Internet Use in University Education 2019

B. Luna-Benoso

J. C. Martínez-Perales

J. Cortés-Galicia

This article is distributed under the Creative Commons by-nc-nd Attribution License.
Copyright © 2020 Hikari Ltd.

Abstract

Currently the use of Information and Communication Technologies are essential in the development and growth of all economies, that is why it is important to know its use and behavior in Mexico, since there are more and more virtual learning environments that share digital information, which is essential for their university education, where devices with Internet access are being increasingly demanded, this according to the needs and adaptation to the new times demanded by the new digital era.

Keywords: Internet, higher education, classroom education, virtual education, face-to-face class

I. Introduction

Currently, the Internet worldwide is not only a great tool for interaction and communication, but it is the most important force of innovation and learning for the
entire educational field, especially the higher level, being technological means that allow to offer infinity of information wherever and whenever it is needed. The internet is as well established as a new learning culture based on collective exploration, game and innovation [1]. The internet also offers users quick and easy access to sources of theoretical and practical knowledge outside of their immediate environment through authentic activities and interaction between broader social environments. The internet offers a lot of applications and services including social media, email, mobile applications, online multiplayer games, Internet telephony, file sharing, and media streaming services, etc.

As regards the exercise of teaching (higher level), the Internet is incorporated into a series of radically different learning practices and different social relations [2], where higher level institutions are forced to introduce technologies of information and communication in its network, through the design of virtual learning environments that is the set of elements and stakeholders (teachers and students) that participate in a teaching-learning process [3] and virtual learning environments that are spaces educational programs hosted on the web, made up of a set of computer tools or software system that enable didactic interaction [4].

For all the above, it is important to emphasize that such a technological tool (Internet) is an alternative option to traditional teaching and learning where information and communication technologies are increasingly in demand in all strata of social life, taking into account that Globalization forces society to adapt to the new digital educational currents that it brings and that if society is not modernized, it will lag behind and therefore is detrimental to the growth and development of university students, where the attraction of the use of the Internet in their daily tasks is more and more potential and therefore access to an infinity of digital information (virtual learning environments and environments, repositories, digital books, notes, etc.) where it can be consulted in any time of day that is required, it is only necessary to have an Internet connection using different devices such as: desktop computer, laptop, smartphone, tablet, smart tv, where its uses are more common every day at all levels educational globally.

That is why it is important to know the use and trends of the Internet in the preparation of university students in the country, as well as to know what their behavior has been in the last year at the higher level and how these students have adapted to this new modality of teaching and learning through the use of new technologies that are dealt with at the university level.

II. Behavior on the use of Internet in university students

In these times of confinement, an internal organization is required, being the main challenges and obstacles faced by the institutions in the teaching of non-face-to-face classes in the university communities in these times of confinement, which helps to
carry out this process intensively of teaching-learning, being totally different from the
traditional one of the face-to-face classes in the classroom, coupled with the fact that
many teachers are not prepared for it [5].
A good opportunity that the university community should take advantage of by
incorporating ICTs in the teaching-learning process to generate different learning
strategies that influence students through the promotion, understanding and
construction of knowledge that adapt to the multi-characteristics that students have,
translating into an analytical and reflective development, making them more skillful
and capable to face the work environment with more tools that help them to function
in working life [6].
According to figures from the Mexican Internet Association, currently 51% of people
who study, do so through an online platform, where it was noted that a high percentage
of students take their courses in a mixed modality such as: face-to-face and through use
from any platform, or only via Internet.
Currently, the demand in the use of the Internet continues to increase, being essential
to level the demand with the supply in the various university institutions both in public
and private universities, as the educational market continues to grow, although the
perception of students is that education face-to-face has a greater impact on companies
and provides clearer classes to university students than online modalities, adding that
the market continues to grow emphasizing that people's perception thinks that the face-
to-face education is more valuable to companies and provides clearer classes to
university students than online modalities.
From another point of view, people believe that face-to-face education is more
expensive and time-consuming, making it easier for online education to expand [7].
In August, most university students had to choose to take distance classes, since only
11% of students at the higher level had classes in educational models that combined
face-to-face activities with online classes and that with the health crisis caused by
Covid-19 pandemic intensified online academic work, this according to rectors and
specialists in mixed higher education convened by the Union of Universities of Latin
America and the Caribbean where it was estimated that 30% of Mexican university
students do not have access to the Internet, where the pandemic has not caused a change
in vision in higher education, adding that online and distance education has been taught
in Mexico for many years, concluding that quality education can be provided in both
models [8].
According to the opinions of the teachers regarding the use of the Internet, the great
challenge is that it is impossible to control all the digital activity of the students and the
information they obtain from it, however, it is important to specify the rules so that it
harmful in the use of untrue information affect the least possible, and take advantage
of the positive the most [9].
As can be seen in figure 1, the use of the Internet in Mexico before the pandemic with
a high dominance is the use of social networks with 51%, followed by free audiovisual
content with 49% and training/education with 46%, being the most representative before confinement by Covid-19 in what refers to the national total of Internet use [10].

As can be seen in Figure 2, the use of both conventional mobile phones (with a 4.9% probability of use) and smartphone (with a 92.9% probability of use) in university students presents a great difference, since the smartphone is the second most used in the education sector only below the postgraduate level, since students at this level feel more identified with the use of smartphones for research and collection of information that help them complement their academic activities daily [11].

According to what is shown in figure 3, as the educational level of the population increases, the probability of using the Internet increases, being seen more when it is at the secondary level and goes to the high school level (17.1% probability magnification). Regarding the undergraduate level, as far as the use of the Internet is
concerned, it is clearly seen that it is intermediate between the preparatory level and the postgraduate level with a probability of use of 94.9%, being the levels that most demand the use of the Internet [11].

Comparing graphs 3 and 4, it can be seen that the use of Internet at the university level experienced a very poor increase from 2018 to 2019, from 94.3% against 94.9%, noting
only a change in the average use of the Internet by educational level, going from 63.9% in 2018 to 65.8%, noting null variation in use in the last three educational levels [12]. Figure 5 shows what refers to training or education on the Internet, the last three educational levels being the ones most likely to carry out activities online, where an increase of 12.6 percentage points from the preparatory level to the undergraduate level and of 8.2 points is clearly seen percentages of this at the postgraduate level, with the undergraduate level being the most likely to be trained or educated using the Internet [11].

As can be seen clearly in figure 5, the university academic level is the one that presents the most probability for the consumption of free and paid audiovisual content on the internet, with 56.6% and 74.4%, being the highest among the last educational levels. For instance, compared to the preparatory level, the difference is 18.6 percentage points in the consumption of paid audiovisual content and 6.9 percentage points in terms of the consumption of free audiovisual content, which are those that lead this category [11].
Figure 6 simply explains that as the educational level of the population progresses, the probability of making purchases and sales over the Internet also increases. However, the probability of making purchases increases to a greater extent than that of making sales. In the population with a degree, the probability of making sales is only 14.2%, while for purchases the probability is 36.8% [11].

Source: IFT with data from ENDUTIH 2018
Fig. 6 Probability of making online purchases and sales by educational level

III. Internet use behavior during the pandemic

Now, both the classroom education and online education models are coming together to generate a hybrid model caused by the pandemic, having an impact on the acceleration of both the processes of one and the other in university education. Confinement is causing a change in Higher Education Institutions, due to the way in which face-to-face and virtual teaching systems are being conceived, spreading the idea that online and virtual education have to go the same way [13].

There is a high proportion of university-level users (5 out of 8 students) who use the Internet to communicate and interact, they do so through the use of social media platforms and instant messaging [14].

Technological integration in university teaching has accelerated caused by the Covid-19 pandemic, where two out of four teachers are not prepared to include new digital technologies in the classroom, according to a study by Inter-American Development Bank (BID) and Tecnológico de Monterrey in March 2020.

The scarce technological and financial resources, lack of strategic planning and training, are the most important challenges to start a total digital technological model in the university, taking into account the challenges generated by the pandemic and attacking them through: increasing collaboration spaces, promoting and stimulating the diagnosis of digital skills and teacher training opportunities, through the establishment of main guidelines in the teaching-learning processes supported by the use of digital technologies in these times of confinement.
In higher education, the pandemic has affected millions of students and teachers by unexpectedly shifting to a context of emergency remote teaching, trying not to lose continuity in educational processes, where most university educational programs maintained continuity in person and only a low percentage followed a hybrid education that combined the hybrid modalities (face-to-face and distance), being the lack of teacher training the main difficulty for the implementation of digital technologies for learning at the higher level [15].

The Covid-19 pandemic encourages reflection to take into account whether it is time to change the educational propaedeutic paradigm, which trains professionals and scientists from an early age, that is why it is essential to do: a deep criticism of the national educational system; an analysis of the current curriculum, as well as the predominant form of teaching practice that allows progress towards educational models in accordance with the changing world, where the objective and central concern is the training of people for life, on a solidarity basis, promoting an education less academic, less focused on disciplines, and more practical, from a perspective of solving the needs and problems of the social, political, economic and natural environment. For this reason, the postulate of developing open and flexible educational systems that make use of distance education and are based on digital technologies is demanding [16].

IV. Results

Educational level and income continue to be the sociodemographic characteristics with the greatest impact on the adoption of information and communication technologies, where the main activities carried out on the Internet during 2019 were: for entertainment (91.5%), to obtain information (90.7%) and to communicate (90.6%), being the population segment of higher level that connects to the Internet of 96.4% [17]. It should be noted that at an educational level, the higher education level is the one that has the most access to the use of the Internet, this according to the results of the survey of the challenges and trends in the use of ICT carried out at 297 universities by EDUCAUSE organization in 2018 (Brooks, D., 2019), lists the main trends that are influencing the ICT strategy in higher education, being the following:

- Increasing complexity of security threats.
- Focus and imperatives for student success.
- Decision-making based on data.
- Increasing complexity of technologies, architecture and data.
- Contribution of ICT to institutional operational excellence.

Regarding the complexity of security threats, the 2019 ranking of ICT topics presented by EDUCAUSE identifies security and information privacy issues as priorities, being located in the first and third positions, as shown Table 1 [18].
As can be seen in table 1, the difficult challenges currently focus on role resistance, when managing an academic environment using educational technologies, as well as the eminent gap in educational achievement. As for complex challenges, a lot of information is needed to solve it, where digital equity has to be sought, as well as rethinking the way in which the teaching practice will develop.

### Challenges in higher education

<table>
<thead>
<tr>
<th>Solvable challenges</th>
<th>Improve digital fluency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenges that you understand and know how to solve.</td>
<td>The growing demand for digital learning experience and instructional design expertise.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Difficult challenges</th>
<th>Role changes in an academic environment with educational technology strategies.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenges that are understood but whose solutions remain elusive.</td>
<td>Academic achievement gap.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Complex challenges</th>
<th>Advance digital equity.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenges that require more information before possible solutions are available.</td>
<td>Rethink the practice of teaching.</td>
</tr>
</tbody>
</table>

Table 1. Challenges that prevent the adoption of ICT in higher education.

The challenge of using the internet in the classroom must take into consideration the following postulates to make use of digital materials in a responsible and profitable way for the entire university school environment [19]:

- Ask the students to insert bibliographic citations in their assignments, to avoid obtaining information from portals with false or outdated data.
- Encourage students to investigate sites and platforms other than those seen in class and thus reinforce what is seen in the classroom.
- Establish times to use social networks once the exercises or tasks in class are finished.
- Create an online portal or blog to provide students with the content and information of the courses.
- Use audiovisual materials as support during class or as part of homework.
- With the help of the students, create a list of sites with reliable information to support the course.
- Use an online calendar with reminders about tasks and special events, so that both students and parents have access to it.
- There are many educational games online that can help younger students have more enthusiasm for learning.
- Make sure you know how familiar your students are with using the Internet or if anyone needs help before starting an online activity.
V. Conclusions

The use of the Internet at the higher educational level is increasingly in demand, where the role of the university student and their study habits change day by day due to the demand in the management of digital information, where it is important to emphasize that educational level and income continue to be the sociodemographic characteristics with the greatest impact on the adoption of information and communication technologies. In addition to the above, it should be mentioned that special care must be taken in the veracity of the digital materials that are accessed and have well-founded sources to trust these educational portals.

Acknowledgements. The authors would like to thank the Instituto Politécnico Nacional (Secretaría Académica, COFAA, EDD, SIP and ESCOM) for their economical support to develop this work.

References

[2] Alberto Ramírez Martinell and Miguel Ángel Casillas Alvarado, Internet en Educación Superior
[6] El rol de los alumnos ante el uso de las TIC’s en el proceso de enseñanza-aprendizaje.
(http://repositorio.cualtos.udg.mx:8080/jspui/bitstream/123456789/315/1/El%20Rol%20de%20los%20alumnos%20ante%20el%20uso%20de%20intenet%20en%20el%20salon-de-clases.pdf)

**Received: September 25, 2020; Published: October 18, 2020**