EdTech are, if an individual is better informed of their possibilities to learn of their reality (at least of what the data say about that reality), such person could improve the management and development of their Personal Learning Environment (PLE) throughout their life, in accordance with their priorities (see the work of Attwell and Hughes, in this issue).

Such advancements are partly linked with the need for transparency in the algorithms for the users of the applications. This begins to seem unlikely, considering that such transparency does not even appear to be part of the legacy of the developers themselves, who are not completely aware of the nature of their wits, if we consider the complexity of the decision-making chains they program.

However, such "advances" and their possibilities demand that people be trained in reading and taking advantage of that data, in developing skills that complement the "digital" and that are related to their data literacy. This training may be almost unavoidable in our times, not only for professionals (Carlson & Johnston, 2015), but for all people. It should allow them not only to understand statistics (Gummer & Mandinach, 2015), but also to become more critical through their use (Pangrazio & Selwyn, 2018).

We refer to skills based not only on the access and the optimized use of data (along the lines of the notion of a quantified self, which has been discussed almost since the beginning of LA (Swan, 2013 & Whitson, 2013)), but also through a personal and socially sustainable approach (after all, we begin to put more and more emphasis on slow media and technological approaches (Patrignani & Whitehouse, 2018, Rauch, 2018)). Skills that clear the feeling of darkness and turbidity surrounding the use of automatic tools that treat the data we produce in telematic tools. Skills that help us, learning people, to improve our possibilities for enriched and autonomous decision-making.

3. Digital agency

All this highlights one concept that we have set aside in recent times and that, since it is more visible for the space it leaves in the analyses carried out than for its explicit consideration, it is probably one of the keys to the possible empowerment of people in the new digital times: the concept of "digital agency".

Digital agency was recently defined simply as "the ability to control and adapt to the digital

world" (Passey et al., 2018, p. 426). Just like agency itself, it is complementary to any skill we propose. Not in vain does agency determine an individual's conscious and committed capacity for decision making and acting (Emirbayer & Mische, 1998).

All of this should address us directly in educational terms, at a time when it is difficult to answer questions such as: Who –or what– defines what we want and how to start learning? Is it our professors, ourselves, the companies for which we work or which offer us services, the algorithm through which our social networks offer us content, etc.? Similarly: To what extent are we engaged with the fact that greater access and a better ability to manage data from mobile technologies increase the agency of people in this digital world? To what extent do we assume the responsibility in the educational field that our research and discourse interests aim to make people more aware and responsible for their decision-making process, as subjects responsible for their own teaching and learning processes? To what extent does agency, be it digital or analog, has curricular concreteness? Moreover, do society and schools promote such empowerment and not only the development of instrumental skills for technology management? It is a path whose definition and complexity should not be avoided.

4. The nature of educational institutions in times of technology

These concerns are not exclusively individualistic, nor do they allude only to the field of EdTech as a more or less abstract entity. Educational institutions, and their current redefinition, are crucial as organisms that are subject to and operate changes promoted by technology.

We live in a permanent identity crisis in our institutions (Masschelein & Simons, 2015, Williamson, 2013), in which some debates about who governs, what and with what purpose, do not manage to be well defined and, therefore, are not sufficiently developed.

The governance of our institutions, their specific role, which becomes increasingly less comparable or generalizable to other institutions (as organizations that go beyond the provision of educational “services”), and their increasingly necessary profile of social-community development challenges us on how we can have technology work in favor of these institutions and not to redefine them uncritically (just as Moreira Teixeira, Bates, and Mota discuss in their paper in this issue).

5. Enriching the role of participants in institutions with technologies

We live in a time in which great hopes have come from developments in aspects such as the use by students of tools to support their usual work in educational institutions (e.g. the experience explained by Dabbagh, Fake, & Zhang in this issue) or of pedagogical possibilities for implementing concrete didactics (explained by Trujillo, Salvadores, & Gabarrón in their paper). Nevertheless, these are always nuanced by criticism and viewed with suspicion.

Not without reason do other supposedly educational developments result from apparently technological changes and policies of rapid implementation. As in the case of computational thinking (as Adell, Llopis, Esteve, & Valdeolivas, remark in their paper in this issue), it has an implicit but heavy and obviously ideological burden with a conspicuous impact on the curriculum and not always in the way we would like.

We move in the duality of trying to take steps towards improving the skills of the participants of these institutions, so they take advantage of the technological trend with which they are in contact (see the work of Durán, Prendes, & Gutiérrez on this issue). However, at the same time, we debate about how to ensure those same participants do not suffer from a fragmented approach to knowledge and that they are not simply expert operators of the technological machinery that surrounds them. We look for individuals who play – or rather, who assume– a socially committed role.

The paramount political role which technology also plays in education (Winner, 1980), how it conditions new and complex forms of literacy and configures cultural and thought models that cannot be ignored (Hull & Stornaiuolo, 2014; Martínez Bonafé, 2001), the models of interaction between technology and society (Bromley, 1997) and between science-technology and society demand a much more committed view of the relationship between education and technology than the one that seeks, as engineering, "the improvement" of education with different kinds of knowledge.

6. Defining educational technology

Moreover, as Khün remind us in her paper of this collection, everything that has been said so far, all the debates proposed, necessarily address the question of education research and educational technology directly.

In recent years, some authors have drawn attention to how, despite having been aware of the evolution of the concept of technology, the approaches which develop educational technology (both as a field of study, as a practice or as a field of research) continue to conceive it from a fundamentally instrumental viewpoint, always from extremely deterministic (Adell, 2018, Webster, 2017) and increasingly impoverished (Oliver, 2016) perspectives.

The EdTech of which we speak has far surpassed that which has been described in the classic evolutionary studies (Area, 1991, Cabero, 2007, de Pablos, 2009). It is no longer about the audiovisual resources of the 1940s, developed by the military for the mass formation of its troops, nor of the current MOOCs (Liyanagunawardena, Adams, & Williams, 2013, Vázquez-Cano & Meneses, 2015) ... Well, not only.

Nor is the issue limited to programmed teaching machines like Skinner's in the 1950s, or to computer-assisted teaching (CAT) in the 70s, not even to things like Knewton and other modern adaptive learning approaches... not even that is enough to cover it (Bartolomé et al., 2018). It is not either about mass media and its revolutions hand in hand with educational television or satellites in the 80s and 90s (Cabero & Martínez Sánchez, 1995), nor is it just about one-to-one media, supported in telematic networks. Nor the 2.0 media, which are personalized –at least in theory– to the extreme, and omnipresent in devices found in the pockets of most of the population, nor the transmedia content distributed on different platforms and promoting spectator participation (Scolari, 2018).

We speak of an entity broader than all these technologies together and, more specifically, than all these technologies individually (Cabero, Barroso, & Llorente, 2015). Moreover, we talk about understanding them in their complexities, contradictions and challenges. And all that, within the domain of education, considering that the relationship between the two concepts that support educational technology (technology and education) has revealed itself as systemic and complex.

The dichotomies between techno-determinism and socio-determinism, even those of the discussions about whether a particular technology, or technology in general, works (Clark, 1994, Cuban, 1993), although we still dedicate part of our efforts to them, have revealed themselves as insufficient for understanding the effect of technology on education.

The point is that technology, at least understood from a wider viewpoint, neither affects education only when it is "new", nor is it "applied" to education, nor is it "implemented" or "integrated" into it, nor is it even enriched with it. That is just part of what technology does in education.

The present times, the movement that characterizes them, the nature of their realities and the forces that condition them, demand a clearer vision of our relationship with the educational reality and with the social (and unfailingly technological) reality. A vision that values our relationship with what is important, what gives us epistemological and social sustenance, a relationship that no longer thinks about contexts or devices and commits globally with people and society. A vision that will surely entail a clear redefinition of the limits of what educational technology is today and how its relations with the rest of the education sciences and with other related disciplines are.

7. Research in educational technology

That reality demands of us resolute wagers related to research.

The path we travel, and the challenges posed by current situations, demand from EdTech more interdisciplinary research, with real multi-area dialogues and controversies resolved in a group manner, not just superficial and self-interested consensus. They imply more ambitious research, one that dares use more interesting designs, in which the researched are given more prominence and in which full advantage of the new codes is taken (not simply to convert them into texts and numbers). We must carry out better and more extensive research, which will gather from other debates and top-level educational themes and contribute to them (as for the case of

PLE Castañeda, Tur, and Torres-Kompen expose on their paper in this issue) and, for that reason, it must have a defined vocation for impact on the educational reality.

Ultimately, a type of research –and of reflection– that goes beyond the possibilist optimism, the solutionist ingenuity or the enlightened pessimism of recent years (Castañeda, 2016, Castañeda & Selwyn, 2018, Morozov, 2013, Selwyn, 2016) and opts for a realism engaged with something that surpasses research itself as an activity.

CONCLUSIONS

As we mentioned before, we did not cover all the paths, nor did we enunciate all the debates. Moreover, we know many of these have been dealt with in the past. We are facing a long conversation, one that should preferably be slow and in which we expect the reader to participate... while reading, in face-to-face debates, in publications, so all of us may continue to go deeper in this matter in the future.

This document has no other purpose than to be a provocation, deriving from the suggestive contributions that can be found in the special issue we present and, at the same time, resulting from the very motivation of this compilation.

Our intention is not to make an exercise of mere criticism (as we have been doing in recent times) that, despite being necessary, is insufficient. Rather, we aim to come across as proactive and try to make resolute wagers to define where we want to go and which paths we want to follow, independently -but not obliviously- to the vortex of the present times which makes those roads and those horizons increasingly diffuse.

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