

# Introduction

## Learning ecologies in the digital age

Ecologías de aprendizaje en la era digital

Guest-edited special issue:

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The digital era is producing deep changes at a scientific, academic, cultural and social level, and ways of teaching and learning have been transformed. Learning does not only happen in specific physical or virtual environments, and beyond the formal learning purposes, informal and non-formal options for accessing to information and knowledge are gaining relevance, generating a metamorphosis of learning (González-Sanmamed & al., 2008). Within this framework, the educational contexts multiply and became fuzzier.

For years, the integration of information and communication technologies (ICT) has fostered the review and renovation of educational institutions, particularly those of higher education (Sangrà & González-Sanmamed, 2004; Bates & Sangrà, 2011). Currently, use of ICT both for supporting face-to-face education or to carry out hybrid or fully online models, has permitted to expand potential learning spaces, both quantitatively and qualitatively (Jung & Latchem, 2011) opening new opportunities for personal and professional updating and development, which will contribute to make lifelong, but also lifewide learning, easier (Jackson, 2011).

The widespread use of mobile devices is a key element in the perspectives of learning analysis and in the formats in which it can be used in the networked society. Metaphors as ubiquitous learning (Virtanen, Haavisto, Liikanen, & Kääriäinen, 2018), invisible learning (Cobo & Moravec, 2011) or expanded learning arise to realize the new ways and possibilities for learning. Concepts such as personal learning environments (PLE) (Dabbagh & Kitsantas, 2012) or personal learning networks (PLN), allude to some of the options to access learning. In short, each person, each professional, has a wide range of learning opportunities and can decide when, where, what, why and how some of these opportunities are activated, depending on a series of variables that will condition their decisions. We have always learned beyond what we have been taught in school or at university, but the unstoppable acceleration of our environment is making the learning achieved from a formal and institutional structure no longer represents the higher percentage.

The concept of learning ecology is directly linked to the idea of continuous learning and claims for a longitudinal vision of the factors, elements and components which contribute to the people's personal and professional development in different moment through their lives (González-Sanmamed & al., 2018). It let us build an analytical framework to identify the diverse ways in which people learn, also considering non-formal and informal practices either traditional or technology-mediated. And, overall, it helps to make every single person aware about the learning opportunities they have at hand (Barron, 2006).

Research on learning ecologies is still in its early stages. The ontological frameworks from which one is approaching are often disparate and do not contribute very much to have an underlying substrate that consistently builds this construct (Sangrà, Raffaghelli, & Guitert, 2019). Nevertheless, it is proving to be very fruitful and relevant to identify the components and processes that contribute to the learning of individuals (González-Sanmamed, Muñoz-Carril,

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& Santos-Caamaño, 2019). This will facilitate the design of more contrasted and solid models for the personalization of learning and raise awareness of their own possibilities among the learners. On the other hand, it is helping to reveal and value the contributions of informal and non-formal learning opportunities, and how institutions and organizations should manage them to continue serving people who make their own decisions about what, how and when to learn.

This Special Issue highlights the progress this research topic is experiencing at the international level, and the different geographical areas from which the authors present their research is one of these evidence.



In the first article, titled “Digital learning ecologies and professional development of university professors” González-Sanmamed, Estévez, Souto-Seijo and Muñoz-Carril use the learning ecologies analytical framework to value how university teachers are using technological resources to set up their multiple professional development opportunities. Global data from 1562 collected questionnaires are analysed and, moreover, the influence of other variables like gender, age, experience and disciplinary branch are examined, to widen the knowledge on learning ecologies and, specifically, to envision how to facilitate its enrichment from both an individual and institutional perspective.

Next, Han and Ellis, in their article “Personalised learning networks in the university blended learning context”, focus on university students and perform an analysis of the personal learning networks of 365 undergraduate Australian students. In an actual growing context, the blended one, the authors identify five learning collaboration patterns which are of great interest to guide curriculum design, teaching practice and their own learning management, demonstrating one of the applications that learning ecologies have in practice.

Third, the article “Mirroring learning ecologies of outstanding teachers to integrate ICTs in the classroom” from Romeu-Fontanillas, Guitert-Catasús, Raffaghelli and Sangrà, analyzes the practices of a set of outstanding primary school teachers who highlight for their pedagogically innovative character and for their ability to influence the community. With them, the concept of learning ecologies as an driver of innovation in the professional development of teachers is explored and some characteristics and factors that facilitate or hinder the development of learning ecologies are identified.

Martínez-Rodríguez and Benítez-Corona are the authors of “The ecology of resilience learning in ubiquitous environments to adverse situations”, and with them we go deeper in the context of basic education in Mexico. The research of the authors shows, in a confirmatory way, the importance of the awareness, by the students themselves, of their learning ecologies. The analysed communication allowed a resignification of the learning activities to emerge, which, with the help of a resilient attitude, facilitates the empowerment of critical thinking, autonomy and collaboration.

The Special Issue closes with the article from Rodrigo and Tabuenca, “Learning ecologies in online students with disabilities”, focusing their research on a specific group of people, the disables students, and the expansion of their

learning opportunities through online environments. Virtual learning environments features and resources become fundamental for students with disabilities to build and adapt their own learning ecologies. The authors identify the barriers with which they can most commonly be found, the support tools they use, and how they combine them, building patterns which help to foster these ecologies.

The set of articles of this Special Issue contributes, on one hand, to make the concept of learning ecologies much more visible, sharing different understandings of it and several applications of this approach to contexts, situations and circumstances that could help improving learning for many people through generating and enriching their learning ecologies. In addition, it contributes with methodological value since the approach to the construct is made from diverse research approaches. In sum, this Special Issue widens the information on how people learn and, especially, what they do to learn, in an ever changing and unpredictable world.

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