

## **Habilidades digitales en jóvenes que ingresan a la universidad: realidades para innovar en la formación universitaria**

*Digital skills in young people entering the university: realities to innovate in  
university education*

*Habilidades digitais em jovens que ingressam na universidade: realidades para  
innovar no ensino universitário*

**Edgar Oswaldo González Bello**

Universidad de Sonora, México

[edgar.gonzalezb@gmail.com](mailto:edgar.gonzalezb@gmail.com)

<https://orcid.org/0000-0001-6297-2516>

### **Resumen**

Los estudiantes de hoy en día pertenecen a una generación desarrollada alrededor de entornos digitales; son jóvenes —no todos— que pasan su mayor tiempo utilizando dispositivos tecnológicos. En atención a esta realidad, las tecnologías de la información y la comunicación (TIC) han sido incorporadas a los espacios universitarios a través de modificaciones para que estos jóvenes puedan aprender de una mejor manera. Al respecto, este estudio analiza el nivel de desarrollo de las habilidades digitales que los propios alumnos consideran los identifica al ingresar a sus estudios universitarios, así como otros aspectos que han propiciado este aprendizaje, a través de la aplicación del método cualitativo en 18 estudiantes de nuevo ingreso en la Universidad de Sonora, México. Los resultados muestran que es posible identificar que las TIC se incorporan a la vida de los jóvenes estudiantes en diferentes caminos e inician su preparación para desarrollar habilidades tecnológicas, algunos más pronto que otros y de manera diversa a través de los distintos niveles educativos. También que existen quienes desde temprana edad tienen contacto con dispositivos tecnológicos, conviviendo en un contexto en donde las

computadoras e Internet llegan a casa como una necesidad. Se concluye que las TIC y su empleo en el contexto universitario debe obligar a repensar las formas en que se realizan los procesos de enseñanza y aprendizaje, asumiendo que las nuevas generaciones poseen habilidades digitales, si bien no todos sus integrantes, ni de la misma forma.

**Palabras clave:** educación superior, estudiantes de primer ingreso, habilidades, jóvenes, tecnologías de la información y de la comunicación.

### **Abstract**

The students of today belong to a generation developed around digital environments constituting themselves as young -not all- who spends their most time using technological devices. In response to this reality, ICT have been incorporated into university spaces through modifications that await young people characterized by learning to learn. It is a study that analyzes the level of development of the digital skills that the students themselves consider to characterize them when entering their university studies and other aspects that have favored this learning, through the application of qualitative method in 18 new students in the Universidad de Sonora, Mexico. The results show that it is possible to identify that ICTs are incorporated into the lives of young students in different ways and begin their preparation to develop technological skills, some sooner than others and in a diverse way through the different educational levels. Also that there are, those who from an early age have contact with technological devices, living in a context where computers and the Internet come home as a need. It is concluded that ICTs and their use in the university context must oblige to rethink to innovate the ways in which the teaching and learning processes are carried out, assuming that young people possess digital skills but not all of them or in the same way.

**Keywords:** higher education, first-year students, skills, youth, information and communication technologies.

## Resumo

Os estudantes de hoje pertencem a uma geração desenvolvida em torno de ambientes digitais; eles são jovens - não todos - que passam a maior parte do tempo usando dispositivos tecnológicos. Em resposta a essa realidade, as tecnologias de informação e comunicação (TIC) foram incorporadas aos espaços universitários por meio de modificações para que esses jovens possam aprender de uma maneira melhor. Neste sentido, este estudo analisa o nível de desenvolvimento de competências digitais que os próprios alunos consideram identificar quando ingressam em seus estudos universitários, bem como outros aspectos que levaram a esse aprendizado, através da aplicação do método qualitativo em 18 estudantes de ensino médio. nova admissão na Universidade de Sonora, no México. Os resultados mostram que é possível identificar que as TICs são incorporadas às vidas dos jovens estudantes de diferentes maneiras e começam sua preparação para desenvolver habilidades tecnológicas, algumas mais cedo do que outras e de forma diversa através dos diferentes níveis educacionais. Também há aqueles que desde cedo têm contato com dispositivos tecnológicos, coexistindo em um contexto em que computadores e Internet voltam para casa como uma necessidade. Conclui-se que as TIC e sua utilização no contexto universitário deve forçar-nos a repensar as maneiras pelas quais o ensino e a aprendizagem ocorrem, assumindo que as novas gerações têm competências digitais, embora nem todos os seus membros, nem da mesma maneira.

**Palavras-chave:** ensino superior, estudantes iniciantes, habilidades, juventude, tecnologias de informação e comunicação.

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## Introduction

Information and communication technologies (ICT) have become an element present in any field, particularly in the educational setting where they have had different uses and applications (Escofet, Alabart and Vilá, 2008); they were incorporated into university spaces and have forced institutions to design innovative mechanisms to be used to give attention to young people and their learning needs from the beginning of their professional training. This, in part, as a response to the students themselves, who have demanded and demand skills in teachers and more creative strategies that are implemented in the practice of innovative teaching supported by ICT, seeking to encourage more meaningful learning, such as it is warned by Anderson (2010), within the framework of multiple demands that propitiates the global environment.

The incorporation of technologies has also generated new communicative environments that in turn trigger new forms of social relationships, mainly within any daily environment in which young people develop, who constitute the sector of the population that accesses first and the most Use makes the new technological devices that are emerging (Gómez, 2015). In this way, technological development has generated a cultural change in the forms of access, circulation and construction of information and knowledge. In this regard, the United Nations Organization for Education, Science and Culture (Unesco, 2013) warned that there is a direct impact on academic activities within universities and suggested an update of practices and contents according to the requirements in the training of professionals.

Despite these intentions and purposes regarding the use of ICT, some universities do not know how many skills students have in practice when entering their study plans, nor have they been able to specify and guarantee the requirements of how much they should know at the time of his exit. As long as institutions do not face this reality, the incorporation of ICTs will remain a generality without precision, which becomes, as in many cases, a lost hope. From the point of view of Casillas, Ramírez and Ortiz (2014), universities must be able to innovate and offer the necessary actions for their students to acquire the digital skills that contribute in a relevant way to the learning of the profession in which they seek to be trained.

One reality is that today's students belong to a generation developed around digital environments and, as Linne (2014) considers, are young people who spend most of their time using technological devices to establish communication and process information and foster entertainment, as well how to use ICT as a meeting place to share experiences with others; these are youths who, in their majority, in other words, not necessarily all of them, have grown up surrounded by new media that use them daily to communicate and entertain themselves, as already mentioned, understanding ICT as an opportunity and way of life .

Young people, when accessing universities, present many of the characteristics of a digital generation, because, according to Regil (2015), university students consider that, through ICT, they have access to the main sources of academic information , besides being the platform of their social and communicative practices. That is, it is a generation of young people that is closely linked to technologies. Despite these characteristics, as indicated by Escofet et al. (2008), it is a challenge for students to incorporate ICT in their academic activities upon entering universities: for the multiple potentialities they offer in the construction of new knowledge, as well as for the erroneous habits, difficult to overcome, to reproduce the information without applying any criteria.

Considering that students' practical knowledge about ICT can be used in the university scenario, taking advantage of their production possibilities in the digital environment, it is pertinent to dimension the challenge they face when developing these digital skills, which can be developed from a self-training -with their own resources, the student seeks to learn- or, in formal programs that school education offers, always seeking to achieve a specialized level of use of resources and digital content as part of their professional training.

From recognizing this scenario, this text analyzes the level of development of digital skills that the students themselves consider characterizes when entering their university studies and other aspects that have led to this learning; this constitutes an effort to provide knowledge that allows orienting the educational policies of the institutions in the design of plans and programs of study, as well as innovating the teaching practices in the university classrooms.

### **ICT: university context and student characteristics**

In response to the trends of higher education, represented by academic demands according to the characteristics of the new generation of students, universities have contemplated promoting the use of ICT by providing resources and adequate infrastructure to support academic activities. In the prelude to their admission to universities, young people are expected to be characterized by learning to learn, that is, not closed to the opportunity to acquire a new vision of learning in an increasingly digital world that challenges both the university context as a professional. For some students, it is about generational changes, which can reasonably be expected to show cultural patterns and lifestyles different from those of previous generations.

Prior to entering universities, students have experienced a new technological and innovative environment as a panorama in which culture and technologies are connected, constituting a scenario in which many young people acquire their knowledge about ICT, converting them into skills that allow them to perform various practices in their daily life that makes them different from each other.

Various proposals have sought to explain the relationship of young people with ICT. Prensky (2001) has suggested using the category of digital natives, a binary opposition to describe young people as native speakers of a digital language and characterized by the massive use of the Internet and video games, who also share certain interests and behaviors that identify them. as such. However, Bossolasco and Storni (2012) point out that this proposal constitutes an idealization that ends in a homogenization and that forgets class distinctions and the problem of inequality in the access to ICTs by young people, in addition to differences that are generated from the different motivations, the varied contexts and the valuations of those who have access to ICT, whether young or not.

However, there are other views of these differences to identify young people within the digital generation. In its understanding, it is necessary to consider a digital divide (Crovi, 2010), which, according to Ortega (2012), should be understood as a phenomenon that in turn consists of several interdependent gaps: the economic one (refers to the lack of material resources to access technologies), technology (related to the availability of technological equipment and the capacity to renew the technological infrastructure) and knowledge (which includes the skills needed to



effectively adopt and appropriate technologies), among others Likewise, the generation gap also plays a relevant role in the differences that are built.

Thus, the experience developed by the young people who live in the digital generation is configured through the devices that have allowed them to be highly motivated with the use of ICT; in such a way that they have become familiar with new environments, which offer other alternatives to learn.

In the particular field of education, with the above words in mind, it is feasible to assume that students are predisposed to use ICT in the learning and study activities that universities and teaching can offer. From this, the institutions seek the construction of a new student identity that is characterized by a digital culture, which Regil (2014) recognizes as a set of knowledge, skills and useful strategies for the academic management of information, as well as as critical reflection on the uses, functions and purposes of technological resources.

At present, a good part of students enter universities with a series of skills that allow them to use new types of applications and technologies; that is, their digital skills are broad, although not necessarily adequate. Some students, however, present a special type of experience related to ICT that results in a beneficial interaction of the individual interest with the educational activity (Ilomäki, 2008).

Contrary to this, the students also emphasize the problems due to the lack or deficiency of the technical mastery they have, understanding that it hinders or slows their management with the use of some programs, and states that they waste a lot of time looking for information, with the aggravating that they are distracted by the dispersion and amount of content offered by Internet access (Ricoy and Fernández, 2013).

To understand the implications of technological development in the university environment, according to Ortega (2012), it is fundamental to analyze the generational changes that are influencing the construction of digital skills and the new ways of relating and learning as abilities that are proper in the new generations of students (Fernández and Neri, 2013). However, it must also be present that there is no single type of student, which is due to the multiple experiences that are offered to them between schools (Dubet, 2005).

## Method

For the fulfillment of the objective of this research, the qualitative method for understanding the meanings generated by students about their digital skills and other related aspects was considered. It is a study that was inspired by the fact that meanings are constructed through the interrelation of subjects (Marradi, Achenti and Piovani, 2010).

The subjects of study are the new students of the University of Sonora of Mexico. As a technique for data collection, the in-depth interview was applied, which was carried out (during sessions of approximately 20 minutes) with 18 young people assigned to different programs in the area of Exact and Natural Sciences (Geology, Physics, Mathematics). , mostly, common subjects when initiating the respective educational programs. Of these subjects, 12 were men and 6 women, all of them between 18 and 19 years of age, and in middle and lower middle socioeconomic status: they always attended public schools during their formative process prior to entering university.

The instrument used was an interview guide with the purpose of collecting data of the student and its relation with the learning and use of ICT. This instrument focused, through 10 open-ended questions, on the following dimensions: forms of learning about ICT, technological skills that characterize them, definition of ICT and applications they use, academic / professional use, reasons to use them , as well as experiences in the use of ICT. The data obtained were analyzed by means of the saturation technique.

This text is limited to presenting the results obtained in relation to two aspects identified: the skills to enter the university and the first contact with ICT.

## Results and Discussion

In the results it is noteworthy that most of the participants considered having the necessary skills when entering the university. Among the expressions expressed about it by students is the following: "I would say that my skills are above the basic ones in the field of computing, some of the applications I know how to use are packages" (Ronaldo, 18 years old) . And on that same line:



The main technological skills that characterize me are the easy and quick understanding of this field, since I started using ICT, the subject was quite interesting, getting to know the operation of computers and their components without taking courses at respect (Abraham, 19 años).

The respondent named Rafel, who is 18 years old, commented on his part:

The main technological skills that characterize me are that I am very easy to find information on different sites, also to use various programs not only the most basic (Word, Excel, PowerPint), but programs to download torrents, and Photoshop things, the Lightroom, also quite a few games.

Any level of ICT use requires digital skills: in some cases it is required to have basic skills, while in other situations it is necessary to develop some specialized skills, as in the case of university students. Contrary to the tone expressed in the aforementioned testimonies, students who expressed being at a disadvantage in terms of their digital skills were also identified. In relation to this, a young woman commented: "My technological skills are limited to what most people know or have learned in schools before arriving at university" (Diana, 18 years old). Another of them said that "in reality my skills are not the best, they are basic to do most of the activities that teachers ask me every day" (Brayan, 18 years old). And one more said about it that "my skills are just using social networks, as well as looking for movies, series, videos; aside I know how to use basic programs to be able to do my homework at school. I think I would struggle to do something new that they ask me "(Mario, 19 years old).

This allows us to suppose that, prior to entering the university, the technological skills of the students are of different domain and their development may depend on other aspects, leaving them in different possibilities. In the context of university education, these skills allow access to new spaces and forms of participation and socialization, that is, new ways of relating, learning and thinking to the demands that university education acquires. According to Regil (2015), the development of these skills represents a challenge that goes beyond university education and points towards the academic particularities such as the specialized management of scientific information, the knowledge construction process and its application, the generation of new contents and the divulgation.

On the other hand, an equally recognized aspect was the moment when they began to have contact with ICTs through their training trajectory. From the testimonies, it was identified that it is differently, through educational levels, that young people begin their preparation to develop different technological skills. Some comments of the students were analogous to the following:

I started using the computer when I was about six years old, in kindergarten, we took a class for this, although all we did was make drawings in Paint, then in elementary school they taught us better how to use other programs and the Internet (Natalia, 18). years) (italics added).

As well as: "I learned to use the computer since I was very small, in elementary school, but at the time I did not know much about it, only the most basic and I used it for entertainment. Already in the university I learned to use in many more beneficial ways "(Luis, 18 years old) (italics added).

"I started using in high school and I used it for the tasks they asked for and to download music and videos. I started using ICT to facilitate the search for information and the best management of the programs "(Saúl, 18 years old) (italics added), was another of the testimonies in that area. Finally, Abraham, aged 19, who commented that "in the last semesters of high school I started using ICT, since we had computer class, where at that time (year 2000) we perform tasks that today they are extremely easy and common "(emphasis added).

Some students have become accustomed from an early age to being surrounded by technological devices; devices that have been part of their context natively. This early use of ICT has made the relationship of digital generation with technologies natural and intuitive; although not for everyone.

This situation possibly derives from a policy in Mexico that has sought to benefit the use of ICT in education, which has a multiplier effect throughout the educational system and other contexts, and which aims to generate the digital skills required by the future university students. Claro (2010) points out that, for Latin America, policies for incorporating ICT into education have been accompanied by different promises or expectations. One of the main ones has been that schools must prepare students with the skills to manage technologies, in order to allow them to integrate into a society increasingly organized around them. This purpose has been supported by the fact that ICTs have become everyday objects for today's young people.

Despite these responsibilities attributed to education, it is very possible that the knowledge and development of ICT skills are generally produced outside of schools, according to López (2009). The common path is self-learning or through the support of friends or family, as a way to complement the courses they take in schools and other places. This gives room to the existence of those young people, some from an early age, who tend to have technological devices for personal use (Linne, 2014). In this regard, Ilomäki (2008) adds that computers and Internet come home at the insistence of the children, raised this as a need. In relation to this, within the comments the following one stands out: "I was about 10 years old when I was able to have my first desktop computer. Then I was interested in using my computer well and my mother took me to a computer course where they taught me how to interact "(Mario, 19 years old) (*italics added*). Like the following testimony:

I started using the computer when I was about eight years old. An aunt had a Windows 98 computer, then I bought mine at 12 when I was in high school, a desktop computer that had Windows XP and I started looking for information and programs to facilitate the school's tasks (Rafael, 18 años).

Finally there is the one given by Daniel, who is 18 years old:

I used to go to the internet café to use the Internet, to communicate with my friends with social networks, until my parents, aged 15, gave me a desktop computer. That's when I learned in a good way how to use it as much as I could (Daniel, 18 años) (*cursivas añadidas*).

With regard to these testimonies, we can see a coincidence with Crovi (2010), who describes how the use of ICT has been extended due to the advantages it offers and also to the reach of different social groups. . They also make it possible to identify that ICTs provide behavioral guidelines for young people by interspersing the learning that is developed in educational institutions -in their role of transmitting knowledge- with the support of the family and the home (Trotta and Santucci, 2012) .

One aspect to consider is that, according to Ortega (2012), young people-university students from Mexico-who have greater access to technological infrastructure are middle and upper class. This

means that they have better digital skills. Also, from the above, it can be said that the home and schools are the main providers of access to ICT.

From another perspective, access to technological objects from an early age constitutes the objectified state of technological capital (Casillas et al., 2014), defined as the set of technological objects (desktop and laptop, tablet, smart cell phone, etc.) that they are appropriate in their materiality and in their meaning; likewise, this set is also one of the elements that originate the development of digital skills. Regil (2015) comments that technological devices are added to the cultural assets with which this group of young people is related daily and become a symbolic distinction, despite the fact that students from Mexican public universities have a low level in this issue.

Access and appropriation of ICTs by young people represent challenges for socializing institutions, mainly the family and schools, which are obliged to respond with actions to the needs, peculiarities and practices of these generations. Ortega (2012) points out that the young population is represented in the social imaginary as one that naturally incorporates technologies in their lives and is assumed to be the one that travels the most, lives, interacts, produces, consumes, learns and has fun in these environments, being precisely the digital skills-increasingly developed-the cause of these transformations.

In short, it is possible to identify that ICTs are incorporated into the daily lives of young students (Espinar and González, 2008). Although they run in different ways, they converge at different times, some sooner than others. Anderson (2010) notes that students - young people with digital skills - often feel disconnected from the teaching practices practiced in universities, which have changed little since the past. For this reason, the access and use -at least basic- of ICT is generalized to such an extent that institutions must pay more attention to how university professors prepare to address these experiences, and in doing so, define aspects that contribute to contribute to the purpose of improving teaching and learning.

## Conclusions

Universities, from their curricular design and implementation, must contribute creatively to the formation of a professional profile with technological characteristics, derived from the development of digital skills that are nowadays necessary and applicable in all professions and disciplines.

In this sense, ICTs generate the obligation to rethink to innovate the traditional ways in which the teaching and learning processes are carried out in universities, taking into account current forms in which young people possess and develop digital skills - although not all nor in the same way - that allow them to communicate, share, produce and learn, giving signs of amplification in terms of the learning possibilities of these subjects.

Based on this exploration, it is pertinent to discuss what the institutions require to determine the technological skills that their students must possess upon graduation, as well as the need to face the challenges of the university scenario in the present, and professional in the future, that is, to plan and innovate the teaching process according to specific needs that consider the heterogeneity of situations in which young students enter to study. This requires taking into account that there are differences in digital skills, which are determined by some exclusionary aspects. Therefore, the need to pay attention to processes that promote the innovation of university education continues, considering how students can take advantage of ICT in their learning, as it is recognized that they play an important role in the constitution of a modern subject.

In spite of the diverse characteristics that the students present -some for life situations and due to their social context in which they have developed-, the social and academic relevance that ICT learning offers to all types of students also prevails, because the technologies are concurrent in different contexts, encouraging students to build particular learning schemes that are characterized by greater use of the technologies at their disposal, and making more efficient the forms of interaction with both individuals and with information in its different formats.

Therefore, the use of technologies from the university education must put their interest in the student to acquire the digital skills, which allow to increase the possibilities of professional preparation, thus contributing to the purpose of building a digital culture in universities.

Another aspect that is relevant to consider by universities is that which refers to being a student is an important condition for them to use more ICT, since they are incorporated into the education system, at least as part of their study and learning tools. Only then, young people will be able to understand the personal and social advantages of allowing the link between the spheres of education and the work context to enable them more opportunities in life. This assumes that today's youth give importance to the technologies in their lives and to the constant use of the convergence between different technologies, both in the physical space and the virtual one.

Nor should we forget that other technologies such as social networks and mobile devices, such as smartphones, are currently a constitutive part of young people's ways of relating, linking with other spaces that generate interaction and exchange between them. , in short, a lived and shared experience that has been socialized in this generation of students.

The current technological environment continues to cause that in universities it is consumed and requires more information and knowledge on a frequent basis, a situation that generates a spectrum of opportunities for the development of digital skills related to the acquisition of new learning within a professional development.



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