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GOOD PRACTICES IN THE USE OF ICT IN TEACHING AND TUTORING IN EUROPEAN UNIVERSITIES. TEACHERS AND STUDENTS' PERCEPTIONS

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Abstract

The integration of Information and Communication Technologies (ICT) in the field of educational activity has ceased to be an alternative and has become a responsibility. The significant number of universities that offer blended or fully online teaching have led to the need for digital tools as alternatives to traditional teaching and tutoring. Although the research has highlighted the relevance of these processes, it has also revealed the insufficiency of institutional strategies for the development of ICT in universities, as well as the need for good practices examples that can contribute to academic assessment. This research identifies the good practices perceived by teachers and students from four European universities in the use of ICT in teaching and learning processes. The study is based on mixed research with a sample that includes 2779 students and 918 professors from Spain, United Kingdom and Portugal universities. The results indicate that teachers, despite using some ICT tools in their teaching and tutorial work, do not feel capable of adapting their classrooms to the digital generation. Students do not perceive this area as being of significance.

Keywords **–** Virtual teaching, Virtual tutoring, Information and Communication Technologies, Good practices, University.

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1. Introduction

At present, there are still many challenges regarding the development of competencies in higher education such as the heterogeneity of university subjects, the disproportion of resources offered in universities and the diverse expectations found in the different European contexts (Zabalza, 2012). In order to achieve a

common framework at the European level, a space for the discussion of educational issues, European Higher Education Area (EHEA), was created to promote the full development of university students as a primary objective (Aleman-Ramos, 2018). This research was framed within the results obtained in the R&D Excellence Project TIMONEL whose final objective was the creation of a recommendation system that responded to the guidance and tutoring needs of students and university graduates. Prior to its creation, it was necessary to analyse the main problems and needs that both students and professors encountered and what they required in terms of academic, personal and/or professional guidance. Once the needs were identified, an attempt was made to investigate good practices in this area (Martín Romera, Berrios-Aguayo & Pantoja-Vallejo, 2020, Pantoja-Vallejo, 2020; Pantoja-Vallejo & Berrios-Aguayo, 2021; Pantoja-Vallejo, Martín-Romera, Pueyo-Villa & Berrios-Aguayo, 2023). But how can the construct of good practices be better understood? De Pablos-Pons and Jiménez-Cortés (2007) referred to them as a way of 'modeling and exemplifying an activity carried out with satisfactory results' (De Pablos-Pons & Jiménez-Cortés, 2007: page 17), in this case, examples of teachers exercising effective guidance work. The identification of good practices has been necessary in these new times of distance education due to the COVID-19 pandemic. For this reason, the European Union placed emphasis on providing measures, including educational guidance, understanding this as one of the best options to guide students in their learning process (Zancajo, Verger & Bolea, 2022).

1.1. Virtual Teaching and Tutoring

Teaching and tutoring are two terms and two concepts that go hand in hand in practice, and it is very difficult to separate them from each other. Teaching and tutoring are different educational approaches to helping students learn. Teaching often involves an educator sharing their knowledge of specific topics in a curriculum with a group of students in a classroom setting, while tutoring focuses on giving flexible lessons to individuals or small groups (Equipo editorial de Indeed, 2024).

Technological tools and the socialisation of knowledge, which professors and students have developed in a timely manner as a reinforcement and complement to face-to-face teaching, have taken on a leading role as a solution to the problem of isolation suffered during this period. Currently, many universities offer both face-to-face and online teaching and tutoring. This has been possible thanks to the advances of ICT in the field of training (Eickelmann & Vennemann, 2017; Munyengabe, Yiyi, Haiyan & Hitimana, 2017). For this reason, their use is common among university faculty, but do they know how to maximise their true potential? Several factors could provide a partial answer to this question, such as difficulties in the online teaching infrastructure, faculty inexperience (including uneven learning outcomes caused by different faculty experience), lack of information or managing a complex environment (Ezra, Cohen, Bronshtein, Gabbay & Baruth, 2021; González-Castellano, Berrios-Aguayo, Runte-Geidel & Muñoz-Galiano, 2023).

This is where the research developed in the project TIMONEL comes into play, which has made it possible to identify the needs of both groups and to learn about the good practices carried out by teaching staff in order to make innovative proposals for improvement. The central axis of the project has been the creation of a recommendation system (www.timonel.net) in the university educational environment, something totally current and innovative due to its almost nonexistence.

Several studies have analysed the needs that teachers encounter when using digital tools for online teaching and tutoring. One example is the research by Kamaruddin, Abdullah, Idris and Nawi (2017), which analysed the level of ICT skills used by students and their teachers in primary and secondary schools. Their results showed significant differences between students' optimal ICT skills and the low level of skills that teachers actually needed to develop to perform learning activities with technological tools. Kamaruddin et al. (2017) concluded that digital skills are very important for the development of learning processes and for introducing technologies as tools that serve educational purposes. On the other hand, the university context has highlighted the need to train both students and faculty in digital competencies to be able to respond to the new challenges of the teaching–learning process, hence the importance of tutoring. These needs have been maximised after what was experienced in times of COVID-19 (Espino-Díaz, Fernández-Caminero,

Hernández-Lloret, González-González & Alvarez-Castillo, 2020; Usmani, Saeed & Tayyab, 2021). These competencies are the set of knowledge, skills, attitudes and strategies that are required for the use of digital media in these contexts (Lázaro-Cantabrana, Aranda & Benito, 2021).

Tutoring has been supported by programmes such as Tutorial Action Plans (TAP), support tools for university guidance and tutoring developed in some European countries. In the Spanish context, the main space of action of the project promoting this research, the TAP is an institutional management document for medium or long-term intervention that explains the organisation of tutoring in the institution (Muñoz-Moreno & Gairín-Sallán, 2013). The university itself makes it available to students to facilitate their academic integration in the university context, encourage their participation in university life, advise them to improve their performance throughout their academic life and guide them professionally. All this is carried out by means of a personal and close intervention through a tutor assigned to them at the beginning of their studies in their chosen degree (professor of their degree), student tutors (students of higher courses), as well as through a series of collective activities specially organised for this purpose, which take place throughout the course (lectures, workshops, meetings, etc.). Given the changes brought about by the increased virtualisation of teaching, the TAP has also been altered in an attempt to provide tutors with the necessary digital means (material, training, technological support, etc.) to be able to offer quality guidance and tutoring at the service of students. Participation in the TAP has been considered relevant in this study because it was intended to analyse the functioning of these plans to determine whether tutors in countries such as Spain, the United Kingdom or Portugal have taken advantage of the technological means to increase the willingness to offer correct counselling.

1.2. Good Practices in University Guidance and Tutoring

According to Manzano and Roldán (2015), many find it difficult to identify good practices in a context where the time to offer guidance and tutoring both individually and collectively is limited; therefore, new terms appear, such as teacher-tutor. Zabalza (2003) states that 'it seems unquestionable that every teacher, regardless of the educational stage in which he/she works, is not only a teacher but also a tutor of his/her students' (p. 126). We thus enter a scenario in which the teacher works in a multifunctional context, with a view to meeting the needs of his or her students. In any academic procedure, the tutor is seen as the optimal guide for the students' academic development. This is demonstrated by the research of Rakhshandehroo and Ivanova (2020), who, through a mixed design study, evaluated the perceptions of students and teachers in English language teaching programmes in a university context. In an attempt to respond to this new role, institutions such as the International Association of Student Affairs and Services (IASAS) and UNESCO have developed manuals, which show the different roles that the teacher should play in relation to the needs of the new generations of students (Ludeman, 2002). It is also necessary to highlight the results of Wichmann-Hansen, Thomsen and Nordentoft (2015), who showed how a teacher-tutor's self-assessment of his or her own tutorial practice improves it.

1.3. Perceptions of the Use of Virtual Tools in University Tutoring

This aforementioned growth of motivations to offer more and better services to university students has led to the creation of new tools to support this challenge. This brings us to the discussion on ICT, which through Internet access and the development of Web 3.0 are generating changes in guidance, tutoring and learning in all educational settings (García-Martínez, 2018), causing the search for good practices in relation to their use within the university context. The incorporation of ICT by university faculty as tools for their classrooms has brought positive results in student learning, as well as in tutoring. However, as noted by Tummons, Fournier, Kits & MacLeod (2016: page 10), ICT are liberating, 'but they are also problematic, distracting, and limiting', so it is necessary to know how to make good use of them.

In general, it can be said that ICT have become an essential tool for many teachers in their work development, since they understand ICT as a support to contrast students' opinions, encourage critical thinking, build autonomous thinking, generate educational proposals in the form of e-learning, etc.

(Baltodano & Gómez-Zermeno, 2017; Giner, Muriel de los Reyes & Toledano, 2013, Pantoja-Vallejo, Berrios-Aguaya & Colmenero-Ruiz, 2020). Therefore, and relating it to the good practices previously discussed, Palomo, Ruiz and Sánchez (2006) described professionals with good teaching practices as those 'who exploit the new technological tools to achieve autonomous learning in students that motivates them to be in permanent learning throughout their lives' (p. 29). Khan and Markauskaite (2017) highlighted the contributions of ICT in virtual teaching and tutoring at university. Their results showed improvements in practical skills and in teacher feedback and information processing. As for the students, they obtained better tutoring with ICT support, according to their own testimonies. Papakota (2016) developed a new digital medium that facilitates group and individual tutoring and mentoring of students (Career Counseling@Career Office of Aristotle University of Thessalonik), an application that supports students and graduates in developing their professional skills through interactive exercises and tutoring tools. In another effort, Sussex (2008) showed how tutoring with the use of ICT in blended learning is essential, as it allows a combination of media involving maximum immediacy and personal interaction combined with recording to enable subsequent review. All these tools facilitate richer and more flexible teaching. In another example, Ludwing-Hardman and Dunlap (2003) showed, in their study, the different online tutoring programmes offered by Western Governors University to its students. In a study by Arnaiz-López, López-Vicent and Prendes-Espinosa (2012), students' opinions were analysed in relation to the electronic tutoring that professors used, in most cases, to meet the demands of their students. On the part of Hoyuelos and Ibañez (2018), the technologies preferred by students to communicate with the teacher were the virtual platform, email, communication through social networks and instant messaging (chat). For their part, Cao, Yang, Lai and Wu (2021) confirmed the influence that the pandemic has had on the use of online tutoring platforms, giving them even wider academic use.

Finally, it should be highlighted that despite governmental efforts among countries to improve the quality of higher education, problems are observed such as the lack of institutional strategies for ICT development in university contexts (Mugruza-Vassallo & Suárez, 2016; Skorupinska & Torrent-Sellens, 2015), the lack of dissemination and adoption of broader scales of usability, the limited use of both face-to-face and distance learning programmes and most relevant to this research, the lack of examples of good practices regarding their use for academic advising (Van der Wende & Beerkens, 2010). Therefore, the different efforts to incorporate ICT into the teaching–learning process and teaching practice must be oriented to change the university culture, planning and curriculum by directing them towards the creative use of human and material resources (Salinas, 2004). Therefore, the implementation of ICT in the learning process and virtual guidance and tutoring is an interesting option within the current university context (Bakke, Hagaseth & Hooley, 2018; Fernández-Jiménez, Mena-Rodríguez & Tójar-Hurtado, 2017; Martínez, Pérez & Martínez, 2016; Watts, 2001). One should be aware that the use of digital media to support students in virtual teaching is now an obligation (George-Reyes & Salado-Rodríguez, 2022; Mohssine,Bouzekri & Mohammed, 2019).

After an exhaustive literature search, and following the objectives previously set out in the project, the purpose of this study was to identify good practices in relation to the use of ICT as a tool for virtual teaching and academic, personal and professional counselling of students in European universities.

2. Method

The study conducted has a mixed perspective based on triangulation of the data collection carried out. This type of approach overcomes the weaknesses presented by each of the quantitative and qualitative methods separately, in addition to allowing inferences to be drawn from the information collected (Creswell, 2009). The quantitative phase followed a descriptive-exploratory design for which two ad hoc validated questionnaires were used, one for students and one for teachers. The qualitative part was based on discussion groups, a nominal group, SWOT technique (strengths, weaknesses, opportunities and threats) and interviews. The study culminated in 2021.

2.1. Participants

The study involved the University of Jaen (UJA) and the University of Granada (UGR) (Spain), the Polytechnic Institute of Coimbra (PCO) (Portugal) and Queen Mary University of London (QML) (United Kingdom).

For the qualitative part, we divided the informants into two parts as the research progressed. Table 1 presents the first part. In the second part, we conducted three focus groups (eight participants at UJA, nine at UGR, six at PCO), which were composed of teachers from different areas of knowledge, and we conducted 11 interviews (five at UGR, six at UJA) with teachers who had experience with the TAP in different areas of knowledge.

The quantitative research consisted of a group of students and professors, obtained by proportional stratified random sampling (except in the cases of PCO and QML, which was intentional due to the variability of the degrees and, in the case of QML, to the difficulty accessing the subjects) with a calculated error of 5 % and according to the variables shown in Table 1. In the cases of the UJA and the UGR, only the common degrees were considered. In total, 2,779 students and 918 professors constituted the sample.

Technic	**Participants**							
	Group	**Experience**	**University**			
			UJA	**UGR**	**PCO**	**QML**
Discussion Group	Student	1º/2º grade	4	14	-	6
		4º course /Graduates	7	11	3	6
	Faculty	Novel (- 5 years)	4	7	-	-
		Experience (+ 15 years)	-	7	4	3
Nominal group		PAT	4	12	-	-
SWOT			-	12	-	-

Sample of the quantitative study									
		Student				**Faculty**			
		UJA	**UGR**	**PCO**	**QML**	**UJA**	**UGR**	**PCO**	**QML**
2º grade	M	168	151	108	5				
	W	225	225	239	21				
4º grade	M	157	140	34	1				
	W	232	234	120	5				
Postgraduate	M	143	169	7	1				
	W	192	228	75	1				
- 5 years	M					57	78	3	1
	W					84	91	10	2
+ 15 years	M					111	190	19	3
	W					39	116	31	8
Total		1117	1147	583	34	366	475	63	14

Note: UJA = University of Jaen; UGR = University of Granada; PCO = Coimbra Polytechnic; QML = Queen Mary University of London; M = Man; W = Woman.

Table 1. Participants in the first part

We determined the variables based on previous qualitative studies (cited in the introduction) in which the participating subjects expressed their opinion on the suitability of who should represent the population to complete the scales. In addition, the research team met and after a previous analysis of the data collected, it was determined to take as variables the students' course, the teachers' teaching experience and their participation (or not) in the TAP. Therefore, the following priorities were highlighted: to determine the opinion of the students in the middle of their undergraduate course, given that in the first year there is no

absolute proof of the students enrolled; to determine their opinions at the end of their undergraduate studies when they already have more experience; and to know the opinion of the postgraduate students (master's and doctorate). The level of experience of the professors was the main reason for including their opinions in the final sample: to collect the opinions of novice professors, taking into account that they have less experience when they have been at the university for less than five years; the opinion of professors with more than 15 years of experience (considered already experienced); and, finally, whether they participate or have participated in the TAP.

2.2. Instruments

In the first part of the qualitative study, we used focus groups and group dynamics to collect data concerning the needs of teachers and students in the areas of academic, personal, professional and ICT orientation. In the second part, we used focus groups and qualitative interviews with teachers, identifying their good practices in these areas.

The quantitative study was supported by two scales: 'Guidance and tutoring practice in university students and graduates' (POTAE-17) and 'Training needs in guidance and tutoring strategies' (NFEOT-17). Both have similar characteristics, so they contain the same questions, only reformulated according to the subjects to whom they are addressed. Of the four dimensions that form them, only the one referring to the use of ICT in university tutoring was considered for this study. The scales had a Likert format with five response options (from totally disagree to totally agree) and each one had 61 items; in addition to the item 'What overall score do you give to the use you have made of ICT in student tutoring (from 0 to 10)'. The psychometric characteristics of both tests, based on content, construct and reliability validity, guaranteed the degree of confidence, replicability and internal consistency. On the one hand, in the POTAE-17, Cronbach's alpha reached a value of 0.87, KMO = 0.853, and Bartlett's test of sphericity $\chi^2 = 6701.698$ ($p = 0.000$); and, on the other hand, in the NFEOT-17, Cronbach's alpha was 0.79, KMO = 0.939 and Bartlett's test of sphericity $\chi^2 = 28169.969$ ($p = 0.000$) (Pantoja-Vallejo, Molero, Molina-Jaén & Colmenero-Vallejo, 2020). In both tests, an exploratory factor analysis was performed using principal components and Varimax rotation and four factors were extracted using the Kaiser criterion, which coincided with the theoretical model proposed in the confirmatory factor analysis. In this article, we only used the factor of the scale that referred to the use of ICT, which was composed of 15 items, although we considered others that were linked to their use and were included in the rest of the factors.

We analysed the qualitative data by means of a thematic analysis of their content, taking as a reference the items of the questionnaire and considering the new themes that emerged from the practice (see Table 2), illustrating the results obtained by means of examples of recording units for each category and their frequency.

2.3. Procedure

The project consisted of three phases, including this research in the first. Firstly, a detailed study and analysis of the existing literature was carried out that would serve as a framework for knowledge of the current state of the matter, as well as for the development of data collection techniques. Next, the sample of students and teachers who would participate in the study was calculated. Once the sample was established, the scale was administered in person and the students and teachers who were not able to answer it were provided with access to it online. In parallel, discussion groups and interviews were carried out in order to find those traits that characterized a good teacher with good practices in the dimensions addressed. Finally, the quantitative and qualitative data were analyzed independently to subsequently reach common conclusions.

3. Results and Discussion

First, a general assessment of the data collected through the qualitative and quantitative techniques mentioned above is presented, integrating the students' and teachers' views of both differences and

similarities. Subsequently, the main crosstabs of the variables involved in the changes in teaching performance in the previous literature are analysed.

The results are presented below. They are based mainly on the frequency of categories according to the type of participants and the criteria established for their selection (Table 2).

Categories (Codes)	Faculty			Student		Total
	Experienced	New	PAT	New	Graduates	
Job search (Job_Search)	2	2	4	6	2	16
Dissemination of job and internship portals	1	4	2	5	5	17
Social network (social_Network)	1	1	18	1	2	23
WhatsApp or other application (WhatsApp)	3	3	2	5	5	18
ICT promotion (ICT_classes)	4	0	3	1	5	13
Platform forum (Foro_plataform)	0	1	0	1	0	2
Synchronous communication tools (Comun_sincron)	2	1	7	1	0	11
Need diagnostic tools (Herram_diagn)	0	0	2	0	0	2
Proactive search (Mod_comunic)	8	0	1	3	1	13
Access to information (Orient_inform)	3	10	14	1	3	31
Teaching website (Web_prof)	0	0	0	0	2	2
Educational platform (Plataform)	4	1	9	8	11	33
Electronic mail (email)	3	4	19	8	12	46
Total	31	27	81	40	48	228

Table 2. Frequency of categories

All categories were present for both teachers and students, highlighting the frequency of those referring to possible tools for use in tutoring.

The overall assessment of the use of ICT in tutoring by students and teachers (Figure 1) showed higher values for teachers (19.6 %), with students being more conservative in placing their scores in the medium range. Male students rated ICT more highly than female students (60.4 % above 5) as did second-year students (58.6 % above 5). However, teachers attached more importance to their use (69.7 % above 5).

The evaluations of the use of different technologies during the pandemic yielded some interesting responses by integrating the views of students and teachers. The higher the mean scores, the greater the agreement with the statement.

In general, the different perceptions of students and professors on the use of ICT in tutorials were striking, with a greater number of items in Table 3 coinciding among the professors (higher averages). There is coincidence in the high valuation, a relevant fact in non-classroom teaching since it favoured the ease with which students could access the necessary documentation to carry out their studies and solve what they define as problems in the tutorials (selection of hours to attend). They acted as 'virtual tutors' providing academic information (materials, tutoring schedules, exams, evaluations) and ensuring that information about orientation and tutoring activities reaches students: 'apart from putting posters everywhere with every talk, every event we do, we post everything on virtual teaching, and we force, in quotation marks, the student to enrol' (FACUL_EXP_UJA).

In addition, they served to diagnose student characteristics and motivations (Herram_diagn). These benefits promote the development of formal writing skills, intra- and interpersonal skills, in addition to being able to solve their questions in a shorter period of time (Giner et al., 2013).

However, there was a certain contradiction when students stated that teachers participated little in the WhatsApp group in class (M = 1.53), while teachers seemed to see it differently (M = 2.84), indicating that

it is a method that makes it difficult for students to be really informed. These differences were more pronounced in females than in males and also appeared in relation to the existence of a repository of digital resources. In this sense, one of the most prominent practices was that the faculty 'orients on how to access information in the academic and professional network' (Orient_inform), either personally or in the student reception sessions, showing the list of web references of the university, a practice perceived by students as 'a waste of time' since they preferred tools that they understood better, such as Google. Similarly, there was a contrast in the mean scores of the students, and there always seemed to be more agreement among them regarding the use of email, social networks, web pages, knowledge of networks and tutoring possibilities in teleworking ($p = 0.000$). This same trend of greater agreement among females was maintained in the case of teachers but only the fact of having a professional web page, and that it is up to date stood out in this case ($p = 0.01$). In this sense, students showed little knowledge about the existence of 'teacher web pages' (Web_prof) and less regarding LinkedIn profiles, indicating, 'It would be weird to look at LinkedIn. Because they get a notification. I wouldn't' (GRADU_EGRE_COIMB). This could be discussed in light of the results of Pordelan, Hosseinian, Heydari, Khalijian and Khorrami (2022) who confirmed the tendency of females to prefer teleworking given that it facilitates the flexibility of their multifunctional and multifaceted performance.

	Students							**Teachers**						
	Total n= 2881		**Man n=1084 (37.63 %)**		**Woman n=1797 (62.37 %)**			**Total n=918**		**Man n=402 (43.79 %)**		**Woman n=416 (45.31 %)**		
Items	**M**	**SD**	**M**	**SD**	**M**	**SD**	**p**	**M**	**SD**	**M**	**SD**	**M**	**SD**	**p**
Promotion of the mastery of ICT in the classroom	3.26	1.081	3.28	1.099	3.24	1.071	0.046	4.00	1.073	3.98	1.094	4.02	1.048	0.499
Internet job search	3.57	1.099	3.57	1.090	3.57	1.105	0.932	3.20	1.483	3.12	1.497	3.29	1.462	0.085
Teachers with professional website	3.26	1.158	3.27	1.164	3.26	1.154	0.812	2.63	1.650	2.79	1.672	2.43	1.604	0.001
Updated faculty website	3.15	1.105	3.14	1.101	3.15	1.108	0.857	2.46	1.537	2.62	1.539	2.27	1.515	0.001
University platform with subject information	3.89	.988	3.86	1.004	3.90	.978	0.290	4.18	1.230	4.21	1.200	4.14	1.266	0.458
Use of email in tutoring	3.71	1.182	3.74	1.139	3.69	1.207	0.049	4.60	.885	4.62	.881	4.58	.891	0.511
Use of video conferencing in tutoring	1.56	.987	1.59	1.021	1.54	.966	0.051	2.32	1.537	2.27	1.527	2.39	1.547	0.221
Tutor has a social network	1.82	1.062	1.91	1.103	1.76	1.032	0.000	1.66	1.260	1.66	1.276	1.65	1.241	0.841
Teachers' participation in the WhatsApp group	1.53	1.145	1.62	1.042	1.47	1.199	0.000	2.84	1.710	2.91	1.706	2.75	1.714	0.026
Specific forum on the university platform	2.88	1.343	2.94	1.328	2.84	1.351	0.063	3.20	1.615	3.34	1.592	3.04	1.630	0.136
There is a repository of digital resources	3.13	1.168	3.23	1.131	3.07	1.186	0.000	3.02	1.516	3.07	1.497	2.97	1.539	0.004
List of links to tutoring help web pages	2.95	1.205	3.07	1.182	2.88	1.213	0.000	3.06	1.441	3.11	1.454	3.01	1.424	0.315
Students know resources or networks about studies	3.12	1.127	3.25	1.110	3.04	1.131	0.000	4.00	1.073	3.98	1.094	4.02	1.048	0.340
In tutoring information on possibilities of teleworking	2.00	1.159	2.15	1.216	1.90	1.113	0.000	3.20	1.483	3.12	1.497	3.29	1.462	0.620

Table 3. Description of the elements related to ICT and gender

The qualitative analysis showed us some of the reasons why resources may be perceived as more or less useful for tutoring. The teachers' use of the institutional electronic mail (email) was done in several ways: some emphasised their willingness to solve any demand; others referred to the lack of immediacy: 'You send an email because they ask for it, and you have to wait two weeks' (GRADU_NOV_UGR). Students

spoke of 'a bombardment of emails' (GRADU_EGRE_UGR), which prevented them from using 'little criteria to distinguish the wheat from the chaff' (SWOT_UJA).

Students lacked guidance in this regard (Busq_empleo), 'we finished a degree and we don't know' (ALUM_EGRE_COIMB). It was poorly treated outside specific subjects: 'we had a subject that helped us to know LinkedIn' (GRADU_EGRE_UGR). The opinion favoured centralising all available information on the web pages of the faculties (professors) and in a virtual app-like platform (students), 'a person in charge of having that information' (GRADU_EGR_UGR). Additionally, here the 'telework' (Busq_empleo) seemed to be something unknown by the students and hardly addressed by the faculty.

The overall assessment of the use of ICT by students and teachers in tutoring (item 15, Figure 1) showed higher values for teachers in the range 7–10, with students being more conservative in placing their scores in the medium range.

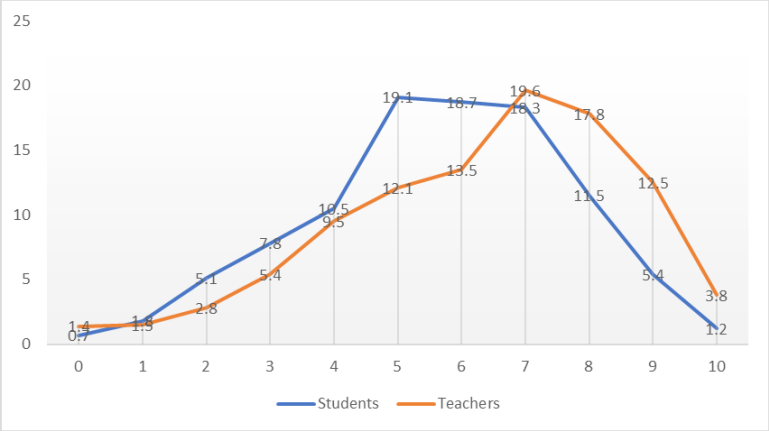


Figure 1. Overall assessment of the use of ICT (percentages)

Students as a whole valued ICT more highly than female students (60.4 % out of 5), as did second-year students compared to final-year students (58.6 % out of 5). However, teachers gave more importance to the use of ICT (69.7 % out of 5).

With respect to language, English-speaking teachers were those who least valued the use of ICT in guidance and tutoring (M = 4.93) compared to Spanish teachers (M = 6.37). These values were inverted in the case of the student body, with the English (M = 6) and the Spanish (M = 5.47) giving the highest overall score to the use of ICT by their teachers.

3.1. ICT in Virtual Tutoring as an Indicator of Good Practices

In the universities of the different participating countries, less than half of the faculty (40.6 %) believed that promoting the use of ICT in the classroom encouraged students' mastery of ICT, but only 12.6 % of the students affirmed this (item 1). In the universities' variable, we only detected differences in QML students, of whom 73.5 % believed that classes required a high level of technology. These scale data were clearly reflected in the qualitative data. Students who graduated from QML indicated that other universities required a higher degree of proficiency. It should be noted that some students indicated a high need for telematic tools inside the classroom and teacher-tutor–student communication outside the classroom. As in the study by Costa-Sánchez, Rodríguez-Vázquez and Direito-Rebollal (2017), teachers determined that the use of ICT improved student learning, as well as teacher–student relationships. According to Orozco-Cazco, Cabezas-González, Martínez-Abad, Altamirano-Delgado and Solis-Mazon (2016), the use of ICT tools provided through institutional support outside and inside the classroom had a significantly positive impact on both perceived usefulness and ease of use for full academic development.

Despite the fact that the definition of a good tutor is one who 'knows how to handle ICT with some control' (FACULT_EXP_COIMB), teachers stated that they did not feel prepared to adapt their classes to the digital generation (ICT_classes). According to De Pablos-Pons and Jiménez-Cortés (2007), educational quality in relation to examples of good practices in ICT depends on the professional competencies for initial teacher training provided by the institutions. Studies conducted in different European universities (Cakir & Yildirim, 2015; Jagodič & Dermol, 2015; Lareki, 2007) showed how teachers, in most cases, were self-taught in the use of new technologies due to the lack of training provided by the institutions. Other research, such as that conducted by Morze, Glazunova and Kuzminska (2017), has shown the effectiveness of a master's degree in ICT training for the development of professionals. On the other hand, universities, such as those in Cantabria, provide initial ICT training to teachers and tutors of TAPs, which is an example of good practice in the use of ICT in teaching and counselling (García-Ruiz & González-Fernández, 2013).

Although teachers believed that 'ICT is an opportunity' to guide students (DAFO_UJA), they alluded to the dilemma between prohibiting the use of tools such as mobile phones in class because of their negative impact on students 'in the way they behave, think, make decisions, interact, and process information' (DAFO_UJA). This practice is subject to academic incentives: '... something that students value highly, the use of ICT, is if it is rewarded' (DAFO_UJA).

Wanner and Palmer's (2015) study confirms how students have the perception that online tutoring does not have the same impact on their learning as face-to-face tutoring due to the lack of face-to-face social contact and getting poorer quality advice; however, these results should not be mutually exclusive (Oproiu, 2015).

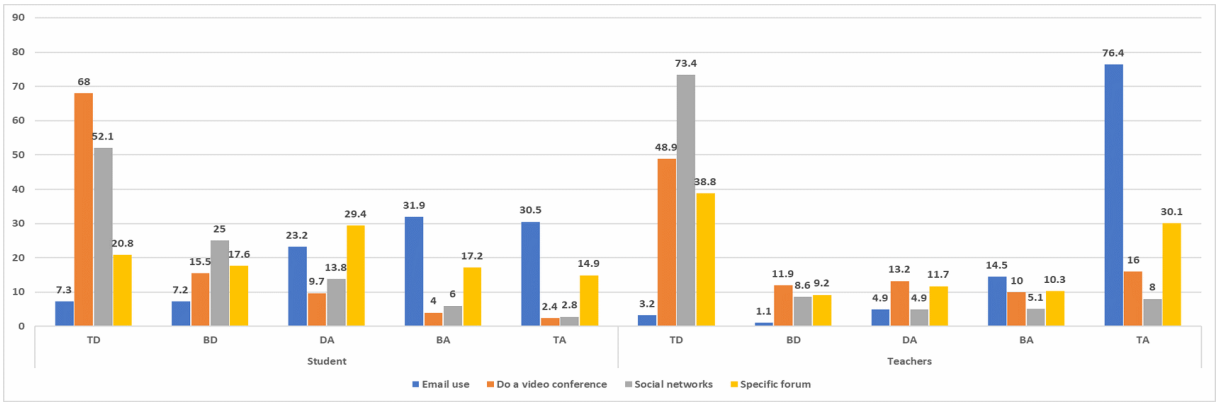
The least used tool was social networks as a tutoring support (Strongly Disagree, TD, 73.4 % vs 52.1 % of students; Figure 2). Qualitative data indicated that Facebook (red social_social) replaced educational platforms when these did not work, and that Facebook allowed students to create closer ties, which, in turn, helped tutoring even graduate students. Students require immediate feedback, as one professor explained, 'It doesn't matter if it's a vacation and where we are, you have to respond to the student' (FACULT_EXP_COIMB). In any case, this interactive advising provides a greater understanding of the content by placing the student in an autonomous learning environment (Silva-Quiroz, Fernandez-Serrano & Astudillo-Cavieres, 2016).

Despite the convening power of social networks, only some professors used them to inform students about the TAP, to disseminate their practices in guidance and to inform about specialised services. One professor explained, 'We retweet the sports service, the theatre unit' (FACULT_EXP_UJA).

Regarding the differences between universities, PCO students used email the least (25.1 %) and UJA faculty the most (94.8 %). The PCO faculty acknowledged that they did not have a specific forum (65.1 %). The low use of the 'specific forum in the institutional teaching platforms' (Foro_plataform) seems to relate to several factors, 'the technological means (...) fail a lot' (FACULT_NOV_UGR), and the scarce use made by students, as it does not allow more private communication when required. However, in a study by Lai, Zhu and Williams (2017), forums were key in online courses. In general, many studies have demonstrated the effectiveness of implementing forums as a teaching–learning tool (Ayuma & Kiboiy, 2019; Cunningham, Shochet, Smith & Wurfl, 2017; Lekka, Efstathiou & Kalantzi-Azizi, 2015).

The qualitative data indicated that there was some distance between the institutional tools used to host information and the students' preferences. The professors alluded to the need to work not only on training students in these resources, but also on their attitudes, establishing a 'communication model that favours the proactive search for academic, personal, and professional information on the network' (Mod_comunic) (SWOT_UJA).

Cencia-Crispín, Carreño-Colchado, Eche-Querevalú, Barrantes-Morales and Cardenas-Baldeón (2021), in line with the results obtained, confirm the importance of using new technological resources in these times of pandemic.

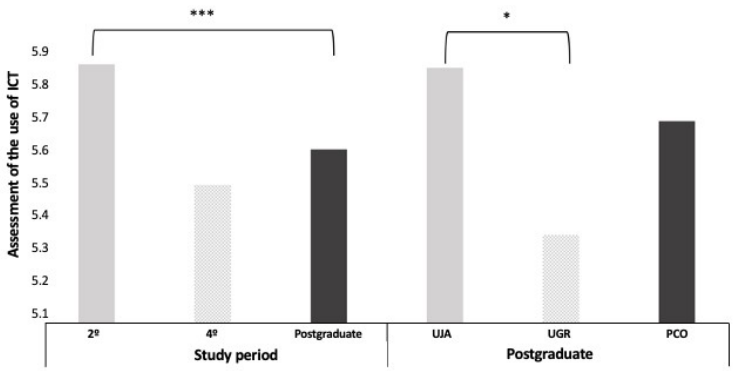


Note: TD (Strongly Disagree), BD (Strongly Disagree), DA (Moderately Agree), BA (Strongly Agree), TA (Strongly Agree).

Figure 2. Some of the forms of communication in tutoring (percentages)

3.2. Student and Teacher Characteristics, Factors to Be Considered

Distance education has had a differential impact depending on the university, the type of studies and above all, the stage of the course in which the students are. Using a one-factor analysis of variance (ANOVA), we analysed the differences in the teachers' assessment of the use of ICT in tutoring according to the period studied at university (2nd year, 4th year or postgraduate) and the three main participating universities (UJA, UGR, PCO). The analysis revealed significant differences in two of the three factors analysed ($p < 0.001$). The post hoc analysis showed that the use of ICT in tutorials decreased as the age of the students increased, with significant differences ($p < 0.001$) between second-year and graduate students (Figure 3). Regarding participating universities, differences were only found between UJA and UGR in postgraduate studies, which were greater in the former than in the latter ($p < 0.05$).



Note: UJA = University of Jaen; UGR = University of Granada; PCO = Polytechnic University of Coimbra; * $p < 0.05$. *** $p < 0.001$.

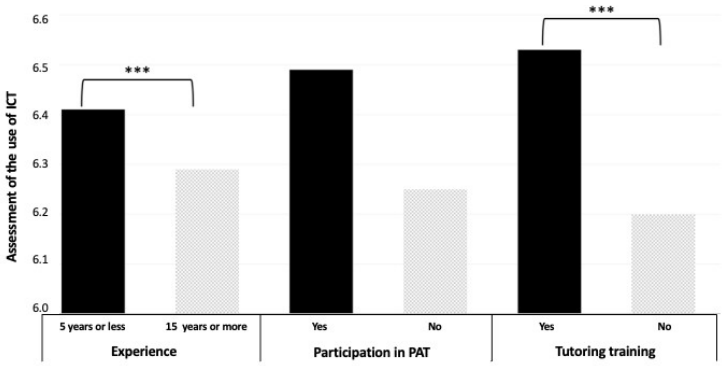
Figure 3. Analysis of variance ANOVA, using as fixed factors the period of permanence in the university and the university and as dependent variable, the evaluation of the use of ICT in tutoring

Thus, the qualitative data indicated that these differences in perception could be related to the need for greater intervention and tutoring by teachers with first-year students, who were becoming more autonomous and aware of the usefulness of ICT resources for tutoring as the course progressed and according to the needs of the formative moment they had reached. Regarding the use of the 'teaching platform', first-year students indicated that it was necessary for all professors to use it for the management of the subject, omitting more information in some subjects, and undergraduate students stated that it was very useful because they found a lot of information necessary for academic and professional orientation.

Regarding online job search resources, such as web pages, there were differences in the needs expressed by both groups of students. The newcomers expressed a certain lack of knowledge of job search resources, 'access to web pages with outlets, jobs' (STUD_NOVEL_UJA), an aspect that was not shared by the final-year students or graduates, 'it helps a lot to find a job through this page' (STUD_EGRE_QM).

The opinion of the professors was mediated to a great extent by their accumulated teaching experience and, in their case, by their participation in the TAP. The change from a face-to-face model to one guided by video conferences and much more explicit and self-learning materials was a challenge taken on in a very short time. Figure 3 clearly shows the difference in two of the three variables analysed by the T-test as a function of the assessment of the use of ICT in tutoring. Specifically, there were significant differences ($p < 0.001$) in terms of teacher experience, in the sense of using ICT less as the years go by, with their teacher training having a decisive influence on this. There were no differences according to participation in the TAP, which is a serious warning to the university authorities responsible for its organisation. For the professors, the communication model used to make students aware of the use of institutional tools was inadequate. In relation to this, they emphasised that the generational and cultural differences that exist between professors and students constituted a weakness for the development of tutorial work, and these differences created unhelpful communication between students and professors:

I guess the day when the students come, they are told about so many things that those of us who have been here for many years know and become aware about internships, mobility, the TAP... (...) and the students do not assimilate the information. (...) I think that this work model is wrong, you can also think that my starting point is that we are in a new society, it has nothing to do with when you and I were studying. I think we are more or less the same age, they have nothing to do, so you have to give different solutions, totally different (SWOT_UJA).



Note: *** $p < 0.001$.

Figure 4. T-test for independent samples of the variables teaching experience, participation in the TAP and training received with respect to the evaluation of the use of ICT in tutoring

3.3. Is the Use of ICT in Tutoring Related to Other Factors?

The cross-cutting nature of ICT use leads us to the last step in the analysis of the results. Table 4 shows the relationship between ICT use and the rest of the factors analysed since the cross-cutting nature of technologies means that there is a close relationship between the four factors (academic, personal, professional and ICT) that make up both the student and teacher questionnaires. The correlation matrix shows very high values in all cases ($p < 0.001$), which were higher in the student sector.

	Students					Teachers				
Variable	***B***	**E**	**Beta**	**T**	**P**	***β***	**E**	**Beta**	**t**	**p**
Sex	.021	.204	.005	.327	.774	-.493	.138	-.111	-3.581	.000
University	-.086	.043	-.032	-2.02	.043	-.283	.103	-.085	-2.732	.006
Academic	.034	.004	.196	8.155	.000	.032	.009	-.155	3.391	.001
Personal	.019	.005	.087	3.461	.000	.013	.011	.056	1.183	.236
Professional	.054	.004	.341	14.98	.000	.038	.006	.253	6.631	.000

Table 4. Multiple regression analysis of sex, university and the three factors regarding satisfaction with the use of ICT in university tutoring

After the previous step, we performed a linear multiple regression using satisfaction with ICT as the criterion variable. As predictor variables we used academic, personal and professional orientation; gender; and the university where the studies were carried out. As covariates, we used items common to both sectors. The model was statistically significant in both cases ($p < 0.001$), explaining 56 % of the variance in students and 41.2 % in teachers. In both cases, an association of university and the factors of educational and professional orientation, and satisfaction with the use of ICT in university tutoring was verified (Table 4) (Smyth, 2014). Neither the gender difference in students nor the personal orientation factor in teachers was verified.

The qualitative data indicated that professors pointed out the need to adapt institutional tools to students' preferences, one of the most common practices being training in access to academic and professional information by offering a list of web pages, which was perceived by students as not very useful since they preferred tools that they understood more immediately.

Teachers attached great importance to the existence of specialised services (structures, professionals, etc.), specifically in terms of career guidance. One practice that teachers understood works with students was the creation of a tool that allowed them to have access through their mobile phone, such as an app that allowed them to access tools directly and in a more appropriate way given their generational preferences, other tools (such as email) not being perceived as useful.

4. Conclusions

The aim of this work was to indentify good practices in relation to the use of ICT as a tool for virtual teaching and academic, personal and professional counselling of students in European universities. The data collected showed how professors believed that they promoted the mastery of ICT in the classroom (although they did not feel empowered to adapt their classes to the digital generation). However, students did not significantly perceive ICT proficiency despite it being a necessity inside and outside the classroom for teacher-tutor-student communication. It is interesting to note how teachers, as they got older, used ICT less and less. A similar conclusion can be drawn for the students since the use of ICT in tutorials decreased as the age of the students increased, which could be due to the need to intervene and attend to younger students in a more individual way.

The results revealed the disparity of opinions among teachers and students regarding the use of digital resources, web pages and networks. For example, many teachers stated that they did not have their own web page, and most of those who had web pages did not keep them updated or did not use them to support their classes. The results for students, on the other hand, were more optimistic, as a high percentage had a web page, which they had updated and had a list of web pages that helped them. In the category of the different universities, only the PCO faculty stated that they did not have their own web pages.

The participants, both faculty and students, reported extensive use of the educational platforms of their universities. Those who used them the most were from the University of Jaen, and those who used them the least were from the QML faculty.

From the results we conclude the following:

- Many professors from different European universities are not fully prepared to carry out virtual teaching due to their lack of knowledge of virtual tools that required adapting to the needs of students.
- Virtual educational platforms are the main tool used for the teaching–learning process and for tutoring.
- Digital tools, such as teachers' websites with up-to-date information, are essential for students in this exceptional situation.
- New forms of communication between teachers and students are becoming visible, such as Google Meet. In addition, the use of email for daily communication between teachers and students is encouraged.

We conclude with the idea that success towards convergence occurs to the extent that there are university teachers capable and motivated to define the professional profiles of students that adequately respond to the new challenges and demands that have arisen in the current university context (Morales, Trujillo & Raso, 2015). The integration of ICT in teaching is no longer an alternative but an obligation and even an orientation for the transmission of knowledge (Mohssine et al., 2019). Virtualised teaching guided by good teaching practices is key to educational success in university teaching.

4.1. Limitations and Prospects

One limitation of this work was its geographic restriction. Another limitation can be considered the time and effort used for each of the phases of the project.

Future studies could be extended to other universities in different countries and continents. Some future lines of work could analyse the perceptions of students and teachers at the compulsory educational levels and create a transition between the two levels: compulsory and university. It is also intended to create new links between universities in the European context to increase the reliability of the results.

4.2. Implications

From the results of our study, several implications can be developed, some of which imply the development of changes in the university institutions themselves in the sense of integrating good practices in the use of ICT in virtual and distance teaching. Specifically, the practices that we found most interesting are the following:

- Teacher and student training: better mastery of ICT for distance teaching (Quiñonez-Pech, Chan-Chi & Reyes-Cabrera, 2021).
- Effective integration of ICT at work, learning with them.
- Mastery of the forms of socialisation of knowledge, which also implies adequate language (Nuere & de Miguel, 2021).
- Design and development of teaching methodologies and tutorials that favour more effective learning, where ICT are the central axis of work. As an example, we cite the W + F (Wiki + Forum) (Pantoja-Vallejo & Berrios Aguayo, 2020).
- Psycho-pedagogical analysis through virtual tools that help teachers to master ICT (Berrios-Aguayo, 2019).
- The new university context, which is more virtual, can also favour broader and more direct contacts with companies.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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