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EDITED BY
Antonio Palacios-Rodríguez,
University of Seville, Spain

REVIEWED BY
José María Fernández-Batanero,
University of Seville, Spain
Begoña Esther Sampedro-Requena,
University of Córdoba, Spain

*CORRESPONDENCE
Juan José Victoria-Maldonado
jjvmjuanjo@gmail.com

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Student evaluation of teacher digitals skills at Granada University

Santiago Alonso-García, Juan José Victoria-Maldonado*, Pablo José García-Sempere and Fernando Lara-Lara

Education Faculty of Granada University, Dirección y Organización Escolar, Granada, Spain

The following study is a descriptive/correlational analysis of students' perception of digital competence in teaching. It is based on the current needs of university students with regard to the digitization of teaching and learning processes. Knowing student satisfaction with teaching digital skills could be used to propose improvements in the quality of university education to the extent that it can channel the various socio-economic demands. The European Higher Education Area is not oblivious to this problem by creating a framework of ambitious objectives for member states where ICT and digital competence of teachers are a priority. The research is carried out at the University of Granada and takes as a reference the framework: Marco Común de Competencia Digital Docente. This Framework in the context of Spain is concerned with indicating which areas educators need to acquire a skill higher degree differentiating between the following levels of classification: basic, intermediate and advanced. A quantitative correlational study was carried out, and an online questionnaire/form was distributed to a random probability sample of 307 students at the University of Granada belonging to different faculties of education. According to the results obtained, the students unanimously share the opinion that, the lecturers at Granada University do not possess a sufficient level of experience or training to competently deliver course content in a purely digital format.

KEYWORDS

Higher Education, teacher evaluation, teacher skills, educational technology, student evaluation of teacher performance

Introduction

Society and technology have advanced to what we know today as the information society. In Gisbert Cervera et al. (2016) already warned about how social differences are becoming more evident and that it is affecting every aspect of society, including the education. It is important to develop digital skill as it has become essential in order to survive and even in modern society it could be claimed as a right (Alonso-García et al., 2018).

This information society where the Information and Communication Technologies (ICT) are so essential, people could be divided in to two categories: digital immigrants and digital natives (Aguilar-Salinas et al., 2019). Young people who were born and grew up in this society often have studied with ICT and new technological innovations in their environment. The modern technological culture and digital proficiency of the average student is radically different when compared to the environment that the current generation of educators grew up in. This creates a gap in knowledge and ability, between student and teacher, in many situations regarding the use of technological systems (Romero-Rodríguez et al., 2020).

Due to that, the methodological lines must include ICT and give the students an opportunity to have a more learning by doing perspective in education (Han and Ellis, 2020). However, to achieve that goal with efficiency one of the most important factors is the digital skills of the teacher (Moreno-Guerrero et al., 2020).

Digital skills could be defined as the level of ICT group of knowledge's, including but not limited to, technological, informational, multimedia, and creative communication. Learning skills from all groups of knowledge is called the ICT literacy (Fuentes et al., 2019).

Otherwise, the concept of digital skills could be divided in three areas, technical, methodological and social categories. Technical skill could be defined as knowledge about a field and being able to manage the information related to that area of study. Methodological skills are about applying the knowledge and finally, social skills using ICT focus on using them with an ethical meaning and participate on the social activities (Trujillo et al., 2020).

Digital skills involve the critical and safe use of Information Society Technologies for work, leisure and communication. Relying on basic ICT skills: "use of computers to retrieve, evaluate, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet." (European Parliament and the Council, 2006).

Moreover, at the same year the European Parliament acknowledged the fact that educators need an adequate level of training in ICT by publishing the following statement.

Following this statement Durán Cuartero et al. (2019) advised that European Higher Education Area recognize ICT as an exigency and a main source of information. They argued that universities and their professors have to evolve, innovate and reinvent themselves to adapt to the information society. During the education of the next generation of teachers and professors it is essential to break educational barriers and give new meanings to the teaching process to meet student's needs (Alonso-García et al., 2018). Based on that, new methodologies are being developed such as, mobile learning, blended learning or flipped classrooms to name a few. The development of these methodologies can be greatly attributed to ICT and the resources it provides (Alonso-García et al., 2019). The use of those methodologies comes with the possibility of the permanent education, collaborative and the auto regulation of the student as the adaptation to different schedules (Romero-Rodríguez et al., 2020).

In Spain the main institution that coordinates educators knowledge regarding ICT is the "Instituto Nacional de Tecnologías Educativas y de Formación del Profesorado (INTEF)" which in 2017 developed the "Marco Común de Competencia Digital Docente" which is a reference paper that divides digital skills into five areas:

(1) Information and informational knowledge. This area focuses on an educator's ability to find, verify and retain information from digital services.
(2) Communication and collaboration: This refers to the ability to share different types of files and cooperate in different contexts using ITC.
(3) Digital media creation: The creation of new documentation and the updating of already published content, in order to ensure all available documentation is factually correct based on the latest research.
(4) Security: The ability to protect the digital devices and surf online with no risk.
(5) Problem solving: The ability to use, and in what manor to use, ICT when approaching a problem. In some situations, this includes the exclusion of ICT when trying to resolve a problem.

Furthermore the COVID-19 situation has changed every aspects of educator's lives. During the mandated period of lockdown in different areas around the world, educators had to quickly adapt their methods of delivering content to students. Scientific literature in recent years has focus on developing new teaching techniques using different digital devices (Agencia Estatal Boletín Oficial del Estado, 2022). As a result of this a new paper was published in Spain titled: resolución de 4 de mayo de 2022, de la Dirección General de Evaluación y Cooperación Territorial, por la que se publica el Acuerdo de la Conferencia Sectorial de Educación, sobre la actualización del marco de referencia de la competencia digital docente which became the new framework paper. The new framework is similar to the previous one as it grades educators from an A1 to C2 level however the areas of evaluation have changed to:

(1) Professional Commitment.
(2) Digital Media.
(3) Teaching-Learning process.
(4) Evaluation and feedback.
(5) Students' empowerment.
(6) Development of students' digital skills.

On 14 March 2020, Royal Decree 463/2020 was approved in Spain, declaring a state of alarm for the management of the health crisis situation caused by COVID-19. Traditional classes were banned and were later moved to online, with

the new vaccination mandate, the possibility of face-to-face classes began to change. From 17 September 2020, at the start of the 20/21 academic year, the University of Granada opted for semi-attendance with classes taught both face-to-face and online.

This new educational reality has brought about the necessary transformations for the digital era. Evaluation methods, curricular maps and teaching guides must be adapted for active student learning and formative assessment (Mora-Cantallops et al., 2022). To overcome the physical barrier, virtual learning communities have been created to facilitate fluid communication between participants. In addition, the active learning that requires ICT as the main tool also helps students create their own learning process using ICT and as they do, they start developing their digital skills (Aguilar-Salinas et al., 2019).

According to García-Planas and Taberna Torres (2020), the adaptation from a totally face-to-face model to an online or blended model has been very quick. Far from perceiving that the change has had a negative impact, they argue that they have been able to discover and explore issues that were not even considered before online or blended learning became the new norm. The most relevant example is the reduction of theoretical content which is accompanied by a series of activities allowing students to go deeper on the knowledge they get and have time to assimilate it appropriately. In this way, the contents and skills acquired during the lockdown contribute to their updating for the social perspective and working scenario where ITC are essentials (Torrado Cespón, 2021).

During the lockdown, many studies have been published on the assessment of teachers' digital skills (Mannila, 2018; Fuentes et al., 2019; Ruiz Ruiz, 2020). These investigations have detected different strengths and weaknesses of educators from the perspective of students and educators themselves (Mora-Cantallops et al., 2022). The types of evaluations most frequently carried out are perceptual and performance evaluations (Rodríguez-García et al., 2019; Recio Muñoz et al., 2020; Mora-Cantallops et al., 2022).

In this context, evaluations of teaching performance are necessary and provide significant information, as they show how, in this period, ICT in particular has been a useful tool for the teaching/learning process. Also, they show how teacher training in digital skills is still an aspect that needs to be improved, so that the performance of education through digital tools can be efficient. Thus, Han and Ellis (2020) show that blended learning may not be beneficial if it is not accompanied by teacher training follow-up on the correct implementation of this learning approach, showing how teacher training is a decisive factor in the implementation of ICT and active methodologies.

Likewise, another challenge is the educators' perception of blended or virtual education, as in many cases it is not positive (Aguilar-Salinas et al., 2019). They are unaware, for example, of the possibilities of open educational resources (Mora-Cantallops et al., 2022). Along the same lines, Romero-Rodríguez et al. (2020) show that although mobile devices are a commonly used tool among university students, they have not been integrated into the classroom.

On the other hand, Mora-Cantallops et al. (2022) point out that Spanish university teachers generally perceive themselves to have a level of digital competence between B1 and B2. This data varies according to their area of knowledge among other variables such as gender and age. For example, in their study, teachers in the areas of social sciences and humanities show a better self-perception than those in health sciences. Similarly, Boring (2017) reports more positive evaluations of male teachers by students regardless of their gender than those of female teachers. Tangalakis et al. (2022) however, in their evaluation results do not obtain such a significant differentiation, although they perceive less respectful attitudes toward their female teachers in distance education by male students.

The aim of this study is to find out the perception of students at the University of Granada on the digital skills of teaching staff based on the Marco Común de Competencia Digital Docente (Instituto Nacional de Tecnologías Educativas y de Formación del Profesorado [INTEF], 2017). The following questions will be addressed: Do male and female students have the same perception of the digital competences of their teachers? Are there differences between the digital competences of the teaching staff according to the students' branch of knowledge? Does the assessment of the teacher vary according to the self-perceived digital competence of the student?

Materials and methods

In this descriptive and correlational analysis study, the level of digital skills of teachers is assessed based on students' perceptions. Thus, the aforementioned research questions have led to the following hypotheses:

> H1: There are statistically significant differences between students' gender and the perceived level of digital competence of their teachers.

> H2: There is a correlation between students' age and their perceived level of digital competence of their teachers.

> H3: There is an association between students' branch of knowledge and the perceived level of digital competence of their teachers.

> H4: There is a correlation between the mode of course attendance and the perceived level of their teachers.

> H5: There is a correlation between students' self-perceived level of digital competence and the perceived level of their teachers.

Participants

The population of this research is made up of students that attended the University of Granada in the year 2021. For the composition of the sample a non-probabilistic sampling was used. Specifically, the questionnaire was addressed to the entire population by means of an invitation email, using the institution's database. A total of 307 students responded from May to December 2021. The proportions of participants in relation to subject areas are as follows: 110 students (35.8%) from Social Sciences, 65 (21.2%) from Arts and Humanities, 57 (18.6%) from Health Sciences, 38 (12.4%) from Sciences and 37 (12.1%) from Engineering and Architecture.

Instrument

The research technique used is the survey; therefore, an online questionnaire was designed as an instrument with the support of the Google Forms tool. The questionnaire was composed of 28 items distributed in 7 sections. The first section contains 5 questions about the socio-demographic data of the students (gender, age, nationality, field of knowledge and attendance); the second section contains 2 questions related to the digital skills of the students (certification and self-perceived level of digital competence); and the last five sections contain 21 questions in total, with a Likert-type scale, which are directly associated with the level of digital skills that the students perceive about their teachers. For this purpose, the five competence areas established by the Marco Común de Competencia Digital Docente (Instituto Nacional de Tecnologías Educativas y de Formación del Profesorado [INTEF], 2017) were taken as a theoretical basis; these areas are: (1) Information and information literacy, which contains 3 competences; (2) Communication and collaboration, 6 competences; (3) Creation of digital content, 4 competences; (4) Security, 4 competences; and (5) Problem solving, 4 competences. Each of the 21 competences is measured at 6 progressive competence levels: A1 and A2—basic level, B1 and B2—intermediate level, and C1 and C2—advanced level.

The validation of the instrument was developed through the process of expert judgment, with the participation of 10 professionals in the field of Didactics and School Organization from Spanish and foreign universities. Additionally, the internal consistency of the instrument was calculated through the omega coefficient for each of the five competency areas; in all cases $\omega > 0.80$ and an average $\omega = 0.92$ was obtained. According to Deng and Chan (2017) and Viladrich et al. (2017), the omega coefficient is appropriate for research in which a Liker-type scale has been used; and according to Dunn et al. (2014), in these cases, this coefficient indicates less risk of underestimating or overestimating reliability with respect to Cronbach's alpha.

Data analysis

Once the online questionnaire was closed, the data were entered into the SPSS statistical program and a descriptive statistical analysis of frequencies was applied, with the purpose of identifying the socio-demographic profile of the students who responded to the survey. Subsequently, in order to resolve the hypotheses, a series of analyses were carried out using several statistical tests that are explained later in the results; among them: Mann-Whitney U, Pearson's correlation, Kruskal–Wallis H, Chi-square and Kendall's tau correlation.

To do this, the level of digital skills per competence area was previously rated from 1 to 6; in such a way that a set of 6 values was obtained, one for each of the five skills areas and finally one that rates the five areas as a whole. To create each of the 6 values, the average of the perceived levels was calculated [$NP = \Sigma(x1,x2.xn)/n$]; where NP = Perceived level, x = digital skills and n = number of digital skills.

Results

Socio-demographic student's profile

Of the 307 students who participated in this research, 214 (69.70%) identified with the female gender, 89 (29%) with the male gender, and 4 (1.30%) with the non-binary gender. They range from 18 to 59 years of age; the average age is 21.95; the median is 21; and the mode is 20. The majority are Spanish, i.e., 292 (95.10%); 3 (1.00%) are Venezuelan; 2 (0.70%) are Italian and 2 (0.70%) are Moroccan; and there are only 1 (0.30%) Armenian, Belgian, Cypriot, Ecuadorian, Greek, Iranian, Italian-Argentinean and Romanian student.

According to branches of knowledge, 110 (35.80%) are students of Social and Legal Sciences, 65 (21.20%) of Arts and Humanities, 57 (18.60%) of Health Sciences, 38 (12.40%) of Sciences, and 37 (12.10%) of Engineering and Architecture.

Regarding the mode of class attendance, 131 (42.70%) had blended attendance, 121 (39.40%) mixed, 51 (16.60%) virtual, and 4 (1.30%) face-to-face.

Evaluation of the area of information and information knowledge

Considering the students' evaluation of the different areas of competences depending on the sample, the evaluation is negative. For example, the branch of Information and Information Knowledge stands out for most students concentrated at an intermediate level with a total student representation of 48.96% between levels B1 and B2. After the intermediate level, the level with the highest percentage is the basic level with 9.01% for level A1 and 18.24% for level A2. The remaining 23.78% is divided between C1 (17.05%) and C2 (6.73%) (Table 1).

TABLE 1 Evaluation of the area of information and information knowledge.

Level	Percentage
A1	9.01
A2	18.24
B1	24.10
B2	24.86
C1	17.04
C2	6.73
Total	100

TABLE 2 Evaluation of communication and collaboration area.

Level	Percentage
A1	13.30
A2	20.41
B1	23.45
B2	21.44
C1	14.82
C2	6.56
Total	100

TABLE 3 Evaluation of content creation area.

Level	Percentage
A1	18.40
A2	21.58
B1	20.60
B2	17.67
C1	12.70
C2	9.04
Total	100

Evaluation of the area of communication and collaboration

Student evaluation in the area of Communication and collaboration is similar to that of the previous competence. Once again, the intermediate level (B1 and B2) has the highest percentage with 44.89%. However, in this competence, when compared to the previous one, there is a higher percentage of the sample who considers their teaching staff to have a basic level. The A2 level standing out with 20.41% and A1 level with 13.30%. The percentage of the sample who considers their teachers to have an advanced level, which is the optimum one, is 21.39% (Table 2).

Evaluation of the area content creation

The area of digital content creation is one of the worst rated according to the sample. In this area, the basic level is the one with the highest percentage. The basic level has 18.4% for level A1 and 21.58% for level A2. The intermediate level, although not the one with the highest percentage, is the second one with 20.6% at B1 level and 17.67% at B2 level. These percentages decline for the advanced level with 12.7% for level C1 and 9.04% for level C2 (Table 3).

Evaluation of the area of security

The analysis of this area is similar from the rest. The majority of the answers are in the medium level (B1 and B2). The percentage of this level is 43.73%. Following this level highlight the basic level with 36.32%. Finally, the higher level only has the 19.95% been the lowest percentage in this area (Table 4).

Evaluation of the area of problem solving

Problem solving is the lowest rated area in this study. Of all the competence areas, the area of digital content creation

TABLE 4 Evaluation of the area of security.

Level	Percentage
A1	15.55
A2	20.77
B1	24.35
B2	19.38
C1	12.30
C2	7.65
Total	100

and the area of conflict resolution are the two where the percentage of basic level is higher than intermediate. In this area, the percentage of basic level is close to 50%, being 46.66% divided into 22.39% for level A1 and 24.27% for level A2. Thus, this area is the worst rated according to the students. The basic level is followed by the intermediate level with 40.39% of pupils. Finally, the percentage of pupils who consider that their teachers have an advanced level in problem solving is 12.94% (Table 5).

Gender and digital skill

In order to analyze the H1: There are statistically significant differences between students' gender and the level of digital competence they perceive from their teachers. The four cases (1.30%) of people who identified with the non-binary gender were discarded, so as not to harm the statistical power of the test. With the remaining data, the Kolmogorov-Smirnov normality test was calculated and, since there are significance values $p < 0.05$, the Mann–Whitney U-test was found to apply. This rejects H1, as there are no statistically significant differences; in all cases $p > 0.05$ (Table 6).

Age and digital skill

Pearson's correlation was calculated in order to analyze the H2: There is a correlation between students' age and the level of digital competence they perceive from their teachers. H2 is rejected, as age is not correlated with the perceived level in any of the five competence areas ($p > 0.05$) (Table 7).

Knowledge branch and digital skills

In order to analyze the H3: There is an association between students' branches of knowledge and the level of digital competence they perceive in their teachers. The Kolmogorov-Smirnov normality test was applied and given that there are significance values $p < 0.05$, it was found that the Kruskal–Wallis H-test should be applied. The results of this test, shown in Table 8, indicate that there are statistically significant differences only for competence 1 (Digital Competence in Information and Information Knowledge). Within this competence, the Mann-Whitney U test identified statistically significant differences only when comparing two of the five branches of knowledge, the difference appears between Health Sciences and Social and Legal Sciences ($U = 2324.5$, $Z = -2.746$, $p = 0.006$; for other two-by-two comparisons, always $p > 0.05$).

TABLE 5 Evaluation of the area of problem solving.

Level	Percentage
A1	22.39
A2	24.27
B1	22.56
B2	17.83
C1	8.14
C2	4.80
Total	100

Attendance and the digital skill

To analyze the H4: There is a correlation between the mode of course attendance and the level they perceive of their teachers. Those students who attended the face-to-face classes were excluded, as there were only 4 people. For the rest, Kolmogorov-Smirnov normality tests were applied. In several cases, $p < 0.05$ was obtained, so a Kruskal–Wallis H-test was applied to compare the means. The results of this test, shown in Table 9, indicate that there are no statistically significant differences between the responses obtained in the different assistance modalities.

Self-perceived digital skills and the evaluation of the professors

As for the H5: There is a correlation between students' self-perceived level of digital skill and the level they perceive of their teachers, was analyzed by calculating Kendall's tau correlation coefficient. For none of the competences a significant correlation coefficient was obtained (Table 10).

Discussion

The digital skills are one of the most useful for this modern society. The European Union is one of many institutions that are engaging the educators to start working on that. In 2019, they highlight how the digital native have easier learning concepts with ICT but if they wanted to develop new skills related to them, they need and educator the guides them to develop the skill properly (European Comisión, 2019).

For that the university must be the main institution to teach the digital skills. However, the digital skills level of university teachers does not meet the expectations placed upon them. There is a feeling amongst lecturers that their own level is B1 or B2 (Mora-Cantallops et al.2022), which is defined according to the Marco Común de Competencia Digital Docente as an intermediate level, although this is sufficient for their own work, it is a deficient level for university lecturers, as they are

TABLE 6 Analysis of the association between gender and level of digital skills.

	Contrast statistics				
	Skills area 1	**Skills area 2**	**Skills area 3**	**Skills area 4**	**Skills area 5**
Mann–Whitney's *U*	9,149.500	9,168.000	8,747.500	9,352.500	9,116.000
p-value	0.590	0.609	0.263	0.806	0.557

TABLE 7 Analysis of the correlation between age and level of digital skills.

		Skills area 1	**Skills area 2**	**Skills area 3**	**Skills area 4**	**Skills area 5**
AGE	Pearson correlation	−0.031	−0.011	−0.040	−0.014	−0.007
	p-value	0.586	0.848	0.487	0.809	0.905

TABLE 8 Analysis of the association between the branch of knowledge and the level of digital skills.

	Contrast statistics				
	Skills area 1	**Skills area 2**	**Skills area 3**	**Skills area 4**	**Skills area 5**
Chi-square	9.842	7.593	8.675	2.171	5.793
gl	4	4	4	4	4
p-value	0.043	0.108	0.070	0.704	0.215

TABLE 9 Analysis of the association between mode of attendance and the level of digital skills.

	Contrast statistics				
	Skills area 1	**Skills area 2**	**Skills area 3**	**Skills area 4**	**Skills area 5**
Chi-square	2.193	2.878	2.381	2.494	3.997
gl	2	2	2	2	2
p-value	0.337	0.243	0.311	0.286	0.140

TABLE 10 Analysis of the correlation between self-perceived digital competence and the level of digital skills.

		Skills area 1	**Skills area 2**	**Skills area 3**	**Skills area 4**	**Skills area 5**
Self-perceived	Kendall's correlation	0.032	0.022	0.016	0.005	0.025
	p-value	0.477	0.618	0.722	0.906	0.584

responsible for transmitting this type of knowledge to a large part of the Higher Education students. On the part of the students, their opinion coincides with this idea, as the students' assessment reflected a score similar to that self-perceived by the lecturers.

The evaluation proposed by the students is very similar regardless of the characteristics of the students. Aspects such as gender are not a decisive factor in determining teachers' ratings. If surveys are carried out on individual teachers of different sexes to assess teachers' digital competences, there are generally no differences in their assessment on a quantitative level (Boring, 2017). When analyzing the qualitative level, more negative comments can be distinguished for female teachers than for male teachers (Tangalakis et al., 2022). In the results presented, it can be seen that there is no variation at the quantitative level according to the sex of the students, although it could be analyzed whether the type of comments made also varies according to the gender of the students.

Age is established as a determining factor regarding the use of technology. This is an important factor, as it is a way of identifying those students who have grown up in an environment where ICT is an element of the immediate environment or if it has been added as the person has developed. According to the average and mode of the students, it can be determined that the majority of students were born between 2001 and 1999, so they can be considered as digital natives (Aguilar-Salinas et al., 2019). However, there is no significant difference between students who were born during this period and those who are older. This shows that regardless of whether pupils are considered digital natives or not, as they are common

elements in their lives, teachers are not able to develop the usage of different digital devices in the education process.

This idea is reinforced by the analysis of the assessment of students according to their level. The students' self-perceived level is similar to that of the teachers. However, there are groups of students who are more qualified and other groups who consider them to have basic knowledge. This difference in level would be expected to make a difference in the assessment. The analysis shows that regardless of the level of the students, the assessment is the same, and does not meet the expectations of either the most qualified students with basic knowledge.

Another aspect to take into account when evaluating digital competences is the branches of knowledge. Depending on the degree being studied, there may be different expectations, as the training plans for each degree vary. Therefore, the grouping by branches of knowledge can be used as a reference to visualize which aspects are more developed and which need further reinforcement. The comparison between branches does not show a significant difference except for a comparison between Social and Legal Sciences and Health Sciences. If a search is made in the scientific literature, a possible explanation that is pointed out by Fuentes et al. (2019), as it is mentioned that in the case of the Social and Legal Sciences, the area of Information and Information Knowledge is the priority area, so much of the training in the degrees of this branch is focused on this aspect, which may generate the difference when compared with other branches.

Finally, COVID-19 has exposed the deficiencies regarding this type of skills, as with the onset of the pandemic, people's mobility was reduced, making face-to-face attendance at the different educational institutions impossible. The transition from an entirely face-to-face education to an education leads to negative assessments on the part of the students (García-Planas and Taberna Torres, 2020). However, some of the students during this period had the opportunity to attend lectures face-to-face different subjects, while others were only able to do so online. Comparing the assessment of the students, no significant differences are shown, so it may be that the conversion from face-to-face to online has negatively affected the assessment of the students, but if it is compared the online lectures with attending only face-to-face to the practical part of the subjects does not effect on the student's perception.

The European Union encourage the promotion of digital skills. The possibility of being able to develop useful digital skill that allows the correct participation of the user and the relationship with the environment, this being a right (European Parliament and the Council, 2006; Durán Cuartero et al., 2019). Spain, for its part, has generated a reference framework that serves as a guide to identify the minimum knowledge that must be obtained as an educator. It is necessary for teacher training however, especially for university teachers, to include specific training that helps teachers to develop a good level that makes it possible to transmit knowledge to students.

Conclusion

Students at the University of Granada have a unanimous opinion regarding professors' digital skills. Among the different factors that could divide the students' opinion, there is none that stands out as giving a significant variation, so it can be said that the university students' assessment is that their teachers have an intermediate level. This level is sufficient for a large part of the population. University teaching staff, however, belong to a group in society that require a high level of proficiency in this skill, as they are responsible for transmitting knowledge to a large part of Higher Education. For this reason, university teacher training processes should include certification of digital skills.

On the other hand, when discarding the hypotheses, since it has been shown that the characteristics of the pupils do not influence their assessment of their teachers, it would be advisable to go deeper into the study itself. The results shown give an insight into the quantitative assessment that pupils have of their teachers. Adding a qualitative section however is a possible improvement of the present study to see if the characteristics of the students do change the comments made, as well as to see specifically what the students' demands are and which of their needs are not being met.

It was also mentioned how the different university branches have different needs; therefore, teacher training should meet the requirements of the different branches. It was mentioned how in the branch of Social Sciences and Law the area of Information and Information Literacy teacher training is more encouraged. This is a good dynamic for students to improve their perception, as students will receive specific training according to their needs and expectations.

After analyzing and reviewing the results, it can be affirmed that the University of Granada does not have an adequate teaching development plan according to its students. Therefore, specific subjects for the development of digital skills should be considered as part of this process. Subsequently, further research can be carried out to analyses whether this implementation leads to an improvement in academic results and student evaluation.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work, and approved it for publication.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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