Editorial

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Technology in Higher Education

We are pleased to present the present issue of the Revista Digital de Investigación en Docencia Universitaria, RIDU (Digital Journal of Research in University Teaching) (Vol. 18, No. 2, 2024), dedicated to technology in university education. This is aimed mainly at the scientific community interested in research in higher education. This issue includes ten articles by researchers from different countries: Uruguay (1), Brazil (1), Chile (1), Spain (1), Mexico (2), and Peru (3), which deal with different topics, all of them within the broad thematic spectrum alluded to.

Among this thematic diversity, we find studies on motivational climate in class, teamwork, mediation of technologies in higher education in times of pandemic, self-perception of research skills in virtual practice, didactic strategies for thesis advising, self-efficacy and teaching practices in inclusive education; as well as burnout among teachers, stress and addiction to cell phones, and 'sexting' among university students.

At all times, the development of technologies has changed social, economic, and productive systems and, in general, people's lives. Since the beginning of this century, we have talked about the digital era, the information society, and the liquid society; at this stage, the world is experiencing a new technological revolution (García, 2019; Unesco, 2011,2014) that much more than the old scientific and technological revolutions, affects the lives of people in general and in all the contexts in which it acts. This revolution is characterized by a great change dynamic within a very short time (liquid society), which involves not only the material but also the world of ideas (Bauman, 2007); this characteristic allows us to argue that it is necessary and essential to use formal education to update and prepare people to adapt and face these changes that occur and not be left out of their own environments.

The new information technologies have developed fundamentally from the use of the internet and the use of devices with increasingly innovative electronic technology: mobile, user-friendly, and within the reach of a large part of the population. The explosive development of virtual communities, called social media has also contributed to this development. These technologies began to take hold in the second half of the last century, and in the first decade of the present century their presence has been more notorious. At the time of the COVID-19 pandemic –due to the needs generated by social isolation measures–, their use was essential to maintain the bonds among families and friends, in addition to being the main information channel (Datum, 2020, https://www.datum.com.pe/new_web_files/fi{les/pdf/2020%20 Comportamiento%20online%20ante%20coyuntura%20Covid-19.pdf).

Currently, according to Global Digital Reports, out of approximately 8.2 billion inhabitants in the world, 5.61 billion own mobile devices (69.4% of the global population), 5.35 billion use the internet (66%)

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and 5.04 billion use social networks (62.3%). According to the same report, the average use of cell phones is 3 hours 43 minutes, and 2 hours 23 minutes for social media. The typical internet user would use it just over 6 hours a day, on average. Most use the internet for social purposes (connecting with friends and family) and recreation; 34% use it for educational and study purposes.

In Latin America and the Caribbean, the countries with the highest internet penetration are Chile, Argentina, Brazil, and Costa Rica; on the other hand, Haiti and Nicaragua have the lowest penetration. In Peru, 74.78% of the population uses the internet and 69.7% uses social media (https://datareportal.com/global-digital-overview). According to the National Institute of Statistics and Informatics (INEI) (2022), the youth aged 17 to 24 use social media the most (92.40%), followed by teens (Araujo, 2016).

Thus, ICT management is becoming increasingly necessary in society (Marín-Diaz & Cabero-Almenara, 2019), since there are very few activities that people cannot perform over the internet. It is common to use the internet to communicate with contacts, search for information, play games, gamble, send reports or photos, make medical or psychological consultations, shop online, carry out bank transactions, etc. There are other activities that can no longer be carried out in person and this trend is growing. Virtuality is gaining ground in every social act and the general population has to prepare for it. As far as social networks are concerned, they are mainly used for recreational activities; only a little more than 30% use them for educational purposes (https://datareportal. com/global-digital-overview). Consequently, if we wish to achieve better standards of social and individual development, we must intervene in the massive use of these technologies, especially in the educational system.

Education is one of the main ways for the development of society, this is easy to prove through the experiences of countries that have achieved first world standards, since all of them invested and invest in education more than those that have not managed to develop; in this new type of society dominated by technological development, a quality education cannot turn its back on it; on the contrary, it has to use it to achieve the ideal standards of social, educational, and economic development.

The state's role is to invest so that its population has the facilities to use ICT throughout its territory. Schools must have adequate connectivity, with appropriate devices, educational software, etc. to prepare children and adolescents to face this stage. In the case of higher education, universities, which are autonomous entities, have to increase their budget to adapt and stay integrated to the new era of permanent change where innovative studies are required (Bates & Sangrà, 2012).

Universities and higher vocational training centers must accept the idea that in the society in which we live knowledge is the most important product for general development (Ponce, 2019). The way of learning is the element on which all other actions revolve, such as incorporating technological products, changes in management, administration, recruiting and training of teachers, etc. This will also determine the need to review the teaching-learning systems, the curricula of the study programs, the use of technologies in the classroom, a review of the syllabi, evaluations, etc. One of the main tasks of the university is research, an area in which it is also urgent to make significant changes to use social media, chats and other platforms for educational purposes, which were not initially designed for educational use (Awidi, et al. 2019; Cabero-Almenara & Marín-Díaz, 2014; Chávez, 2015; Marín-Díaz, & Cabero-Almenara, 2019), but that can be used as instructional and educational tools (Chávez, 2015; Marín-Díaz, & Cabero-Almenara, 2019).

One of the latest global milestones is the development of artificial intelligence (AI), a topic that is certainly not something new, since AI appeared in the second half of the last century, becoming one of the pillars of the development of cognitive psychology, to the extent that it used computation as a model of human information processing. What is new and current is generative artificial intelligence, i.e., that which produces information (not only simulates it) and is accessible to the entire population through the use of technologies. Due to its wide diffusion and global reach in the networks and its great

technological development, it is artificial intelligence 2.0. It is necessary, therefore, that university institutions –especially teachers–assume it quickly and adapt it to educational purposes (López-Regalado et al., 2024).

It should be noted, however, that teachers, as well as the university itself, are quite resistant to change. After more than 800 years since the creation of the first university, it remains unchanged, free from the influence of the state, the church, and dominant ideologies (Bates & Sangrà, 2012). Similarly, university teachers represent one of the professional most change-resistant communities (Corica, 2020; Garcia, 2019). However, in the current type of technological society, university institutions and their teachers have to admit that we live in a liquid society and they need to change their current practices and constantly train themselves to adapt to the changes.

In this era, knowledge changes permanently, and the only stable thing is the possibility of future change (Ponce, 2019). A study developed in Peruvian universities found that 55.9% of students perceive that their teachers have a low level in the management of ICT and that only 20.2% have a high level of mastery; they indicate that their teachers do not use bibliographic managers, that they do not have good management of the interaction with their students in virtual spaces, etc. (Badajoz et al., 2022); on the other hand, it is important to consider that the use of ICTs can generate reactions of uncertainty and insecurity among teachers, a fact that could lead them to reject them (Nakano et al., 2014).

From the quick review made, we found that there are regions such as Europe, Asia, North America, and Central America that have made a strong investment and effort to develop their educational system using these technologies. In recent years, this phenomenon has been replicated in Latin America and the Caribbean, areas where we have observed a rapid growth in the incorporation of technology and connectivity (Unesco, 2014). In the Peruvian case, the National Center for Strategic Planning (Ceplan) of the Presidency of the Council of Ministers (PCM) (https://observatorio.ceplan.gob.pe/ficha/t67#:~:text=En%20Per%C3%BA%2C%2C%20the%20trend%20of,80%2C8%20%25%20in%20202021) reports that internet use in basic education schools has increased significantly in recent years. It states that 48.4% of elementary schools and 72.6% of secondary schools have internet connection and that in the next decade 100% of them will be covered, Therefore, the current task at hand is to improve the quality of the connection. This situation benefited from the pandemic that led students and teachers to introduce virtual classes.

In higher education, the effort has been larger; most Peruvian universities offer virtual and face-to-face courses in parallel, using platforms (Blackboard, Canvas, Moodle, and others) that allow students to take courses synchronously and asynchronously; face-to-face and virtually in real time; participate through chats or by activating sound and image, review the recording, or form groups to develop assignments, etc.

There are coordinated efforts by university authorities or special commissions (https://www.metared.org/pe/novedades/tecnologias-educativas-educacion-superior-peru-2020.html), but the need for investment and inventiveness to develop technology more appropriate to their reality is still pending.

But, just as it can be argued that technology and specifically the internet and some of its applications are necessary for the development of people, it can also be pointed out that its use carries some risks; the best known and researched is the addiction to technologies (Chóliz, 2016, 2017; Echeburúa, 2017; García del Castillo, 2013, among others). The fact is that technologies have attractive elements in their own conception, and these elements can lead young people to become trapped in the use of technologies and from there, develop addictions. Another risk to consider is that technologies could become distractions to effective learning; they are elements that generate pleasure just by the fact of using them (Echeburúa & de Corral, 2010).

It is important to point out some limitations in the use of technologies in university life. The first is economic, since the adoption of this technology requires adequate equipment and infrastructure and

heavy investment, which very few university institutions are able to afford; but its maintenance and updating also involve additional costs, since hardware and software become obsolete in relatively short periods of time. A second limitation, reported by Unesco (2014), is that the incorporation of technologies in Latin American education has not had the desired effects, because they were imported and have not been built for the reality where they have been used; hence, innovative research is essential to adapt technologies to the realities in which they are applied or to discover new technologies for that reality (Bates & Sangrà, 2012; Ponce, 2019; Wilson, 2014). And third, although redundant, it is necessary to take into account teacher resistance to change, resistance that is probably increased due to the lack of expertise in handling ICTs (Nakano et al., 2014).

Let this brief reflection serve to encourage our teachers to research on the development and use of technologies in the university educational system.

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