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Labour Relations and Human Resources: students' perceptions of their training in digital competences

Abstract

Nowadays, the acquisition of a high level of digital competence has become a real need for professional development in any field. Future graduates in Labour Relations and Human Resources should achieve an advanced level of this skill. The main aim of this research is to determine the level of acquisition of digital competence in Labour Relations and Human Resources students. The second purpose is to check whether there is a link between gender and digital competence achievement. This paper is based on the application of a questionnaire on digital competences which is organized around 5 aspects, and mainly based on the basis of Likert-type scale questions. The data collected belong to 26 undergraduates studying at the third year of Degree in Labour Relations and Human Resources at the University of Extremadura. The results obtained show that a large majority of students (65.4%) have an advanced level of digital competence, nevertheless, it would be advisable for the rest to achieve the same level before they graduate and exercise their profession. The second important conclusion is that the level of acquisition of digital competence is not conditioned by gender aspects.

K e y w o r d s: Digital competence, higher education, Labour Relations and Human Resources, competence assessment, gender perspective

Current society of the 21st century is in continuous technological change. Humankind has developed a global net regarding instant information transmission. It allows us to feel humanity in real time. We are immersed in what has been called Information Society. This society development must benefit human beings. Meanwhile, this development evolves in such a way that information and communication technologies (ICTs) produce new products and services and, therefore, new ways of managing organisations. In the end, we live in a digital society. The use of ICTs has increased due to COVID-19 pandemics. (Cucinotta & Vanelli, 2020). ICTs have mitigated devastating scenarios regarding every society sector: economics, politics, health and education (Guiot Limón, 2021).

Digital society needs competent people in technological and digital environments. The term "digital native" is commonly used to refer to people born in the digital era, after new technologies boom. However, according to the interview by Prensky & González Calatayud (2018), where Prensky, who is considered the author of the term, indicates that "rather, the terms Digital Natives and Digital Immigrants are a metaphor for many social changes that have taken place since the emergence of digital technology". Prensky asserts that both terms represent the huge cultural change seen from parents to children in current human society. At some point in the interview Prensky states that "digitally competent education" does not only mean that children (or teachers) use computers. It really means that children achieve more and more expertise in the use of computing and connecting so as to solve problems in a more efficient way, considering its enormous potential.

Some basic concepts to define digital natives are: a) Having been born after technology boom, b) Early accessibility, c) Digital education and d) Technological skills improvement. From these, "Digital education" has to do with the training received on technology, and with the use of digital tools to develop projects, improve learning and being in contact with online training. This goes far beyond that, and according to Aparici Marino & Silva (2012) crowds have become users that do not only share contents, but also create and produce them and, therefore, take on a role of authors-producers.

A direct consequence of digital education is digital competence (DC), which is key to learning that is appropriate for today's society (Alexander et al., 2019). For García (2021) DC is the one which implies the creative, critic and safe use of information and communication technologies, in order to achieve work-related objectives, employability, learning, the use of leisure time, and inclusion and participation in society. Plenty of studies have been carried out on DC in recent years; thus Lázaro-Cantabrana et al. (2019) have created and proved a tool to measure this competence. Cabero Almenara & Martínez Gimeno (2019) have analysed the problem of training DC regarding the skills teachers need to have in order to incorporate them into their teaching and professional practice. Besides, the European Union Framework for Digital Competence of Educators is very important

(Redecker, 2017) and so is the UNESCO[1] framework of ICTs competence for teachers (Butcher, 2019).

It is highly important to determine the level of DC of teachers in every education level, higher education being one of the most necessary, and certainly in all areas of knowledge. Thus, there are now a number of studies that can be cited as Rodríguez García et al. (2019). In the field of Social Sciences, we find Andres & Svoboda (2019) who indicate that teachers have a medium-high level of knowledge of technological tools, and for Mirete Ruiz (2016) there is a significant relationship between knowledge and the use of different technologies.

If we focus on future professionals in the area of Labour Relations and Human Resources, it is clear that they must develop the DC in order to be competitive in the development of their profession. According to Felisardo et al. (2019), the changes in current business models make it essential to have employees with extensive DC. For all of the above reasons, it is almost essential for higher education graduates to develop these competences before entering the world of work in a professional manner, as otherwise they would be at a disadvantage compared to candidates for job vacancies who have not developed the DC.

Objectives

The general objective of the experiment is to determine the level of digital competence of students on the Bachelor's Degree in Labour Relations and Human Resources. The specific objectives are to determine the level of digital competence in Technological Literacy, in Access to and Use of Information, in Communication and Collaboration, in Digital Citizenship and in Creativity and Innovation. The second objective of this research is to determine whether there is a relationship between the gender of the student and the level of digital competence.

Methodology

The research in this paper is based on the use of the validated Digital Competence questionnaire (Mengual-Andrés et al., 2016) called Cuestionario de Competencias Digitales en Educación Superior (CDES). CDES was developed by the EDUTIC[2]

[1] United Nations Educational, Scientific and Cultural Organization.
[2] Education and Information and Communication Technologies.

research group at the University of Alicante. This questionnaire has been used in multiple studies, most notably by Fan&Wang (2022) where it was applied to Chinese university students. Since a statistical analysis of numerically measurable and quantifiable data has been used, the focus of this study is quantitative.

Sample

The data for this research were collected from 26 students in the third year of the Degree in Labour Relations and Human Resources at the University of Extremadura (UEx). Of them 11 are men and 15 are women. These are the students who normally attend class and are in continuous assessment. The rest of the students of the degree are in final assessment, and do not attend class.

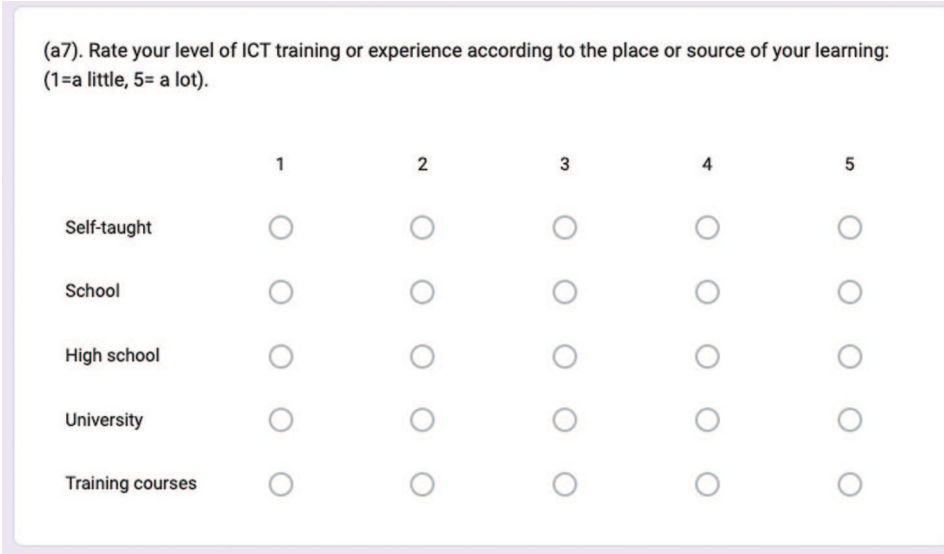
Instrument

The instrument used is the CDES questionnaire (Mengual-Andrés et al., 2016) which consists of five dimensions, namely:

- Technological literacy: students demonstrate an adequate understanding of ICTs concepts, systems and functioning.
- Information access and use: students apply digital tools to obtain, evaluate and use information.
- Communication and collaboration: students use digital media and environments to communicate and work collaboratively, even at a distance, to support individual learning and contribute to the learning of others.
- Digital Citizenship: students understand human, cultural and social issues related to ICTs and practice legal and ethical behaviours.
- Creativity and Innovation: students demonstrate creative thinking, construct knowledge and develop innovative products and processes using ICTs.

Data collection and analysis procedure

The CDES questionnaire was adapted to Google Forms (Palomares Chust, 2015) and then the teachers who teach in the third year of the different degrees of Labour Relations and Human Resources of the Faculty of Economics and Business Studies of the University of Extremadura were contacted. This guaranteed the availability and access to the questionnaire for their students. The e-mail detailed the objectives of the research, as well as the e-mail address where the on-line questionnaire could be accessed. Figure 1 shows an example of how students see the questions. In this case, we have used question A7 from the CDES questionnaire. This question belongs to the "Characteristic of the questionnaire".


(a7). Rate your level of ICT training or experience according to the place or source of your learning: (1=a little, 5= a lot).

	1	2	3	4	5
Self-taught	○	○	○	○	○
School	○	○	○	○	○
High school	○	○	○	○	○
University	○	○	○	○	○
Training courses	○	○	○	○	○

Figure 1. Example of the questionnaire question.

Source: Own work.

Internal consistency of questions

Since the instrument was already validated (Mengual-Andrés et al., 2016), the first thing to do is to demonstrate the internal consistency of the scores of the measurement instrument. Thus, it is necessary to combine the students' responses by adding their values and obtaining a total score for the instrument. However, in order to be able to group the questions into categories, it is necessary to demonstrate that there is an internal consistency between the questions and therefore it is correct to sum the results of the questions in order to define it as a total score. By doing this, it is possible to know that the scores of the sample are reliable from the point of view of the internal consistency of their answers. In short, it is a question of homogeneity between the questions that make up a dimension (Guix, 2005). One of the advantages of Cronbach's Alpha is the possibility of assessing how much the reliability of the test would improve (or worsen) if a certain item or question were excluded. According to George & Mallery (2019), recommendations for evaluating Cronbach's Alpha coefficients are as follows:

- Coefficient alpha >.9 to .95 is excellent.
- Coefficient alpha >.8 is good
- Coefficient alpha >.7 is acceptable
- Coefficient alpha > .6 is questionable
- Coefficient alpha >.5 is poor
- Coefficient alpha <.5 is unacceptable

Table 1 shows the full Cronbach's Alpha for the 48 questions of the CDES questionnaire corresponding to the 5 Dimensions. The value is 0.973, therefore, it has an "excellent" internal consistency. And according to Sánchez Meca & López Pina (2008) it can be said that "the reliability of the scale scores in the sample is 0.973". McDonald's Omega has also been calculated and the result is the same.

Table 1
Cronbach's alpha for the 48 questions of the CDES questionnair

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.973	.973	48

S o u r c e: Own work with SPSS from questionnaire data.

Component analysis

At present, there is still an open debate on whether to use Principal Component Analysis or Common Factor Analysis (Velicer & Jackson, 1990). However, the use of Component Analysis seems to predominate mainly because it is the default option in most statistical software, e.g. SPSS (Fabrigar et al., 1999). In this research this is also done and for all explorations it is concluded that none of the questions in any of the dimensions need to be eliminated.

Data coding

From the data collected in the Excel sheet that exports the Google Forms form, the data were imported into SPSS. The first step is the coding of the dimensions as defined in the CDES questionnaire. Figure 2 shows how the dimension "Technological Literacy" (Dimen_TL) is coded. First of all, the sum of all the questions of the dimension has to be totalled and then the totalled variable (Sum_TL) has to be re-coded in the corresponding Likert scale, in this case it will be "Di_TL". Since the dimension has 11 questions, the different cut-off values for each scale value are 11, 22, 33, 44 and 55, which will correspond to the values chosen by the students of 'Not at all important', 'Important', 'More or less important', 'Important' and 'Very important'. The same is done for the rest of the dimensions, which are coded as Dimen_IAU for the dimension 'Access to and use of information', Dimen_CC for the dimension 'Communication and collaboration', Dimen_DC for the dimension 'Digital citizenship' and Dimen_CI for the dimension 'Creativity and innovation'.

```
DATASET ACTIVATE ConjuntoDatos1.
* Agrupación visual.
*Recodificar Suma_AT para la dimension "Alfabetización Tecnológica" (AT).
RECODE  Suma_AT (MISSING=COPY) (LO THRU 11=1) (LO THRU 22=2) (LO THRU 33=3) (LO THRU 44=4) (LO THRU
    HI=5) (ELSE=SYSMIS) INTO Di_AT.
VARIABLE LABELS  Di_AT 'Di_AT'.
FORMATS  Di_AT (F5.0).
VALUE LABELS  Di_AT 1 'Not at all important' 2 'Important' 3 'More or less important' 4 'Important' 5 'Very important'.

VARIABLE LEVEL  Di_AT (ORDINAL).
EXECUTE.
```

Figure 2. Example of the questionnaire question.

Source: Own work.

Categorisation of Digital Competence

In order to be able to assess the digital competence of students for one of the dimensions, the variable "Digital Competence" has to be categorised into levels of: advanced, intermediate and basic. For this purpose, the constant "K" is established, which serves as a reference value for determining the scales. This constant K is calculated as follows:

$$K = ((NumberOfQuestions * MaxScore) - NumberOfQuestions)/3$$

Thus, for example, the Digital Competence in "Communication and Collaboration" which has 8 questions and each question is evaluated with a Likert scale with a value from 1 to 5, the constant K will be 10. The value of "basic" will be for those with a minimum range of 8 to a maximum of 17. The value of "intermediate" will be for the student whose minimum range is 18 to a maximum of 29. And finally, the value of "advanced" will be for ranges from 30 to 40.

The Global Digital Competence will be based on the 48 questions that add up to the total of the 5 dimensions, and therefore, the ranges will be from: 48-111 for "basic"; 112-176 for "intermediate" and 177-240 for "advanced".

Results

Once all the data collected from the CDES questionnaire have been categorised, we proceed to the analysis of the results. Firstly, the internal consistency of the dimensions is evaluated, followed by an overall analysis of the results and then a detailed analysis of each of the dimensions in order to achieve the objectives set. Finally, the gender independence of students' digital competence is analysed.

Internal consistency of dimensions

Table 2 shows Cronbach's Alpha for the 5 dimensions with a value of 0.912. This value is considered "excellent". And according to Sánchez Meca & López Pina (2008) it can be said that "the reliability of the scale scores in the sample is 0.912". McDonald's Omega has also been calculated and the result is very similar, namely 0.912.

Table 2
Cronbach's Alpha for the 5 dimensions of the CDES questionnaire

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.912	.914	5

S o u r c e: Own work with SPSS from questionnaire data.

Table 3 shows the different Cronbach's Alphas for each of the dimensions independently. When working with Cronbach's Alpha independently per dimension, only the deletion of the dimension "Communication and Collaboration" would change the Cronbach's Alpha from "good" to "excellent". However, since the level of "good" is very valid, we keep all dimensions.

Table 3
Cronbach's Alpha for each of the 5 dimensions of the CDES questionnaire

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Dimen_AT	16,96	6.598	.826	.882
Dimen_AUI	16.96	6.918	.732	.903
Dimen_CC	17.12	7.306	.711	.905
Dimen_CD	16.85	7.015	.798	.888
Dimen_CI	16.88	7.226	.831	.883

S o u r c e: Own work with SPSS from questionnaire data.

Overall analysis

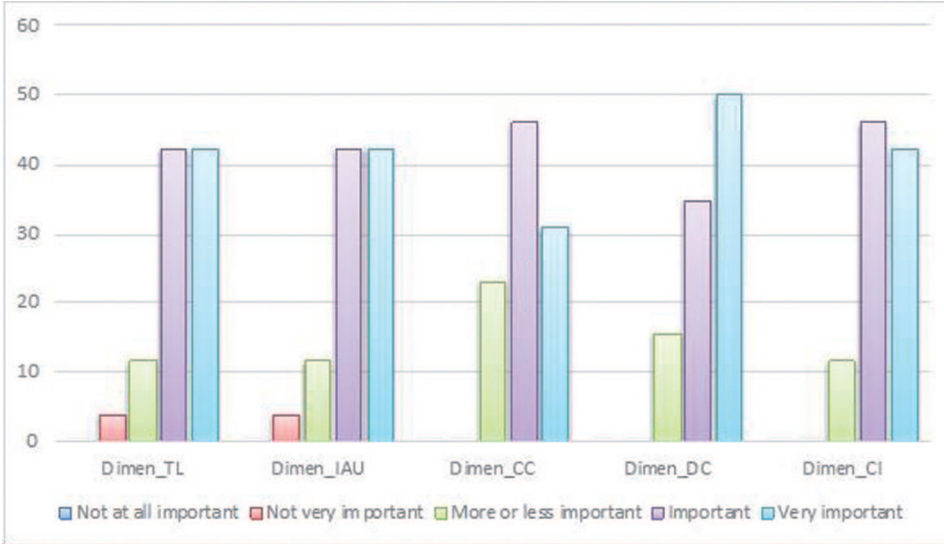


Figure 3. Percentage distribution of Likert scale values for each of the dimensions of the CDES questionnaire.

Source: Own work.

Figure 3 shows the percentages of each of the categories according to the Likert scale values in which they have been coded from the students' responses. No dimension has "not at all important" values. The value of "not very important" is given for the dimensions "Technological Literacy" and "Access to and use of Information" with 3.8% for both. The neutral value of "more or less important" is found in all five dimensions with values of 11.5% for the dimensions "Technological Literacy", "Access to and use of information" and "Digital Citizenship"; 23.1% for the dimension "Communication and Collaboration" and 15.4% for the dimension "Digital Citizenship".

If the values of "important" and "very important" are combined, only the dimension "Communication and Collaboration" has a little less than 80% (77.0%), while the rest of the dimensions have values above 84%.

Figure 4 shows the mean of each dimension. First of all, it can be noted that the average of the five dimensions is on the scale of "important" for all students. The two dimensions with the highest values are "Digital Citizenship" and "Creativity and Innovation" and the dimension with the lowest values is "Communication and Collaboration".

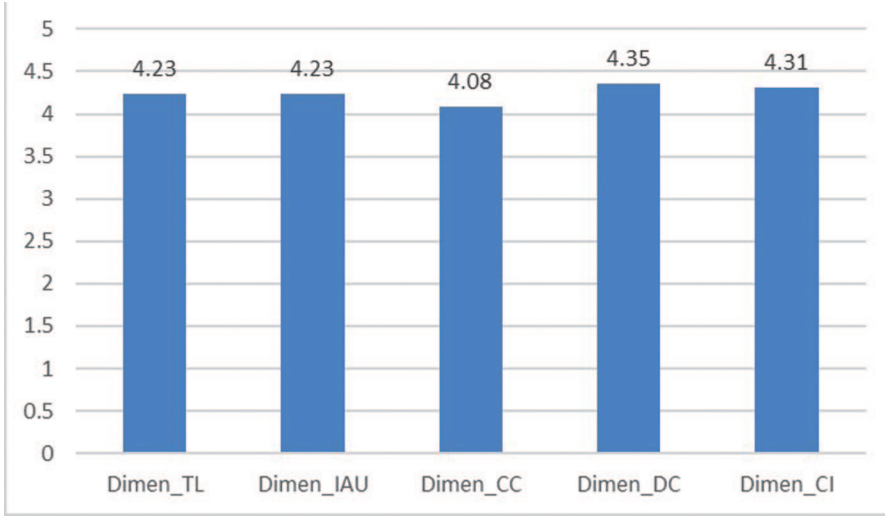


Figure 4. Mean of each dimension of the CDES questionnaire.

Source: Own work.

Analysis of the variable "Characteristic of the Questionnaire

The variable "Questionnaire characteristic" of the validated CDES questionnaire is made up of ten questions which are analysed in this section. Of these, to the first two, which ask whether the student has a personal computer and whether he/she has an Internet connection at home, all students answered yes. It is quite possible that, in studies of the last decade, there were students who answered no to these questions, but in this study, and in others that this research team is carrying out with this validated questionnaire, they have always answered "yes" to both questions.

The question on the number of hours students use the computer per week was distributed as follows: 7.7% use it "less than one hour"; 42.3% use it "between one hour and up to 5 hours" per week; from "five hours to 20" 34.6% of students use it and only 15.4% use it "more than 20 hours". As for the use, or not, of the computer for the development of lessons, there are still 11.5% who indicate that they do not use it and 88.5% who do use it. These percentages are compatible with those of the previous question.

For the question on the basic training they have received, 7.7% indicated that they had not received any training. The remaining 46.2% of students said that they had received information on office software. The rest of the percentages are distributed among the other options, although it should be noted that only 6.8% of students ticked the option "Learning specific software for my area of studies".

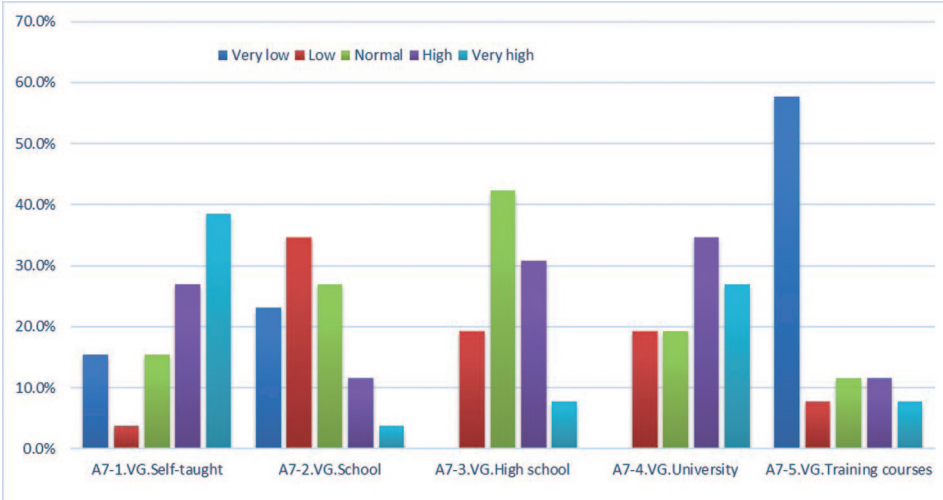


Figure 5. Distribution of ICT training received by pupils.
Source: Own work.

Very interesting is the origin of the training that pupils say they have received in the use of ICT. A summary can be seen in Figure 5, which shows that 65.4% of pupils say that they have received little or very little training through specific courses. It is also important to highlight that the vast majority have received training at school and university.

As for the number of years students have been using the computer, only 7.7% of them say that they have been using it for less than 5 years. 46.2% have been using it for between five and ten years. 30.8% of pupils say that they have been using computers for between ten and fifteen years. Finally, 11.5% also say that they have been using the computer for more than 15 years. In this variable there is a data loss of 3.8% according to SPSS.

The question on how the use of computers and technology contributes to the improvement of quality as a future professional of the students of the degrees in Labour Relations and Human Resources of the University of Extremadura, has been distributed as follows: 61.5% of them indicate that they totally agree; if they are added to the 26.9% who indicate that they agree, they constitute a total of 88.4%. The previous value is a great majority of them, leaving only 7.7% for the values of neutrality and 3.8% in disagreement on the Likert scale, and 0%, i.e. no student has marked the option of "totally disagree".

Finally, to close this section of the analysis of the "characteristic of the questionnaire", the students' assessment of the degree to which their teachers should have mastered the use of ICT in the area of Financial Economics and Accounting can be seen in Figure 6 where it can be seen that it is a normal distribution where the central values of 4, 5 and 6 are those with the highest values.

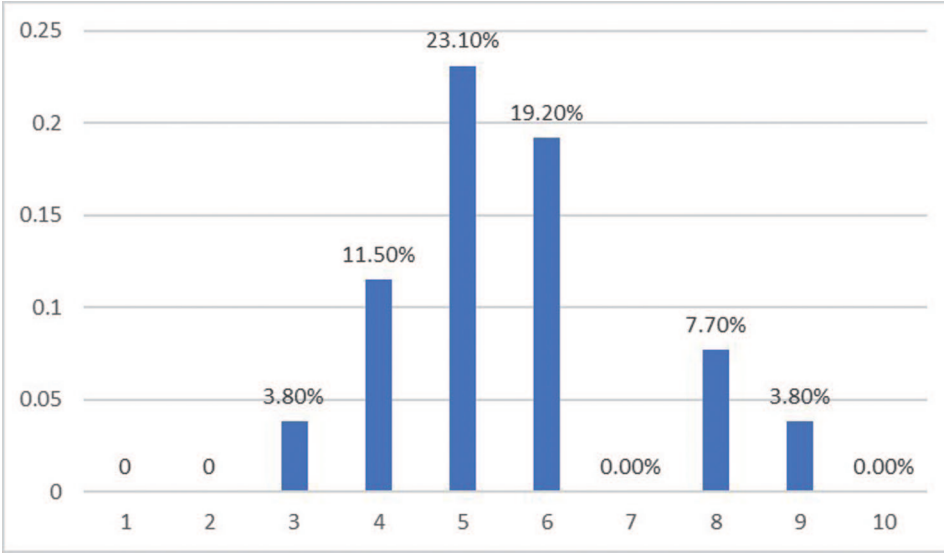


Figure 6. Distribution of responses on the degree of ICT use or management that pupils believe their teachers should have.

S o u r c e: Own work.

Analysis of the Technological Literacy dimension

The Technological Literacy dimension is composed of 11 questions. Each of them has been rated on a Likert scale with the values: 1-not at all important; 2-not very important; 3-more or less important; 4-important and 5-very important. Table 4 shows the mean of each of the questions rated by the students. Of these, with a value of 4.23 the best rated question is "AT1". The lowest rated questions were "AT3" and "AT11" with an average of 3.38.

Table 4
Means of the questions of the Technological Literacy dimens

Código SPSS	Question statement	Mean
AT1. ManejarOrdenador	Manage the resources of a computer through the different Operating Systems (Windows, Linux, Mac).	4.23
AT2.Herra_Ofimaticas	Use office automation tools for information processing (text editors, digital presentation editors, spreadsheets, databases, etc.).	4.15
AT3.Herra_Audio_ video	Master image, audio and digital video processing tools (Gimp, PhotoShop, Audacity, Cdex, Moviemaker, etc.).	3.38

AT4.Crear_ BasesDatos	Create databases through specific software (Acces, Filemaker) that allow the organisation and management of information.	3.46
AT5.Usar_ RecursosInformacion	Use existing and emerging digital tools effectively for locating, analysing, and evaluating information resources.	3.80
AT6. CorreoElectronico	Use communication tools based on email client and webmail services (Eudora, Thunderbird, Gmail, Outlook, etc.).	3.96
AT7.ConverSincrona	Develop online conversations through synchronous web-based communication tools (chat, instant messaging services, Skype, videoconferencing tools, etc.).	4.00
AT8.ConverAsincrona	Develop online conversations through asynchronous web-based communication tools, both traditional and emerging (forums, mailing lists, discussion groups, tweets, etc.).	3.46
AT9. TrabajosColaborativos	Carry out collaborative work through online tools such as Groupware (Kolab, GoogleDocs, etc.).	3.54
AT10. DominarHeramientas	Master web tools for sharing and publishing online resources (GoogleVideo, Youtube, Flickr, Slideshare, Scribd, etc.).	3.50
AT11. UsarPlataformas	Effective use of e-learning/b-learning platforms for online training and collaboration (Dokeos, Moodle, BSCW, WebCt, Ilias, etc.).	3.38

S o u r c e: Own work.

Applying the Digital Competence calculation for the Technological Literacy dimension, the results mean that 7.7% have a basic level, 34.6% have an intermediate level and 57.7% have an advanced level.

Analysis of the Access to and Use of Information Dimension

The Access to and Use of Information dimension is composed of 8 questions. Each of them has been rated on a Likert scale with the values: 1-not at all important; 2-not very important; 3-more or less important; 4-important and 5-very important. Table 5 shows the mean of each of the questions rated by the students. Of these, in this dimension, the highest mean is the question coded as "AUI5" with 3.96. And none of them, therefore, reaches 4.

Table 5
Means of the questions in the Access to and Use of Information dimension

Código SPSS	Question statement	Mean
AUI1.Defi_ Problemas	Define problems to be solved with the use of ICTs.	3.38
AUI2.Dise_Proyecto	Design a research project on the basis of a problem to be solved, identifying the most appropriate ICT resources.	3.77
AUI3.Bus_Info	Plan information searches for problem solving.	3.88
AUI4.Efectuar	Perform information retrieval, organisation and management using technological tools and services.	3.88
AUI5.Identificar	Identify relevant information by evaluating different sources and their provenance.	3.96
AUI6.Sintetizar	Synthesise selected information by organising it appropriately for the construction and assimilation of new knowledge.	3.88
AUI7.Demostrar	Demonstrate the usefulness of the knowledge gained for decision making in solving a problem.	3.77
AUI8.Devolver	Give back to the community in terms of digital information resources to solve a problem.	3.50

Source: Own work.

Applying the Digital Competence calculation for the dimension of Access to and Use of Information, the results show that 3.8% have a basic level, 30.8% have an intermediate level and 65.4% have an advanced level.

Analysis of the Communication and Collaboration Dimension

The Communication and Collaboration dimension is composed of 8 questions. Each of them has been rated on a Likert scale with the values: 1-not at all important; 2-not very important; 3-more or less important; 4-important and 5-very important. Table 6 shows the mean of each of the questions rated by the students. In this dimension the highest rated question is "CC3" with 4.0. The question with the lowest score is "CC8" on sharing experiences on social networks.

Table 6
Mean scores for the Communication and Collaboration dimension questions

Código SPSS	Question statement	Mean
CC1. Compartir	Share digital environments and media for collaboration and publication of electronic resources with peers.	3.77

CC2. Inrteractuar	Interact with experts or others using social networks and ICT-based communication channels.	3.85
CC3. Comunicar	Communicate information and ideas effectively to multiple audiences, using a variety of media, formats and platforms.	4.00
CC4. Desarrollar	Develop cultural understanding and global awareness by engaging with professionals from other cultures.	3.65
CC5. Comunicarse	Communicate with experts from other areas through ICT-based communication channels.	3.73
CC6.Formar	Form inter- and multidisciplinary working teams for project development or problem solving.	3.77
CC7.Crear	Create and dynamise professional knowledge networks and communities for collaborative work in virtual environments.	3.73
CC8. Compartir	Share experiences in social networks.	3.31

Source: Own work.

Applying the Digital Competence calculation for the Communication and Collaboration dimension, the results show that 34.6% have an intermediate level and 65.4% have an advanced level.

Analysis of the Digital Citizenship dimension

The Digital Citizenship dimension is also composed of 8 questions. Each of them has been rated on a Likert scale with the values: 1-not at all important; 2-not very important; 3-more or less important; 4-important and 5-very important. Table 7 shows the mean of each of the questions rated by the students. Six of the eight questions have an average response of more than 4 out of 5. The lowest rated question is "CD5" on "Understanding digital etiquette..." with a 3.58. The highest rated question is "CD2" with 4.35 on average.

Applying the Digital Competence calculation for the Digital Citizenship dimension, the results show that 3.8% have a basic level, 23.1% have an intermediate level and 73.1% have an advanced level.

Table 7
Mean scores for the questions in the Digital Citizenship dimension

Código SPSS	Question statement	Mean
CD1.Asumir	Make an ethical commitment to the use of digital information and ICT, including respect for copyright, intellectual property and proper documentation of sources.	4.12
CD2.Promover	Promote safe, legal and responsible use of information and ICTs.	4.35

CD3.Mostrar	Show a positive attitude towards the use of ICTs supporting collaboration, learning and productivity.	4.28
CD4. Demostrar	Demonstrate personal responsibility for lifelong learning using ICTs.	4.15
CD5.Ejercer	Exercise leadership for digital citizenship.	3.58
CD6.Utilizar	Equitable use of appropriate digital tools and resources.	4.00
CD7. Comprender	Understand digital etiquette (netiquette) by developing responsible social interactions related to information and ICT use.	3.65
CD8. Desarrollar	Develop an understanding of cultures and global awareness by engaging with professionals from other cultures, using the communication and collaboration tools of the digital age.	4.00

Source: Own work.

Analysis of the Creativity and Innovation Dimension

The Creativity and Innovation dimension is also composed of 8 questions. Each of them has been rated on a Likert scale with the values: 1-not at all important; 2-not very important; 3-more or less important; 4-important and 5-very important. Table 8 shows the mean of each of the questions rated by the students. The best rated question is "CI2" with 4.27 and the worst rated is "CI9" with 3.73 on average.

Table 8
Mean values of the questions of the Creativity and Innovation Dimension

Código SPSS	Question statement	Mean
CI1.Demostrar	Demonstrate the integration of ICT skills into professional practice.	4.08
CI2.Adaptarse	Adapt to new situations and technological environments.	4.27
CI3. Desarrollar	Develop initiatives with an entrepreneurial spirit in the use of ICTs.	4.00
CI4.Utilizar	Use existing knowledge to generate new ideas, products or processes through ICTs.	3.92
CI5.Crear	Create original work as a means of personal or group expression using ICT, as part of their lifelong and reflective learning.	3.88
CI6.Usar	Use models and simulations to explore complex systems and issues using ICTs.	4.04
CI7.Identificar	Identify trends by anticipating the potential for ICT use.	3.77

CI8. Usarproceso	Use multiple processes and diverse perspectives to explore alternative solutions to the given problem.	3.84
CI9. Reconocer	Recognise the conditions and contexts that call for the use of ICTs (where, when, how).	3.73
CI10.Participar	Participate in professional knowledge communities using ICTs.	3.76
CI11. Desarrollar	Develop experiences that stimulate creative and innovative thinking.	3.92
CI12.Integrar	Integrate digital tools and resources to promote learning skills and creativity.	3.76
CI13.Tender	Aim for professional effectiveness and self-renewal by incorporating ICT in their work context.	4.12

Source: Own work.

Applying the Digital Competence calculation for the Creativity and Innovation dimension, the results are that 3.8% have a basic level, 23.1% have an intermediate level and 73.1% have an advanced level.

Summary of dimensions

Figure 7 shows a summary of the level of digital competence for each dimension. It highlights the dimensions of Digital Citizenship and Creativity and Innovation with 72.4% at the "advanced" level. It should also be noted that the dimensions of Communication and Collaboration and Digital Citizenship have none at the basic level.

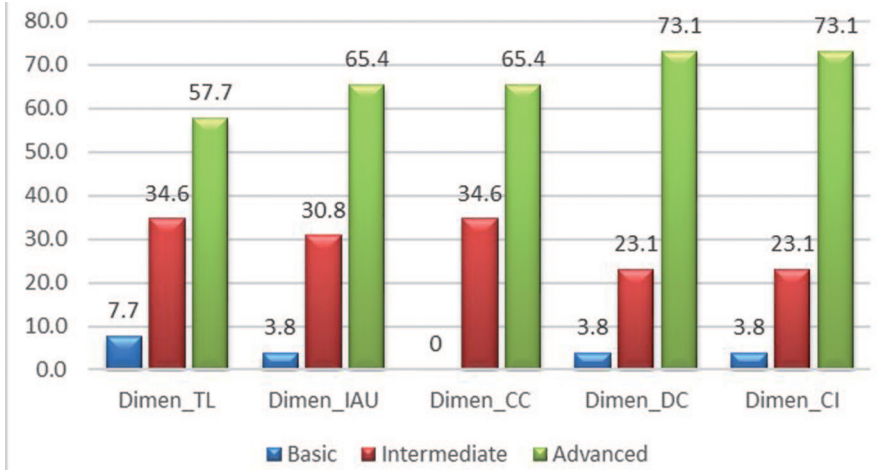


Figure 7. Summary of the level of dimensions.

Sources: Own work.

Analysis of General Digital Competence

Finally, Figure *8* shows the graph generated by the SPSS program from the data of the CDES questionnaire once each of the Dimensions has been calculated. Based on them, the final level of Digital Competence that the students of the Bachelor's Degree in Labour Relations and Human Resources say they have is calculated. It can be seen that more than 65.4% say they have an advanced level, but there are 30.8% who have an intermediate level, which is not low for university students, but it can be improved, and it would be very advisable for them to move on to an advanced level when they enter the world of work and are already university graduates.

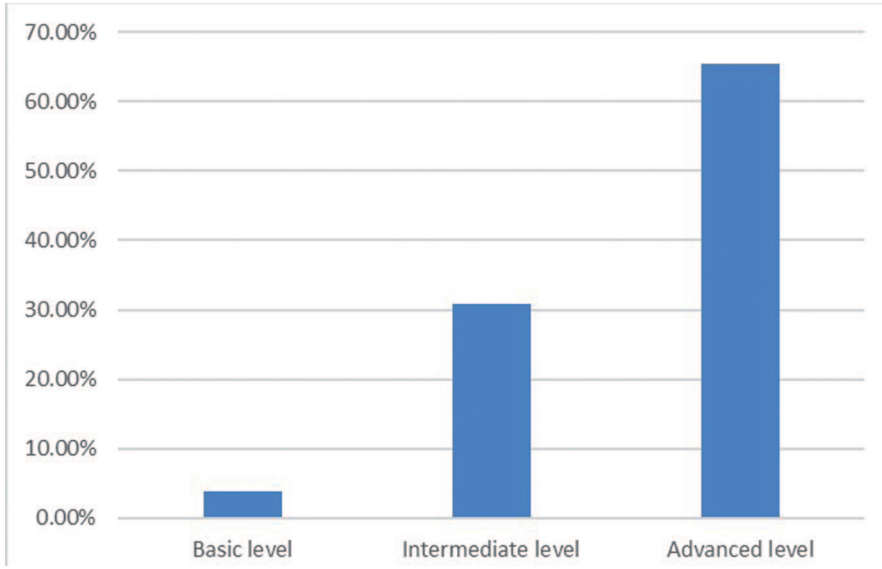


Figure 8. Level of Digital Competence of pupils.

Source: Own work.

Gender independence

For the second objective of this research, which is to determine whether there is a relationship between learner gender and level of digital competence, the following research question is formulated: Is there a relationship between learner gender and level of digital competence? For this question, the null hypothesis (H0: both variables are independent) and the alternative hypothesis (HA: the variables have some degree of association or relationship) are formulated, namely:

H0: There is no relationship between gender and the learner's level of digital competence.

HA: There is a relationship between gender and the learner's level of digital competence.

To demonstrate the null hypothesis or its rejection, a cross table between gender and digital competence is generated. In Figure 9 it can be seen that, when considering each gender as an independent group, the highest number of men who have an advanced level of digital competence is 81.8% and the rest, 18.2%, have an intermediate level. In the group of women, 53.3% have an advanced level, 40.0% have an intermediate level and 6.7% have a basic level.

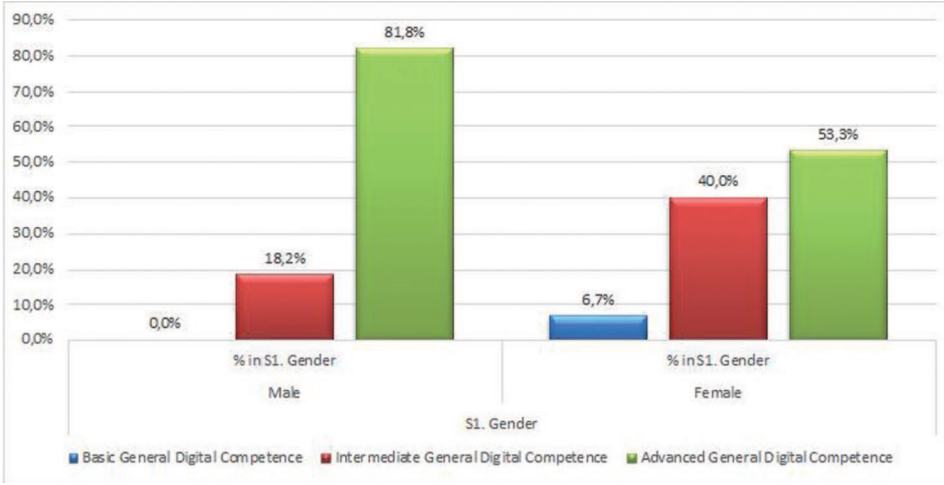


Figure 9. Results of the cross-tabulation of Gender versus Digital Competences.

Source: Own work.

From this cross-tabulation, the "Chi-Square test" statistic is applied, which according to Rodríguez (2004) is an alternative to Pearson's Chi-square statistic (X2 = Chi-square) for testing hypotheses of independence of variables. Pearson's test is based on the differences between observed and expected frequencies. The result of applying this test is shown in Table *9*. It indicates that it has 2 degrees of freedom and the significance value is 0.286 which is greater than 0.05. Consequently, the null hypothesis has to be accepted, and therefore it can be concluded that there is no dependence between gender and the level of digital competence.

Table 9
Chi-square tests of the cross-tabulation in Figure 9

Chi-square Tests			
	Value	Df	Asymptotic
Pearson Chi-Square	2.503[a]	2	.286
Likelihood Ratio	2.920	2	.232

Linear-by-Linear	2.404	1	.121
N of Valid Cases	26		

4 cells (66.7%) have expected count less than 5. The minimum expected counts is.42

Source: Own work.

Conclusions

From the results found, it can be concluded that the instrument used in this research (validated CDES questionnaire) correctly measures what is intended to measure. We found an attempted consistency of the questions, based on the data obtained of "excellent" according to George & Mallery (2019). The same has occurred with the internal consistency of the 5 dimensions with a value of "excellent", too.

The average of each dimension of digital competences on a scale from 1 to 5 is all above 4, with the Digital Citizenship dimension standing out with an average of 4.35. Approximately half of the students have received information on office automation programmes. However, in programmes specific to their area of knowledge, the majority of students indicate that they have not received such training. Almost half of the students (46.2%) say that they have been using computers for between five and ten years. With regard to the use of technology and computers for their future professional development, 88.4% of them say that they consider them necessary (the "agree" and "strongly agree" categories are added together).

With regard to the level of digital competence, based on the analysis of the five dimensions of the questionnaire, it can be concluded that 65.4% of the students of the degrees in Labour Relations and Human Resources have an advanced level in Digital Competences. 30.8% have an intermediate level and only 3.8% have a basic level. Although this is a good level for the vast majority of students, it is understood that it is very necessary for the 34.6% of students who do not have an advanced level to have it once they reach university graduate status, which will make them all more professional, but at the same time freer people.

Finally, for the second objective, the null and alternative hypotheses were formulated regarding the interpretation of whether the level of digital competence is conditioned by the gender of the learner. In this case it was found that there is no relationship between the gender of the learner and the level of digital competences they have. Therefore, the variables are independent and there is no association.

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Triana Arias Abelaira
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Postrzeganie przez studentów stosunków pracy i zasobów ludzkich ich szkolenia w zakresie kompetencji cyfrowych

S t r e s z c z e n i e

W dzisiejszych czasach zdobycie wysokiego poziomu kompetencji cyfrowych stało się realną potrzebą rozwoju zawodowego w każdej dziedzinie. Przyszli absolwenci kierunku Stosunki Pracy i Zasoby Ludzkie powinni osiągnąć zaawansowany poziom tej umiejętności. Głównym celem badań jest określenie poziomu nabycia kompetencji cyfrowych u studentów Stosunków Pracy i Zasobów Ludzkich. Drugim celem jest stwierdzenie, czy istnieje związek między płcią a osiąganiem kompetencji cyfrowych. Niniejsza praca opiera się na zastosowaniu kwestionariusza dotyczącego kompetencji cyfrowych, który jest określony na 5 aspektach i głównie zorganizowany wokół podstawy pytań na skali typu Likerta. Zebrane dane należą do 26 studentów studiujących na trzecim roku kierunku Stosunki Pracy i Zasoby Ludzkie na Uniwersytecie Extremadura. Uzyskane wyniki wskazują, że zdecydowana większość studentów (65.4%) posiada zaawansowany poziom kompetencji cyfrowych, niemniej jednak dla pozostałych wskazane byłoby osiągnięcie tego samego poziomu przed ukończeniem studiów i wykonywaniem zawodu. Drugim ważnym wnioskiem jest to, że poziom nabycia kompetencji cyfrowych nie jest uwarunkowany aspektami płci.

K e y w o r d s : K o m petencje cyfrowe, szkolnictwo wyższe, stosunki pracy i zasoby ludzkie, ocena kompetencji, perspektywa płci

Triana Arias Abelaira
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Percepción de los alumnos de Relaciones Laborales y Recursos Humanos sobre su formación en competencias digitales

Resumen

En la sociedad actual cualquier profesional necesita tener un alto nivel de competencias digitales para su desarrollo profesional. Los futuros graduados en Relaciones Laborales y Recursos Humanos deben tener un nivel avanzado de dichas competencias. El objetivo principal de esta investigación es determinar el nivel de competencias digitales de los alumnos del grado de Relaciones Laborales y Recursos Humanos. Un segundo objetivo es determinar si existe una relación entre el género del alumno y el nivel de competencia digital. La investigación se ha basado en la aplicación de un cuestionario validado sobre competencias digitales organizado en base a 5 dimensiones, estructurado fundamentalmente en base a preguntas de una escala tipo Likert. Los datos se recogieron de 26 alumnos del tercer curso del Grado de Relaciones Laborales y Recursos Humanos de la Universidad de Extremadura. Los resultados obtenidos muestran que una gran mayoría de alumnos (65.4%) tienen un nivel avanzado en competencias digitales, no obstante, sería aconsejable que el resto de los alumnos tengan este nivel cuando se gradúen en su titulación y pasen a ejercer profesionalmente. Una segunda conclusión y muy importante es que el nivel de competencias digitales no está condicionado por el género del alumno.

Palabras clave: Competencias digitales, educación superior, Relaciones Laborales y Recursos Humanos, evaluación de competencias, perspectiva de genero

Триана Ариас Абелайра
Белен Мозо Редондо

Восприятие студентами факультета трудовых отношений и человеческих ресурсов своей подготовки в области цифровых компетентностей

Резюме

В современном обществе любой специалист должен обладать высоким уровнем цифровых навыков для своего профессионального развития. Будущие выпускники в области трудовых отношений и человеческих ресурсов должны владеть этими навыками на продвинутом уровне. Основная цель данного исследования - определить уровень цифровой компетентности студентов, обучающихся по специальности "Трудовые отношения и человеческие ресурсы". Вторая цель - определить, существует ли связь между полом студента и уровнем цифровой компетентности. Исследование было основано на применении валидированного вопросника по цифровым компетенциям, организованного на основе 5 измерений, структурированного в основном на основе вопросов со шкалой Лайкерта. Данные были собраны у 26 студентов третьего года обучения по специальности "Трудовые отношения и человеческие ресурсы" в Университете Эстремадуры. Полученные результаты показывают, что значительное большинство студентов (65.4%) имеют продвинутый уровень цифровых компетенций, однако было бы желательно, чтобы остальные студенты имели этот уровень, когда они закончат обучение и

перейдут к профессиональной деятельности. Второй и очень важный вывод заключается в том, что уровень цифровых компетенций не зависит от пола студента.

К л ю ч е в ы е с л о в а: Цифровые компетенции, высшее образование, трудовые отношения и человеческие ресурсы, оценка компетентностей, гендерная перспектива.