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Digital Tools And Their Influence On University Learning

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Abstract

This study aimed to analyze digital tools and their influence on university learning; This study has been deployed in a context of health emergency through COVID-19, attributing greater importance to the use of ICT for university education, taking into account that the use of digital tools generates interest in students and teachers. for scientific research; In addition, it enables the improvement of creative abilities; In this sense, the study method applied the quantitative approach of correlational and non-experimental design; the sample consisted of 180 students belonging to the Faculty of Education of the San Marcos University; three specifically designed instruments being used. The study concluded that, The level of digital skills of teachers and students can be a limitation or a strength for the use of ICT for academic purposes. There is a greater intensity of use for leisure, social or cultural activities, but less intensity for academic tasks**.**

Keywords: Learning, remote, skills, communication; TIC.

Introduction

Currently, digital tools are of utmost importance to optimize remote work in university classrooms. Considering that the pandemic is not allowing face-to-face classes, teachers must keep in mind the use of digital tools in synchronous and asynchronous sessions.

ICT has immense potential to develop intelligence in students, but in most schools, its effectiveness is decreasing in such a way that, not only is it not helping them, it is actually inhibiting them. Can education professionals really talk about progress if they move from the traditional chalk board, to the white synthetic surface and then to the interactive digital board, when the only thing that is changing is the writing surface? Possibly not. Is writing on a word processor different from writing by hand, or is it just easier? ICT is a tool, not a solution (Thompson, 2010).

The use of digital tools can awaken the interest of students and teachers in scientific research and enable the improvement of creative skills, imagination, communication and collaborative skills, providing access to more information and providing the means for a better integral development of individuals.

Technological challenges for education are the construction of technological infrastructure in all educational centers, integration of technology in instruction, training of all teachers in different areas to integrate technology in teaching and provide adequate user support. These technologies are increasingly presented as a need in the social context, where rapid changes, increasing knowledge and demands for a constantly updated high-level education become a permanent requirement.

The relationship between ICT and education is twofold: on the one hand, citizens are driven to know and learn about ICT and on the other hand, ICT can be applied to the educational process. The teacher's work and empathy with the student is of utmost importance to achieve meaningful learning throughout this educational process.

The instrument used is the questionnaire in the collection of information and the population is 180 students of a national university. Cronbach's alpha coefficient was applied to determine the level of reliability of the measurement instrument.

In the pilot test, Cronbach's alpha coefficient for the variable use of digital tools was 0.913, meaning that the instrument has very strong reliability. The use of such instrument is recommended to collect information regarding the study variable.

Materials and methods

The study is quantitative and descriptive, the research design is non-experimental, correlational and cross-sectional, the sample consisted of 180 students belonging to the Faculty of Education of San Marcos University. Three instruments designed specifically for this study were used: one on the dimension of academic use of the network which consists of 9 items, a second instrument measuring the virtual communication dimension, consisting of 8 items, and a third questionnaire that evaluates the technology management dimension, consisting of 15 items.

Results

In Table 1, in relation to the pilot test, Cronbach's alpha coefficient for the variable use of digital tools was 0.913.

Table 1. Distribution by level of the use of digital tools

Level	Frequency	Percentage
Under	45	24,9%
Medium	91	50,3%
High	45	24,9%
Total	181	100,0%

Source: Survey taken from students

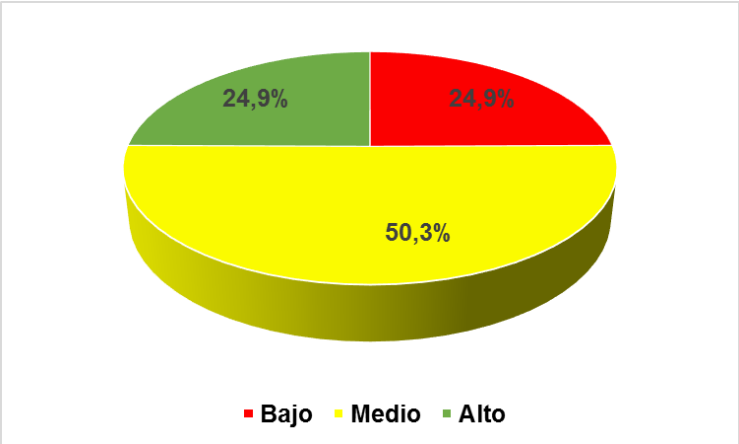

Figure 1. Digital tools (n=181). Descriptions in their original Spanish language

Regarding digital tools, Figure 1 shows that 91 participants represent 50.3% with a medium level, followed by 45 participants representing 24.9% with a low and high level each.

Table 2. Distribution by level of the use of digital tools in the dimension academic use of the network

Level	Frequency	Percentage
Under	52	28,7%
Medium	83	45,9%
High	46	25,4%
Total	181	100,0%

Source: Survey taken from students

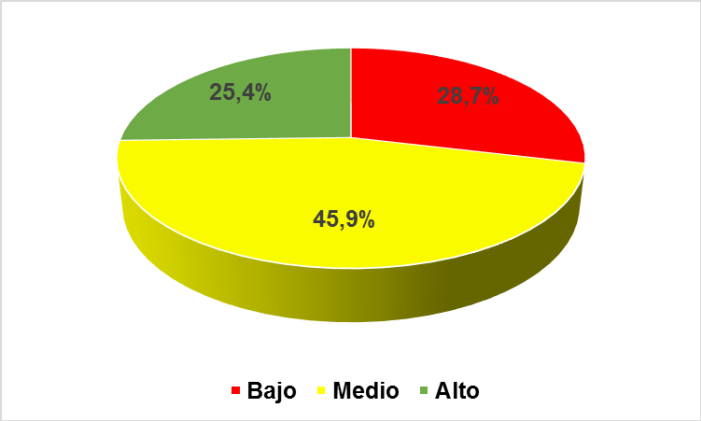

Figure 2. Digital tools in the dimension of academic use of the network (n=181). Descriptions in their original Spanish language

Regarding digital tools in its dimension academic use of the network, it is noted that 83 participants represent 45.9% with a medium level, followed by 52 participants representing 28.7% with a low level and 46 participants representing 25.4% with a high level.

Table 3. Distribution by items of the dimension of academic use of the network

No.		never	few times	in some cases	almost	Always

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D1	**Dimension of academic use of the network**					
1	How often do your teachers ask you to use ICT (WWW, Internet, e-mail, online discussions, multimedia, etc.), in addition to word processing, to complete assigned work in class?	0,0	7,7	35,4	31, 5	25,4
2	Do you use the computer and/or other information technologies when giving presentations in class?	0,0	7,2	43,1	14, 4	35,4
3	Have you established online communication with classmates for any academic activity?	0,0	13, 8	28,2	37, 0	21,0
4	How many times have you had the opportunity to work in a team - during the development of a class - with the support of the use of ICT?	6,1	9,9	41,4	14, 4	28,2
5	How many times have you had the opportunity to work in a team - outside class hours - supported by the use of ICT?	0,0	9,9	38,7	30, 9	20,4
6	Have you ever had the opportunity to send an e-mail to a professor to clarify a question about an assignment?	7,2	15, 5	50,3	21, 0	6,1
7	How often do you use the web page of your university library to consult the online catalog, the available databases or download materials you use in your academic activities?	2,2	14, 4	31,5	28, 2	23,8
8	How often do you turn to the WWW for resources that you can use in your academic work?	7,2	16, 6	25,4	24, 3	26,5
9	How many online courses have you taken that have been delivered entirely via WWW, Internet or e-mail?	92,8	7,2	0,0	0,0	0,0

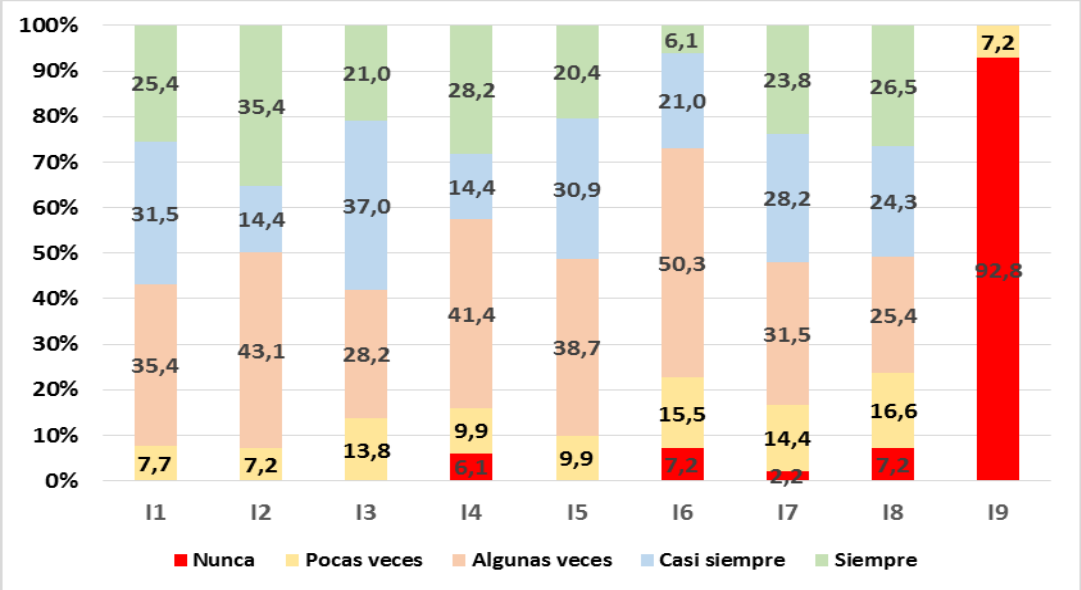

Figure 3. Items of the digital tools questionnaire in its dimension academic use of the network (n=181). Descriptions in their original Spanish language

Table 4. Distribution by level of the use of digital tools in the virtual communication dimension

Level	Frequency	Percentage
Under	52	28,7%
Medium	109	60,2%
High	20	11,0%
Total	181	100,0%

Source: Survey taken from students

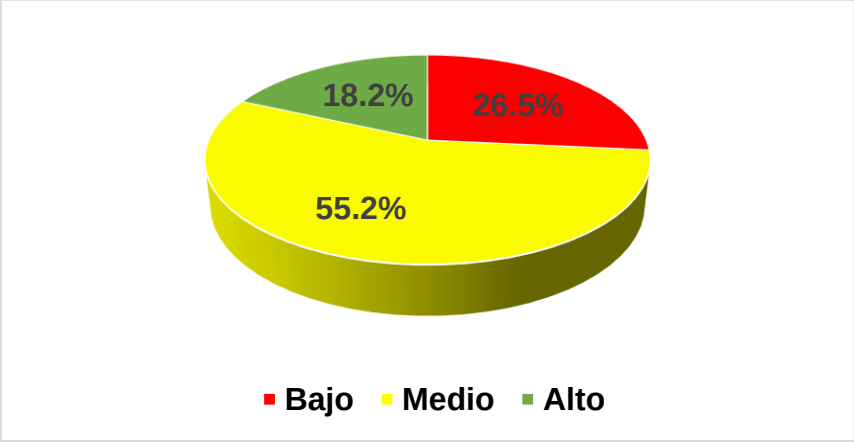

Figure 4. Digital tools in its virtual communication dimension (n=181). Descriptions in their original Spanish language

Regarding digital tools in its virtual communication dimension, it is observed that 109 participants represent 60.2% with a medium level, followed by 52 participants representing 28.7% with a low level and 20 participants representing 11.0% with a high level.

Table 5. Distribution by items of the virtual communication dimension

No.		never	few times	in some cases	almost always	Always
D2	**Virtual communication dimension**					
10	Do you use e-mail as an element of communication and information with other students?	0,0	9,9	33,1	23,2	33,7
11	Do you use any real-time communication application?	5,0	8,8	45,3	28,7	12,2
12	Do you participate in educational blogs for discussion and information?	95,0	5,0	0,0	0,0	0,0
13	Do you maintain communication with your teachers through any means of synchronous communication?	1,1	13,8	40,9	18,8	25,4

14	Do you maintain communication with other students through any means of synchronous communication?	19,9	40,3	13,8	26,0	19,9
15	Do you use forums to share information on topics related to your courses?	0,0	12,2	57,5	17,7	12,7
16	Do you use blogs to share information with other students on topics related to your courses?	93,4	6,6	0,0	0,0	0,0

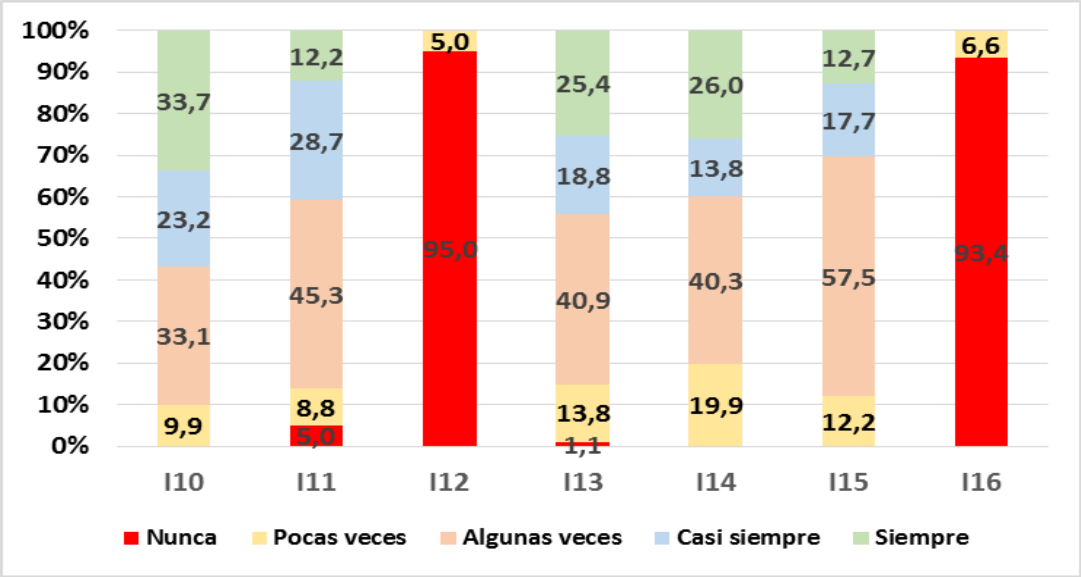

Figure 5. Items of the digital tools questionnaire in its virtual communication dimension (n=181). Descriptions in their original Spanish language

Table 6. Distribution by level of the use of digital tools in the dimension of technology management

Level	Frequency	Percentage
Under	48	26,5%
Medium	100	55,2%
High	33	18,2%
Total	181	100,0%

Source: Survey taken from students

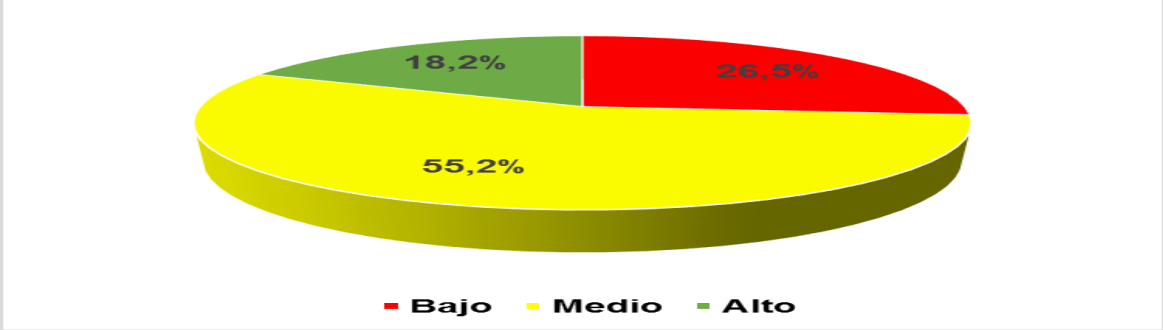

Figure 6. Digital tools in the dimension of technology management (n=181). Descriptions in their original Spanish language

Regarding digital tools in the dimension of technology management, we can see in Figure 4, that 100 participants represent 55.2% with a medium level, followed by 48 participants representing 26.5% with a low level and 33 participants representing 18.2% with a high level.

Table 7. Distribution by items of the management of technologies dimension

No.		never	few times	in some cases	almost always	Always
D3	**Technology management dimension**					
17	Do you use any specialized tool to search for information on the Internet?	6,1	13,3	47,0	27,6	6,1
18	Do you classify information obtained from the Internet?	0,0	11,0	47,5	25,4	16,0
19	Do you ensure the veracity of the information obtained after an internet search?	0,0	9,4	45,9	20,4	24,3
20	Do you use any web page to complement the development of your assigned tasks?	0,0	21,5	39,8	16,6	22,1
21	Do you use any web portal as a means of keeping up to date with educational issues?	0,0	6,6	37,0	25,4	30,9
22	Do you have the ability to manage a social network?	6,1	11,6	30,4	31,5	20,4
23	Do you use any means to disseminate or share information via the Internet?	0,0	5,0	60,8	22,7	11,6
24	Do you use google classroom as a link with the teacher?	2,2	11,0	35,4	28,7	22,7
25	Do you use google drive as a means of storing and/or publishing information?	1,1	1,1	47,0	40,3	10,5
26.	Do you use meet to communicate with other people?	0,0	1,1	65,2	12,7	21,0
27.	Do you use google spreadsheet to share information?	0,0	1,1	60,8	15,5	22,7
28	Do you use google documents to share information?	1,1	7,2	52,5	26,0	13,3
29.	Do you use google presentations to share information?	0,0	8,8	46,4	31,5	13,3
30	Do you use multimedia editing (Picasa, ps-online, canvas, audacity, etc.)?	0,0	15,5	22,7	40,9	21,0
31	Do you use social networks (Facebook, twitter, Instagram, you tube, etc.)?	0,6	11,6	19,9	29,8	38,1

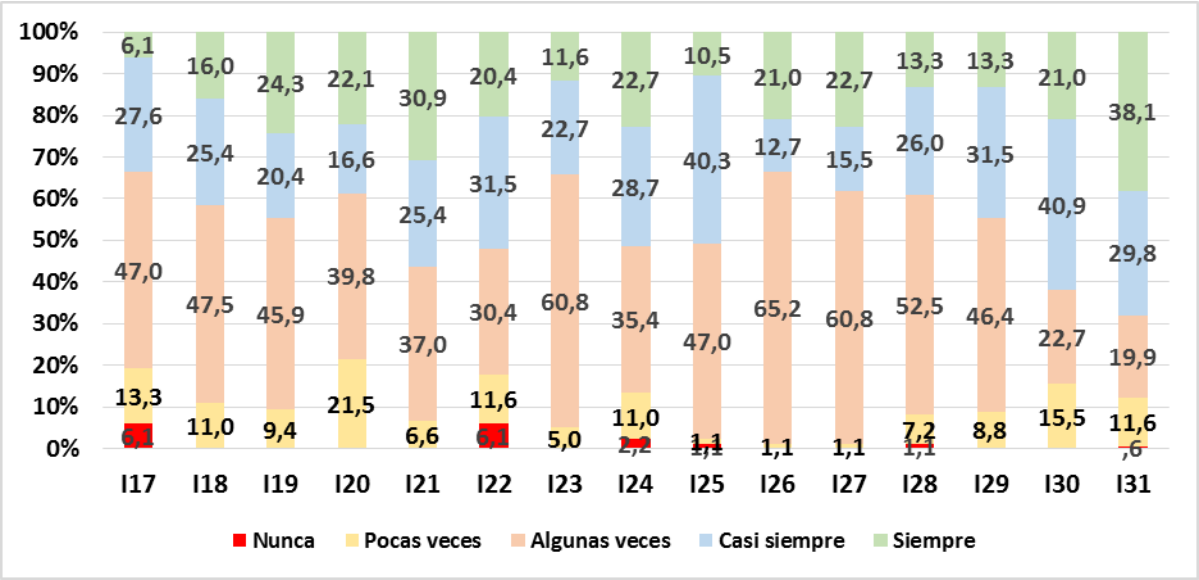

Figure 7. Items of the digital tools questionnaire in its technology management dimension (n=181). Descriptions in their original Spanish language

It is essential to know these tools in order to be able to innovate in university classrooms and it is up to the institutions to train their teachers so that they can carry out their classes in an optimal way.

Considering whether the institution is public or private, it is necessary to know the realities of the students in order to be able to work in this time of remote education.

The development of exams, quizzes, online activities to reinforce what has been learned and feedback to students.

Discussion

At a descriptive level, it is evident that the vast majority of students in the dimension of network use are at a medium level of 50.3% and at a low level is 24.9%.

In the virtual communication dimension, they are at the medium level of 45.9% and at the low level of 25.4%.

In the technology management dimension, students are at the medium level with 60.2% and at the low level with 28.7%.

Conclusions

University students can adapt their studies to their personal schedule, become the protagonist and responsible for their own learning process, optimize meaningful learning and improve the quality of learning.

The technological challenges for education are the construction of technological infrastructure in all educational centers, integration of technology in instruction, training of all teachers in different areas to integrate technology in teaching, and providing adequate user support.

The teacher's work and empathy with the student is of utmost importance to achieve meaningful learning throughout this educational process.

The level of digital competencies of teachers and students can be a limitation or a strength for the use of ICTs for academic purposes. There is a higher intensity of use for leisure, social or cultural activities, but less intensity for academic tasks.

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