DISCERNMENT OF DIGITAL COMPETENCES IN STUDENTS OF A BUSINESS SCHOOL

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Abstract

Learning in the digital age requires proper knowledge and the management of interactive environments and ICT tools and techniques. This study is focused on evaluating the basic ICT competences of new students to the careers of a business school, through a quantitative descriptive research based on the self-perception of the student. A questionnaire was applied to 272 students of three disciplines: administration, accounting and international business organized into six dimensions: pc maintenance, word processor (word), spreadsheet (excel), database, presentation software (ppt) and Internet browsing. The results indicate a general level of self-perceived digital competence among young people, an average value of 3.85 (scale 1-5) and 5 items of 38, presented statistically significant differences (p <0.05) between the three careers. Likewise, it is suggested to strengthen pedagogical aspects to improve digital competences especially in those keys to their professional profile.

Keywords: digital skills, perception, digital literacy, interactive environment, higher education.

1 INTRODUCTION

The Economic Commission for Latin America and the Caribbean (ECLAC), the World Bank (WB), and the United Nations Educational, Scientific and Cultural Organization (UNESCO) are institutions that provide great importance to education and knowledge for the economic and sustainable development of the countries. This trend has led educational policies to strategically integrate Information and Communication Technologies (ICT) into higher education educational programs and the importance of having technological competencies in people to foster the ability to discern important information and with it, access to the creation of new knowledge.

According to Prensky [1] today, new generations are considered "digital natives" because they have easy access to ICT and are constantly surrounded by a variety of digital devices such as smart phones, tablets, and other tools of the digital era. Authors such as Gordo and Megías [2] pointed out that due to that familiarity of young people with digital environments and their frequent use in technological applications to relate to others, a natural knowledge would be assumed to a certain extent that would take them to themselves to successfully integrate into a digital society.

In the case of teaching in the areas of business, accounting and administration, the incorporation of using technological tools that favor both teachers and students in their optimal use is indisputable [3]. In the context where these professions are located, the use and application of ICTs are a great ally for the student or recently graduated, as they help them to access information and perform operational and analytical tasks for better planning and organization in companies; manage human resources; manage financial information among others in your area.

In accordance with the above, it is expected that young people entering a career have the ability to: perform online activities, develop tasks on digital platforms, have critical thinking to seek information and use in virtual subjects [4-5]. However, some studies reveal that this may not be the case, since the belief is that young university students do not necessarily arrive with the necessary digital skills and knowledge necessary to begin their academic education [6].

Based on the above considerations, the interest of this topic and what is sought in this study is to determine, what are the digital competences that a student should have when entering a higher education career? To what extent do those students in the accounting, administration and business areas possess those skills in order to perform better in their academic training? In the first question a discussion is made about the concept of digital competence proposed by international organizations and various authors, about a new form of literacy for the optimal use of the resources offered by ICT for educational training.
For the second question, this research proposes a quantitative descriptive study to know the digital competences with which students enter the accounting, administration and international business degrees, coming from a business school.

The study is developed in four aspects: the first deals with the theoretical aspects of the term of digital competence and related studies in the evaluation of them; the second refers to the methodology used; in the third section the differences in the levels of competences in ICT (self-perceived) for each educational program are detailed and in the fourth section the findings and conclusions are discussed.

1.1 Digital skills: new form of literacy.

In the last decades, digital competences have taken on an essential meaning in higher education programs, as they are considered fundamental tools for the search, generation and application of information and knowledge, enriching the disciplines or areas of study. In that sense, digital literacy provides that facility in students to know and learn the basic tools of computer science to apply them in their daily activities. Paul Glister [7] was one of the authors who promoted the term of digital literacy in 1997 when he referred to it as "the ability to understand and use information", and subsequently other authors came to complement the concept. IT literacy is often understood as computer literacy and refers to the ability to effectively use computers (hardware and software) and related technologies [8]. Rangel and Peñalosa [9 p.12] define it as "an intellectual process through which individuals acquire and are able to mobilize personal resources to function in an environment where information, knowledge and ICT are preponderant".

Gisbert & Esteve [6] point out that the concept of digital literacy is more widely used internationally and almost synonymously employed at the end of digital competence, where it also represents a term with a broad meaning that encompasses other connotations within literature such as digital skills, technological skills or basic IT skills among others. The beginning of the term digital competences arises in the policy documents issued by the Organization for Economic Cooperation and Development (OECD). The first of them, in 2005, presented the Competency Definition and Selection Project (DeSeCo), which refers to people acquiring three categories of digital competences for greater mastery in ICT in order to face the challenges of globalization. Subsequently, the OECD [10], in a policy document, reiterates the promotion and acquisition of the development of certain skills focused on the use of technologies, that is:

- Functional IT skills, which refer to the proper use of the various applications;
- ICT skills to learn, those that associate cognitive activities with functional ones for the use and handling of applications;
- 21st century skills; those required for the construction of knowledge societies.

Chen & Dahlman [11] of the World Bank, the OECD [12] and UNESCO [13] highlight the tendency of the incorporation and appropriation of new technologies for their contribution in knowledge societies; However, it requires individuals with appropriate levels of knowledge and skills in the management of technologies that allow them to analyze the available information with critical sense, to select and include aspects that truly shape knowledge.

The main objective of digital competence is to develop IT skills and management. Ferrari, Punie & Redecker [8] define it as:

The set of knowledge, skills, attitudes, strategies that are required when using ICT and digital media to perform tasks; solve problems; communicate; manage the information; to collaborate; create and share content and knowledge for work, learning and leisure (p.84).

For Ilomäki, Pavvola, Lakkala and Kantosalo [14], the digital competence consists of the person developing the following skills:

- The technical capacity for the management of systems and applications;
- The ability to use digital technologies in a meaningful way for work and / or study;
- The ability to critically evaluate digital technologies;
- The motivation to participate and engage in digital culture.

The National Institute of Educational Technologies and Teacher Training [15 p.9] points out that digital competence also requires showing an attitude behalf of the users, which defines as: "the creative, critical and safe use of technologies" of information and communication to achieve the objectives.
related to work, learning, free time, inclusion and participation in society "applied to five areas: information, communication and collaboration, content creation, security and problem solving.

Within the university context, Area, Gutierrez y Vidal [16] mentions that the development of digital competences for the formation of students should be implemented as a learning process either in a group or individual way, where each person can be trained using different technological tools. According to this author, technology is established as a space within which the student learns to solve problematic situations; therefore, the development of digital competences focuses on the use of information and communication and not on the abilities to use technology.

Studies such as those of the OECD [10,12], UNESCO [13], Miliszewska [17], Área et al. [16] and Heerwegh, Wit & Verhoeven [18], point out that all higher level students must be prepared to demonstrate at least the following two categories on basic competences in IT:

- The use of software and hardware tools, including windows, word processor, software related to presentations, spreadsheets, databases, web pages, mobile devices, installation of hardware and software and basic principles of networks);
- The responsible use of internet services: electronic mail, web browsing, digital and electronic authorship, and basic principles of digital communication. In this sense, Area [4] reiterates that the university also prepares, within its field of study, the theoretical and technical knowledge that it has, it must also be updated and have new tools or digital applications in order to consult new information that it is generated around his discipline that will allow him to enrich his academic preparation.

In the same sense, Hernández and Reséndiz [5] pointed out the training in digital literacy as a key factor to facilitate the use of technological tools in students in the teaching-learning process; and not only that, Espinoza and Ricalde [19] recommended that it was necessary for universities to work in parallel on three axes: the first corresponding to the provision of technological infrastructure in educational plans, the second to the acquisition of digital skills of students as part of the academic content, and the third, the training of teachers on the use of technology that allows them to optimally perform their subjects and not be left behind.

1.2 The assessment of digital competences in Higher Education.

In this section we present studies concerning the evaluation of digital competences from the university level, this with the purpose of providing a diagnosis about the development of digital skills in higher level students. Most of these investigations are based on the perception of students in relation to their digital skills. When comparing the results of the research reviewed, most agree that students still have limitations in the training of their digital skills.

At an international level, the studies of The European Computer Driving License Foundation [20] and the International and Information Literacy Study [21] conclude that students in the European Union show low levels of digital literacy and computer literacy; so they suggest the formal instruction necessary for the development of IT skills.

The report Horizon 2014 of Europe [22], highlights the impact of new technologies in university education as a world class trend, making the students more participatory and creative for their educational use and not only focused on social content, as well as participating more in more flexible educational models such as the online modality, however low levels of digital skills are still present among the youth population.

According to, Waycott, Dalgarno & Kennedy [23] mention that despite considering digital natives as a group in equal digital skills; to a population of 2,096 students from 17 to 26 years old for three Australian universities, they find that only 15% of the student sample is considered an advanced user in IT management and about 45% of the total of young people are described as primitive users, that is, a very basic level in IT.

España and Corrales [24] evaluate students of the University of Costa Rica through a management questionnaire to the different operative systems (Word, Excel, Power Point, Prezi, Outlook) and most used browsers (Internet Explorer, Google Chrome, Firefox, Opera, Safari). The results reveal that there is a low and insufficient level of these digital skills, lack of skills for operating systems, as well as a lack of attitude of young people to learn.
In the case of Mexico, the study conducted by Avitia and Uriarte [25] applies a survey to 114 first-year engineering students from a public university; they find that although students have the necessary digital skills for their career, there are still shortcomings on how to take advantage of and discern the information they get for their school activities. In a similar study made to 234 students between 17 and 21 years of the degree in English language by the Universidad Veracruzana, the authors Cortés, López and Rodríguez [26] find that the vast majority of students get to show a basic level of knowledge in technology as well as competences in the handling of digital instruments, however, the use destined to the internet is used only for social effects that becomes a distraction factor and not used in the search for information because they prefer places like libraries or materials in physical presentation.

Carrasco, Sánchez and Carro [27] in their research with graduate students of the University of Tlaxcala, point out that students have a medium level of digital competence and a high level of access to digital media, where the most frequent use is the internet they use to consult news and research; however, the ability to work with images, databases and make videoconferences, wikis or webquest is scarce.

2 METHODOLOGY

2.1 Participants

The type of study is seen with a quantitative approach of descriptive type, in the period from August to December 2018; the business school had in this period an enrollment of 1,087 students. To determine the size of the sample, the technique of stratified samples was used to obtain the number of students for each of the races. In this way, the total conformation of the sample was 272 respondents. First-semester students aged between 17 and 21 were invited from the 3 bachelor's degrees: Public Accountant (CP), Business Administration (LAE) and International Business (LNI); to answer the questionnaire; this method delivered 272 usable questionnaires of 290 applied (see table 1).

<table>
<thead>
<tr>
<th>Stratum</th>
<th>ID</th>
<th>Number of people in the stratum</th>
<th>Proportion</th>
<th>Sample of the stratum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LA</td>
<td>423</td>
<td>38.9%</td>
<td>106</td>
</tr>
<tr>
<td>2</td>
<td>CP</td>
<td>424</td>
<td>39.0%</td>
<td>106</td>
</tr>
<tr>
<td>3</td>
<td>LNI</td>
<td>240</td>
<td>22.0%</td>
<td>60</td>
</tr>
<tr>
<td>N=</td>
<td></td>
<td>1,087</td>
<td></td>
<td>272</td>
</tr>
</tbody>
</table>

Source: self-made.

2.2 Instrument

A questionnaire was used to collect the data, which focused on the self-perceived domain of IT competences, by the students of this business school, following the structure developed by Heerwegh, Wit and Verhoeven (2016). It served as the basis for constructing the measurement questionnaire and obtaining the data of the variables considered. This instrument considered fundamentally six categories:

1 **PC Maintenance**: which measures the competence to make maintenance adjustments to your technological equipment.

2 **Word processing (Word)**: activities that evaluate the competence of managing writing and presentation of texts.

3 **Spreadsheet (Excel)**: which measures the competence to use excel tools to do calculations and basic operations.

4 **Database**: that evaluates the competence of managing databases to perform diverse operations.
5 **Presentation software (PPT)**: which measures the competence to use this program in order to carry out presentations in their school activities.

6 **Internet browsing**: which measures the competence to use virtual tools to consult information (example: "I use my web browser to search for an encyclopedia").

This instrument was answered using a Likert scale with five response options, which go in the following order: 1 = never, 2 = very rarely, 3 = sometimes, 4 = almost always and 5 = always. In this way, the questionnaire included questions about the frequency of use of a computer, ICT tools and software. We opted for first semester students to be sure that we would obtain information on how they come from this experience from their previous studies and in the understanding that they would have had some experience in the use of ICT and they would have an idea of what this competence implies in the academic development.

For the analysis of the reliability in each category of the survey, the Alpha Cronbach indicator was used, which agrees to show if each question measures the same and if the answer tends to covariate, that is, if the study participants manifest themselves coherent way and in this way it can be concluded that the reagents do vary in the same sense. The value of Cronbach's alpha is considered admissible when it is at least 0.70 for Nunnally [28] and Cronbach & Meehl [29]. For this case, coefficients greater than 0.70 were obtained, which suggests an adequate reliability of the scores obtained (see table 2).

<table>
<thead>
<tr>
<th>Categories</th>
<th>No. Off reatives.</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC maintenance</td>
<td>6</td>
<td>0.82</td>
</tr>
<tr>
<td>Word Processing (Word)</td>
<td>6</td>
<td>0.71</td>
</tr>
<tr>
<td>Spreadsheet (Excel)</td>
<td>7</td>
<td>0.91</td>
</tr>
<tr>
<td>Database</td>
<td>6</td>
<td>0.95</td>
</tr>
<tr>
<td>Presentation software (ppt)</td>
<td>6</td>
<td>0.89</td>
</tr>
<tr>
<td>Internet browsing</td>
<td>7</td>
<td>0.80</td>
</tr>
<tr>
<td><strong>Total scale</strong></td>
<td><strong>38</strong></td>
<td><strong>0.92</strong></td>
</tr>
</tbody>
</table>

Source: self-made

2.3 Data analysis

The information obtained was integrated into an SPSS file version 21 for its treatment. It began with the application of descriptive statistics for the analysis of the general data of the participants in the investigation; for the estimation of the level of the digital competences, the basic descriptive ones (mean and standard deviation) were obtained by reactive, dimension and educational program. Subsequently, we used a comparison analysis of means between CP, LA and LNI careers, incorporating the ANOVA analysis of variance in each reagent, in order to find possible statistically significant differences together with the application of post-hoc tests or Subsequent to know what group mean differs with what other.

3 RESULTS

3.1 Characteristics of the simple

For this study, the distribution of students by gender and by type of academic program is presented in table 3. The main group of these students is female, and the largest proportion of students have parents who graduated in higher education.

It can be seen that globally, the percentage of women is higher than that of men with 54.04%, unlike 45.95%, especially in accounting and international business, with 59.43% and 58.33% respectively, the opposite happens with the administration career, which predominates more men with 53.77%.
Table 3. Gender of the participating students

<table>
<thead>
<tr>
<th></th>
<th>Women</th>
<th></th>
<th>Man</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>LA</td>
<td>49</td>
<td>46.22</td>
<td>57</td>
<td>53.77</td>
<td>106</td>
<td>100</td>
</tr>
<tr>
<td>CP</td>
<td>63</td>
<td>59.43</td>
<td>43</td>
<td>40.56</td>
<td>106</td>
<td>100</td>
</tr>
<tr>
<td>LNI</td>
<td>35</td>
<td>58.33</td>
<td>25</td>
<td>41.66</td>
<td>60</td>
<td>100</td>
</tr>
<tr>
<td>Global</td>
<td>147</td>
<td>54.04</td>
<td>125</td>
<td>45.95</td>
<td>272</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: self-made.

3.2 Development perceived by students of their digital skills

To interpret the responses of the respondents, an interval scale of 1 to 5 was used, of which the general level of digital competencies self-perceived by the students for the three educational programs is established at an average value of 3.83. This result represents that students in general demonstrate an accepted level of competence to perform the activities described in each reagent. In tables 4, 5 and 6 the results of the comparisons of means and standard deviations for the three programs (LA, CP and LNI) are observed. Likewise, those items that were marked with significant differences are marked with an asterisk (p <0.05).

The type of analysis for each reagent allows identifying the level of competence with their respective average values and distinguishing those reagents associated with a low level of technological competence, for example, in reagents number 17, 18 and 19 of the Spreadsheet dimension (Excel) that although they do not represent significant differences between the groups, if they resulted with the lowest score in the three careers, particularly with the administration students, so it would be appropriate to improve.

Table 4. Comparisons of means and standard deviations obtained from the application of the questionnaire by dimension and type of career. (Part 1)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Maintenance de PC</td>
<td>4.27</td>
<td>0.88</td>
<td>4.39</td>
<td>0.85</td>
<td>4.13</td>
<td>1.11</td>
</tr>
<tr>
<td>1. I can close a program that does not respond.</td>
<td>3.92</td>
<td>1.18</td>
<td>3.88</td>
<td>1.29</td>
<td>4.02</td>
<td>1.21</td>
</tr>
<tr>
<td>2. I can adjust the resolution of the monitor.</td>
<td>3.25</td>
<td>1.39</td>
<td>3.37</td>
<td>1.36</td>
<td>3.42</td>
<td>1.51</td>
</tr>
<tr>
<td>3. I can install software</td>
<td>3.07</td>
<td>1.46</td>
<td>3.13</td>
<td>1.37</td>
<td>3.42</td>
<td>1.47</td>
</tr>
<tr>
<td>4. I can make a backup on my hard drive</td>
<td>3.85</td>
<td>1.30</td>
<td>4.04</td>
<td>1.16</td>
<td>4.20</td>
<td>1.24</td>
</tr>
<tr>
<td>5. I can search a file on the hard drive</td>
<td>3.84</td>
<td>1.20</td>
<td>3.94</td>
<td>1.28</td>
<td>3.72</td>
<td>1.49</td>
</tr>
</tbody>
</table>

Note. The information contained in Tables 4, 5 and 6 is part of the same group of results that has been divided into three parts. * Significant differences, p <0.05 Post hoc. D.E = Standard Deviation.

Table 5. Comparisons of means and standard deviations obtained from the application of the questionnaire by dimension and type of career. (part 2)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Processing (Word)</td>
<td>3.32</td>
<td>1.44</td>
<td>3.64</td>
<td>1.28</td>
<td>3.75</td>
<td>1.25</td>
</tr>
<tr>
<td>7. I can put special characters, such as ŏ, S, O, -š, in my text.</td>
<td>4.33</td>
<td>1.02</td>
<td>4.36</td>
<td>0.85</td>
<td>4.40</td>
<td>0.97</td>
</tr>
<tr>
<td>8. I can correct grammatical errors using grammar control.</td>
<td>4.62</td>
<td>0.72</td>
<td>4.86</td>
<td>0.89</td>
<td>4.62</td>
<td>0.64</td>
</tr>
<tr>
<td>9. I can create a table to show data.</td>
<td>4.71</td>
<td>0.61</td>
<td>4.65</td>
<td>0.74</td>
<td>4.60</td>
<td>0.54</td>
</tr>
<tr>
<td>10. I can change the column width or row height of a table.</td>
<td>4.66</td>
<td>0.71</td>
<td>4.65</td>
<td>0.71</td>
<td>4.60</td>
<td>0.76</td>
</tr>
<tr>
<td>11. I can use a text editor to add a background color to a table.</td>
<td>4.22</td>
<td>1.08</td>
<td>4.25</td>
<td>1.13</td>
<td>4.07</td>
<td>1.19</td>
</tr>
</tbody>
</table>
Spreadsheet (Excel)

13. With digital spreadsheets I can do simple calculations (addition, subtraction, multiplication, division). *

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th>3.42</th>
<th>1.19</th>
<th>3.95</th>
<th>1.18</th>
<th>3.72</th>
<th>1.22</th>
</tr>
</thead>
</table>
14. I can work on a digital spreadsheet with some simple functions (Average, Sum, Rounding). *
|   |   |   |   | 3.29 | 1.24 | 3.78 | 1.15 | 3.52 | 1.32 |
15. I can enter a formula in a digital spreadsheet.
|   |   |   |   | 3.13 | 1.24 | 3.43 | 1.24 | 3.42 | 1.38 |
16. In a digital spreadsheet program, I can enter a new spreadsheet based on an existing style.
|   |   |   |   | 3.06 | 1.27 | 3.31 | 1.36 | 3.50 | 1.39 |
17. In a digital spreadsheet, I can format the cells to display numbers with a specific number of decimal digits.
|   |   |   |   | 2.64 | 1.17 | 2.95 | 1.26 | 2.98 | 1.35 |
18. I can scale a large spreadsheet to be printed on a single sheet of paper.
|   |   |   |   | 2.72 | 1.31 | 3.08 | 1.45 | 3.03 | 1.31 |
19. I can print a specific part of a table from a digital spreadsheet.
|   |   |   |   | 2.88 | 1.32 | 3.00 | 1.42 | 3.03 | 1.41 |

Note. The information contained in Tables 4 5 and 6 is part of the same group of results that has been divided into three parts. * Significant differences, p <0.05 Post hoc. D.E = Standard Deviation.

Table 6. Comparisons of means and standard deviations obtained from the application of the questionnaire by dimension and type of career. (part 3)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Database</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
20. I can open or close a database. | 3.46     | 1.38    | 3.76     | 1.26    | 3.48      | 1.34     |
21. I can create a new simple database and put data in it. | 3.35     | 1.38    | 3.65     | 1.31    | 3.33      | 1.37     |
22. In a database program, I can open a table, a form or a query. | 3.18     | 1.35    | 3.46     | 1.26    | 3.22      | 1.34     |
23. In a database program, I can add or delete records in a table. * | 3.21     | 1.38    | 3.64     | 1.26    | 3.15      | 1.43     |
24. With a database program, I can add a field to a table. * | 3.16     | 1.33    | 3.45     | 1.34    | 2.92      | 1.36     |
25. In a database program, I can change the width of the columns in a table. | 3.42     | 1.40    | 3.75     | 1.27    | 3.42      | 1.38     |
| Handling Presentation Software (ppt) |          |         |          |         |           |          |
26. In a presentation program, I can change the column width or row height of a table. | 4.08     | 1.09    | 4.40     | 0.08    | 4.35      | 1.05     |
27. In a presentation program, I can insert rows or columns into a table. | 4.30     | 0.95    | 4.43     | 0.87    | 4.38      | 1.01     |
28. In a presentation program, I can enter data to create a graph. | 4.22     | 1.04    | 4.38     | 0.84    | 4.32      | 1.06     |
29. In a presentation program, I can change the graphic type of a graphic. | 4.00     | 1.18    | 4.03     | 1.16    | 4.23      | 0.99     |
30. With a presentation program, I can insert a different template into a presentation that works mainly in another template. | 3.97     | 1.15    | 3.96     | 1.19    | 3.75      | 1.28     |
31. I can change the position of a slide with the help of the slide sorter of a presentation program. | 4.12     | 1.05    | 4.19     | 1.04    | 4.03      | 1.26     |
| Internet browsing            |          |         |          |         |           |          |
32. I can delete cookies from my computer using my web browser. | 4.00     | 1.30    | 3.91     | 1.37    | 3.87      | 1.47     |
33. I can delete temporary Internet files from my computer using my web browser. * | 4.25     | 1.07    | 4.01     | 1.20    | 3.70      | 1.43     |
34. With a web browser I can save a web page on my hard drive. | 3.71     | 1.35    | 3.69     | 1.46    | 3.65      | 1.40     |
35. I can translate a website in a foreign language directly into Spanish using a web browser. | 4.26     | 1.08    | 4.39     | 1.02    | 4.28      | 1.02     |
36. With a web browser, I can delete the web browser history. | 4.69     | 0.73    | 4.75     | 0.69    | 4.63      | 0.78     |
37. I can search with a web browser in an Internet Encyclopedia. | 4.56     | 0.87    | 4.46     | 0.98    | 4.42      | 1.09     |
38. With a web browser I can print a web page. | 4.46     | 0.97    | 4.62     | 0.71    | 4.52      | 0.89     |

Note. The information contained in Tables 4 5 and 6 is part of the same group of results that has been divided into three parts. * Significant differences, p <0.05 Post hoc. D.E = Standard Deviation.
When comparing the level of digital competences for the six proposed categories, reagents were found whose means differ significantly at the level of significance established (p <0.05) marked with an asterisk, corresponding to the dimensions: spreadsheets (Excel) (reagents 13 and 14), Database (items 23 and 24) and internet browsing (item 33).

In the category of PC Maintenance, it is observed that the majority of the students evaluated of the three careers have an average self-perceived level in this category of 3.77, considering themselves capable of carrying out activities associated with solving problems of their computer equipment. International business students are superior in this.

In word processing (Word), there is a wide skill in the use of Word, because the three groups are considered competent to perform various activities related to the use of word processors, with a level of competence in this category of the 4.35, however, superiority stands out among public accounting students.

Regarding the Spreadsheet (Excel), the self-efficacy perceived in the management activities in application of basic functions of Excel, the three groups reach an average level of competence in the category of 3.25, where the students of accounting and international business reach a good position, but not the administration students who observe their poor skill in handling Excel with the lowest scores obtained. On the other hand, in this dimension reagents 13 and 14 presented statistically significant differences (p <0.05) indicating that accounting students have a higher level of digital skills than international business and these are higher than administrators.

In terms of database, an average level of competence was obtained for this category of 3.38, with accounting students followed by administration students with the best positions, unlike international business students. Likewise, for the reactants 18 and 19, statistically significant differences are presented (p <0.05) which means that the accounting students have a higher level of technological competences than those of international businesses, and these, in turn, are higher than the one of the administrators.

On the other hand, in the category of Presentation Software (PPT), there is a self-perceived capacity with a medium level of competence for this category of 4.17, where the students of the three professional careers are able to use the various functions of the power point, for their presentations in class, highlighting superiority in the skills of public accounting students.

Finally, the category navigation on the Internet, in this area the students evaluated are perceived with a medium level of digital competence being familiar with the search for information or in actions to eliminate records in the computer equipment, it had an average value in the three groups of 4.23 for this area, taking advantage of the students of administration, followed by those of accounting and at the end of international business. In reagent 33, a statistically significant difference was found (p <0.05) which indicates that the administration students have a higher level of technological competence than that of international businesses, and these are greater than that of the accountants.

4 CONCLUSIONS

The present study shows information about the student's perception in the level of digital competencies with those who enter the level of higher education, in this case, a business school with bachelor's degrees: public accounting, administration and international business. To estimate them, we started with an instrument with methodological rigor that evaluated various categories such as the management of software packages (Power point, Excel and Word), Internet browsing and PC maintenance, used in other studies [17-18] whose authors have pointed out the importance of being prepared in the proper use of these qualities to improve learning opportunities in diverse educational contexts.

Students evaluated in this business school are perceived with a level of digital skills of 3.83 on a scale (1-5), which indicates that young people have a good level of basic competence in the management of IT. Of the 38 items that made up the measurement instrument, 5 of them with statistically significant differences were applied to them by the contrast statistic Post-hoc resulting in the students of the accounting career be the best evaluated in those reagents. On the other hand, the results indicate that the categories: word processing (Word), presentation software (Power Point) and internet browsing were the best positioned for the three groups of careers; otherwise the spreadsheet (Excel) and database (BD) categories are below the general average.
In relation to the students by type of academic program, the results indicate that the accounting and international business students showed a similar pattern in the level of digital competences, in most of the presented categories; otherwise, the administration students who have lower levels of digital competence in most of the categories except for the Internet browsing category are the best evaluated, unlike the other two groups. Likewise, some competences are detected that can and should be improved by the type of career that they have selected as future graduates and are those related to the handling of spreadsheets (Excel) and databases situation for the three cases. In conclusion, the students of the accounting career have the best level of digital skills to take advantage of their academic and professional performance [4,5,8].

Finally, we pointed out that there is a need to carry out more studies of this kind, but they could be focused on students of more advanced semesters to know the level of digital competences they have to successfully develop their careers and also detect possible deficiencies susceptible to improve, on the other hand, it would be interesting to replicate this study but through the gender variable to corroborate whether it is indeed women who use technology more skillfully than men, since according to the results of this study the career with the best valuation was that of public accounting, which in this case represented 60% of women surveyed. It is recommended to the institution object of study to implement remedial courses of digital competences in the different careers to support their students to have a better academic performance, with the support of technological tools.

REFERENCES


