



A comparative study of Spanish adult students' attitudes to ICT in classroom, blended and distance language learning modes

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ABSTRACT

Fully online and hybrid or blended courses that integrate Information and Communication Technologies (ICT) and complement traditional classroom practice are on the rise nowadays in the field of language teaching. The aim of these courses is to offer flexible learning formats for learners of all ages in the way of tailor-made instruction which can adapt to their needs and expectations. They seem to be suited to diverse educational and social needs and provide, as well as demand, active engagement. There is a large body of research regarding computer supported education, though few studies have compared adult students' attitudes towards ICT in different kinds of courses. Our goal in this study is to analyse and compare adult students' attitudes towards ICT in three different formal learning settings: classroom face-to-face (N = 184), blended (N = 243) and distance (N = 200) language learning modes. We measure and compare the students' self-perceived confidence in digital competence, the ICT impact on their learning and their perception of the learning potential of ICT.

Data were collected through a stratified random sample taking the students' learning mode into account and were subjected to descriptive and inferential analyses via SPSS 23.0 software. Results confirm a relationship between students' age, occupation and technology use in general, and between technology use and increased self-perceived confidence in digital competence in the distance language learning mode in particular. On the whole, students acknowledge the beneficial effect or impact of ICT on their learning and expect their learning to be of high value in the future.

1. Introduction

Computer Assisted Language Learning (CALL) seems to have fully reached its integrative paradigm (Warschauer, 2002). This can be considered to occur when computer technologies are used in daily teaching and learning as naturally as a pen or a course book (Chambers & Bax, 2006), the computer becomes less visible yet ubiquitous, and new spontaneous and continuous ways of learning are generated through personal portable devices (Genc-Ersoy & Ersoy, 2017). According to OECD statistics (OECD, Stat. 2018), the average percentage of individuals with ICT access and usage in Spain increased from 69.48% in 2012 to 84.6% in 2017.

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Fully online and hybrid or blended courses that integrate the use of ICT and complement traditional classroom practice are on the rise nowadays in the field of language teaching, and may even coexist within one single educational institution. Their aim is to offer flexible learning formats for learners of all ages in the way of tailor-made instruction. Thus, they appear to be suited to diverse educational and social needs and provide, as well as demand, active engagement. As an example of such educational institution, the Spanish Open University (UNED) has the largest student population in Spain, with more than 205,000 students in the Academic Year 2017–18, and is one of the largest universities in Europe. More specifically, nearly fourteen thousand UNED students (8.4%) chose its Language Unit (Centro Universitario de Idiomas Digital a Distancia) to enrol in a blended or fully-online language learning course that year.

Adults involved in lifelong learning programs who enrol in a language course, the focus of our study, may combine this experience with any other formal training or simply fill in their leisure time while being unemployed or in their retirement. This population accounts for a specific group of students, with varying learning profiles, goals and ICT skills. In Europe, nearly one in three adults have very low or no ICT skills, and almost half of them consider that their ICT skills do not fully meet current labour market requirements, as one of the latest European official studies on the subject reports (*“Adult Education and Training in Europe: Widening Access to Learning Opportunities”*, 2015).

With the growth of online education, students' computer self-efficacy, defined as the individuals' beliefs, confidence, and expectations in their ability to accomplish a specific task with a computer, has been shown to impact motivation and learning outcomes positively (Liang & Tsai, 2008; Tsai, Chuang, Liang, & Tsai, 2011). Given that the adult population sector covers a wide life span, officially between 25 and 64, this fact presumably could entail clear differences regarding students' use and beliefs on technology. Thus, our aim in this study is to analyse Spanish adult students' attitudes towards the use of ICT and to explore any possible differences regarding the modality of their courses.

2. Literature review

2.1. Learning modalities and potential learning benefits

There has been a clear move in the way ICT are being used in education, away from designing and testing CALL software or courseware into the incorporation of commonplace online technology in the classroom (Stickler & Shi, 2016). In this new scenario, learning is conceived as participation in a community of users, and teachers act as advisers or facilitators of learning. ICT seem to have turned into the necessary means that allow learning via discussions, task resolution and collaborative work mainly. It is undeniable that ICT tools have become essential elements and the standardisation of their use is more and more present in the learning and teaching settings.

Over the learning potential and effectiveness of different course modalities, some research points out that new educational paradigms entailing different provision modes, be they on-site or at a distance, do not offer different learning results per se (Albrecht, 2006; Dziuban, Hartman, & Moskal, 2004). Additional research concludes that online courses can be equally effective to face-to-face teaching on the condition that they are properly designed (Driscoll, Jicha, Hunt, Tichavsky, & Thompson, 2012). Instead, according to these authors, quality pedagogy seems to be a determining factor that leads to better learning outcomes regardless of the medium through which a course is being taught.

In turn, the claim that blended or hybrid courses represent the best of both classroom and distance learning modes should be questioned (Allen & Seaman, 2010). They might be designed to respond more adequately to different learning styles, offer more individual attention and deeper learning, maximize social interaction in the classroom and encourage discovery and student autonomy. However, it cannot be ignored that there are many different kinds of blended courses with varying amount of face-to-face contact time and online learning.

So, we intend to analyse the nature of classroom activity, instruction practice and types of interaction generated in some specific language courses for adults, with or without the help of ICT, in order to check whether we can detect some prevailing trends or practices as for each learning modality. This is our first research question:

- RQ1: Are there any significant differences in the type and frequency of classroom activities implemented in the three learning modes?

2.2. Self-perceived efficacy and learning satisfaction

Attitudes towards technology use may be regarded as a multi-faceted construct with different focus (Cai, Xitao, & Jianxia, 2017, p. 3), such as *“feelings and emotions (e.g., comfort, anxiety, personal liking) associated with technology use (...), personal interest and enjoyment related to the use of technology (...), personal beliefs about technology's social impact and usefulness (...), or personal self-confidence or self-efficacy about one's ability in utilizing technology”*.

As aforementioned in this paper, with the growth of online education, students' computer self-efficacy, defined as the individuals' beliefs, confidence, and expectations in their ability to accomplish a specific task with a computer, has been shown to impact motivation and learning outcomes positively (Liang & Tsai, 2008).

As it has been argued, learners with low confidence in the use of ICT may be less engaged in the learning activities and have fewer opportunities to interact with the instructor or classmates, thus leading to dissatisfaction with online learning (Tsai et al., 2011). Some additional research also confirms differences based on students' gender. Males seem to hold more favourable attitudes toward

technology use than females in the attitudinal dimension of “beliefs”, which are reduced in the “affective” and “self-efficacy” ones (Cai et al., 2017).

Thus, our second research question will focus on the analysis of the students' self-perceived degree of confidence in digital competence attending their specific learning mode. This is our second research question:

- RQ2: Do students show any difference in their self-perceived digital competence attending their specific learning modes?

2.3. Students' attitudes and motivation

Students' attitudes and motivation are considered an important factor in language learning (García Laborda, 2000; Tragant & Muñoz, 2000). Seminal research showed that a favourable attitude towards the language and its culture can determine the student's effort to improve their use of language and their achievements (Gardner & Lambert, 1972). In addition, motivation may change depending on the moment and the context of learning due to its dynamic nature (Lightbown & Spada, 2006).

A significant challenge facing the adoption of any digital innovation is designing pedagogy that provides adequate support for student engagement (Montgomery, Hayward, Dunn, Carbonaro, & Amrhein, 2015). Research in higher education indicates that student engagement is perhaps the single most important factor in determining successful learning for university students no matter the university program or instructional format (Trowler & Trowler, 2010). Among the factors that contribute to student satisfaction, interaction has been consistently included (Kuo, Walker, Schroder, & Belland, 2014). Interaction, including three major aspects (learner–instructor, learner–learner, and learner–content interaction) is important in all forms of education, regardless of whether technology is involved (Moore & Kearsley, 1996).

Although the second-language acquisition (SLA) field has acknowledged the importance of individual learning differences in general (Ehrman, 2008; Skehan, 1991; Wakamoto, 2009), few studies have focused specifically on their role in L2 language development in CALL learning environments (Arispe & Blake, 2012). Students' ICT-related attitudinal factors are complex and can be approached considering different perspectives: ICT availability, ICT use, and attitudes towards ICT (Hu, Gong, Lai, & Leung, 2018).

A significant bulk of the research on technology has focused on access, uses to deliver and transform instruction and the empowering of students (Blachowicz et al., 2009). But despite substantial funding for technology in schools and its stated importance in achieving national and international targets, there is a lack of reliable comparative data and indicators to support evidence-based policies (Wastiau et al., 2013). Interestingly, the former survey did not find any overall relationship between high levels of infrastructure provision and student and teacher use, confidence and attitudes, and confirmed the findings of previous similar studies (Law, Pelgrum, & Plomp, 2008) which showed that provision, access and connectivity do not, by themselves, lead to ICT use in learning and teaching.

Former research on the attitudes to ICT has shown that technology-enhanced learning activities have enormous potential to promote student engagement, motivation, active learning attitude, and course retention (Ciampa, 2014; Joosten, 2010). However, it has also been shown that course instructors might ignore motivational enhancement in favour of instructional design, and inconsistently assume that the novelty effect of mobile technology is sufficient to stimulate student motivation (Huett, Kalinowski, Moller, & Huett, 2008; Jones, Issroff, Scanlon, Clough, & McAndrew, 2006). It has also been asserted that whatever the properties or affordances of mobile technologies or applications for language learning, a key point is the motivation that students bring to the learning, and how this is facilitated and supported (Chang, Chang, & Shih, 2016; Ushioda, 2013).

Thus, it may be reasonable to analyse each use of technology in particular in its context and regard their integration in education as “*socially constructed process in action*” (Feenberg, 2008; Hinkelman & Gruba, 2012; Levy & Stockwell, 2006), as our study intends to do.

Therefore, we try to measure the ICT impact on students' learning and their attitudes towards computers according to gender, age and learning modality. Finally, we intend to address the following research questions:

- RQ3: How do students in the different learning mode acknowledge the impact of ICT on their learning?
- RQ4: Do students consider that ICT offer a similar learning potential in the three learning modes?

3. Method

3.1. Context

Currently in Spain there is a growing interest in learning languages, especially English, among the adult population, as can be seen in the demand existing in several educational institutions in our country: universities, language schools and private academies. The recent unfavourable socio-economic situation, with the generation of the baby boom reaching retirement and an active population that has significantly decreased due to a lack of job opportunities, has contributed to raise this interest in language learning. Students come from diverse backgrounds: teacher training programs, higher education and university courses, high school, housewives and workers in general. The motivations to learn languages are also varied: language level certification, job search or promotion, communication with other speakers in their trips, accreditation or official recognition in their studies, and so on.

Our research specifically focuses on a heterogeneous adult student population involved in language learning in three different learning modalities: classroom face-to-face, blended (combining classroom practice with online work), and distance learning (totally online). Due to the constant changes in the ICT landscape we believe it is necessary and important to revisit the relationship of ICT

Table 1
Distribution of participants.

Learning modality	N	%
Classroom	184	29.34
Blended	243	38.76
Distance	200	31.89
Total	627	100

with student learning, to know whether students feel comfortable in their specific learning scenario and find ICT motivating and useful, and whether they present different attitudes that can be put down to their learning mode.

3.2. Participants

A stratified random sample was made taking into account the students' learning mode. The Official Schools of Languages (Escuelas Oficiales de Idiomas) in the Spanish Autonomous Communities of Galicia, Andalusia and Aragon were selected for students following the traditional classroom face-to-face learning mode. CUID (Centro Universitario de Idiomas Digital a Distancia), the Language Unit of UNED (the National Distance Education University) with sites in many different cities throughout Spain, and EOIDNA (Escuela Oficial de Idiomas a Distancia de Navarra), the Distance Official School of Languages of Navarra, were selected for the students following the blended or the fully online learning modalities. Both educational institutions offer students the possibility to enroll in blended courses, combining classroom tuition and work done online, or in fully online courses, through individual work and preparation. The final distribution of participants is shown in Table 1.

A total of 627 language learners, 33% male and 67% female, with a mean age of 40.15 years (SD: 12.522) participated in our study. As for the language they were learning, 81.8% studied English, 4.1% did German, 3.8% French, 3.3% Japanese, 2.9% Italian and 2.4% Portuguese. The rest did Chinese, Arab, Basque and Spanish for foreigners. Attending the CEFRL levels, 15.6% did A1, 11.8% A2, 19.3% B1, 45.1% B2, 7.3% C1 and 0.8% C2. 64% of the students were also working at the moment, 15.5% were only students, 15% were unemployed and 5.6% were in their retirement.

3.3. Instrument

An online questionnaire on students' attitudes towards ICT in language learning was used. The items were based on “*The Survey of Schools: ICT in education*” (Wastiau et al., 2013), an international survey commissioned in 2011 by the European Commission Directorate General Communications Networks, Content and Technology to benchmark access, use of and attitudes to ICT in schools in the EU27, Croatia, Iceland, Norway and Turkey. It is one of a series in the EU's cross-sector benchmarking activities comparing national progress towards the Digital Agenda for Europe and EU2020 goals. The survey intended to collect information on schools' ICT infrastructure, teachers' and students' access to ICT at school, school strategy and leadership and teachers' and students' declared confidence in their digital competences. It was precisely this last population sector that was the main focus of our study, thus we limited the research to the students.

The questionnaire covered the following areas: (i) Type and frequency of activities implemented in class whether using ICT or not, with eight Likert-scale questions measuring the degree of collaboration existing among the teacher and the students, among the students themselves or the individual quality of the tasks undertaken; (ii) Students' self-perceived ability or confidence to use ICT, which included eleven Likert-scale questions involving the use of technology (ranging from using a word processing program, email, and so on, to creating a presentation or downloading and installing software on a computer); (iii) ICT impact on their own learning, with seven Likert-scale questions, and (iv) students' attitudes to computers, with four Likert-scale questions. The whole questionnaire may be consulted under appendix 1, at the end of this paper.

3.4. Data collection and analysis

The questionnaire was translated into Spanish and the administration of the survey was done online between January and May 2017. The study was carried out in accordance with the deontological standards recognized by the Declaration of Helsinki (Hong Kong Review, September 1989) and the current Spanish legal regulations governing social science research.

For the analysis of the data the statistical program SPSS 23.0 was applied. First, a descriptive analysis of the items was performed to calculate the mean, the standard deviation, and skewness and kurtosis indexes to evaluate the normal behavior of the variables. The Kolmogorov Smirnov test was then used in order to determine whether the sample available corresponded to a normal distribution, and then independent comparison tests were performed with a Significance level of $p < 0.05$. A confidence level of 0.05 has been used.

Table 2
Type and frequency of activities implemented.

Item	Learning modality	N	Mean	F	Sig	Bonferroni
Type & frequency of activities	Classroom	184	2.95	45.68	.000	Classroom-Blended = .003
	Blended	243	2.76			Classroom-Distance = .000
	Distance	200	2.38			Blended-Distance = .000
	Total	627	2.70			

* $p < 0.05$.

4. Results

4.1. Type and frequency of activities implemented whether using ICT or not

This study examines the types of learning activities or tasks carried out in the three modalities and the frequency with which they were implemented in the view of students. Our aim is to detect any possible significant differences among them. Respondents were offered an eight-item question with a four-option Likert rating scale ranging from 1 (Never or almost never), 2 (Several times a month), 3 (Once a week) to 4 (Every day or almost every day). Results prove the existence of significant differences between the classroom and the blended mode students ($p = 0.003$), classroom and distance students ($p = 0.000$), and blended and distance students ($p = 0.000$) respectively, as Table 2 shows below.

A further analysis of the respondents' answers to the eight items contained in this question shows relevant differences in several items (numbers 1, 5 and 7). It is worth mentioning that teacher presentations or explanations (item 1) were highly frequent in the classroom face-to-face mode (83.2% say “every day” compared to 49.8% and 20.3% in the blended and distance learning modes respectively), as shown in Fig. 1.

Work in small groups (item 5) shows an outstanding difference too (62.5%, 39.5% and 9% say “every day” in the classroom, blended and distance modes respectively), as shown in Fig. 2.

And finally, helping support among students (item 7) occurs slightly differently in the three mentioned modes respectively (77.2%, 70.3% and 55% considering “once a week” and “every day” altogether), as shown in Fig. 3.

From this, on the one hand, we can deduce that the teacher's presence through presentations and explanations is high in the classroom as compared to the other two learning modes. And, on the other hand, there seems to be little interaction among students in the blended and distance modes, as compared to face-to-face instruction. Coincidentally, this figure seems to be reinforced with the answers to item 8 where respondents say that they never hold discussions on how to improve their learning (37.5% in the classroom mode, 42% in the blended one, and 44% in the case of distance learners).

4.2. Students' self-perceived ability to use ICT for a series of communicative tasks

The second question of our study tries to measure the degree of digital competence of our students as perceived by themselves and possible significant differences attending their specific learning modes: classroom face-to-face, blended or distance learning. This time respondents were offered an eleven-item question with a four-level Likert-style rating scale ranging from 1 (Not at all), 2 (A little), 3 (Somewhat) to 4 (A lot). Results proved the existence of significant differences between blended and distance students ($p = 0.015$), as Table 3 shows below.

As it can be seen, students in the distance mode show bigger self-confidence in their capacities (3.42), followed by the classroom (3.32) and blended (3.24) modes respectively. A further analysis of the respondents' answers to the eleven items contained in this question (see appendix 3) shows relevant differences in several of them (numbers 1, 2, 6, 7, 8 and 10) between the blended and distance learning modes. Distance students feel in general more confident in using ICT, as few of them (3%) admit having no or little confidence to produce text using a word processing programme like Word (item 1), edit digital photographs or other graphic images,

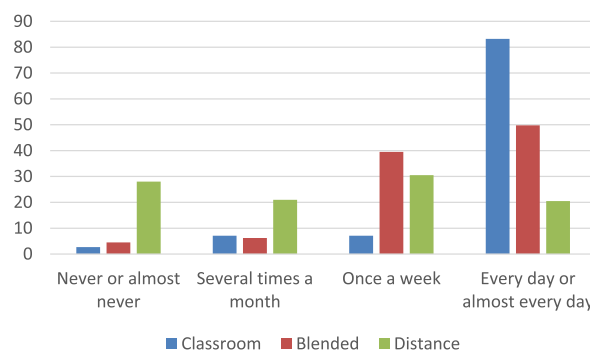


Fig. 1. Item 1: Listen to teacher presentation or explanation.

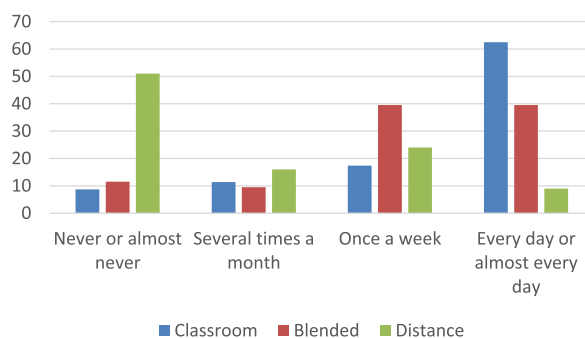


Fig. 2. Item 5: Work in small groups.

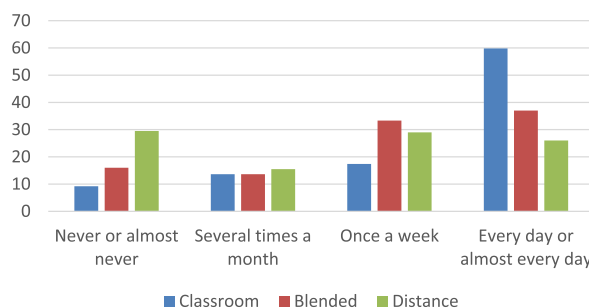


Fig. 3. Item 7: Students help each other to better understand and learn.

Table 3
Students' self-perceived ability to use ICT by learning modality.

Item	Learnig modality	N	Mean	F	Sig	Bonferroni
Students' self-perceived ability	Classroom	184	3.32	3.97	.019	Blended-Distance = .015
	Blended	243	3.24			
	Distance	200	3.42			
	Total	627	3.32			

*p < 0.05.

item 2, (9.5%), as compared to blended learning students (7% and 19.3% respectively), to create a presentation using Power point or Prezi (item 6), as compared to blended learning students (19.3%), to integrate text, graphics or video in them (item 7), 20.5% as compared to 38.7% respectively, to participate in a discussion forum on the Internet (item 8), 7.5% as compared to 15.6 in the blended group, and finally to participate in social networks (item 10), 19.5% as compared to 31.3% in the blended learning mode as well.

From these data, we could defend that most students in the three learning modes feel somewhat or really confident to carry out the ICT-related activities, distance learning students being the ones showing the greatest degree of self-confidence.

As for other social variables under analysis, like gender, age and occupation, some significant differences were also found in this respect, as the following tables show: Men seem to show bigger self-confidence than women in their technological ability (Table 4), as well as younger students (Table 5) and those undertaking some sort of studies or working as compared to students in their retirement (Table 6).

Table 4
Students' self-perceived ability to use ICT by gender.

Item	Gender	N	Mean	t	Sig
Students' self-perceived ability	Male	207	3.4071	2.226	.026
	Female	420	3.2833		

*p < 0.05.

Table 5

Students' self-perceived ability to use ICT by age group.

Item	Learnig modality	N	Mean	F	Sig	Bonferroni
Students' self-perceived ability	< = 30	148	3.4251	14.075	.000	< = 30–46+ = .000
	31–45	252	3.4260			31 - 45–46+ = .000
	46+	227	3.1416			

*p < 0.05.

Table 6

Students' self-perceived ability to use ICT by occupation.

Item	Learnig modality	N	Mean	F	Sig	Bonferroni
Students' self-perceived ability	Student	97	3.308	4.817	.003	Student-Retired = .017
	Working	401	3.3689			Working-Retired = .001
	Retired	35	2.9455			
	Unemployed	94	3.2679			

4.3. The ICT use impact on their own learning

Students in general acknowledge the beneficial effect or impact of ICT on their learning regardless of the mode they follow and no significant differences were detected in this respect. Mean values in the answers were registered between 2.71 and 3.97 out of 4. Respondents clearly defend that they understand more easily what they are learning (3.97 out of 4) and feel more independent when learning (3.29 out of 4).

4.4. Students' attitudes towards ICT

In this sense, students consider that ICT offer a similar learning potential in the three learning modes. It is worth highlighting that students think that learning with a computer is fun (3.23) and, in addition, what they learn is expected to be of high value in the future (3.23).

5. Discussion and conclusion

The aim of our research was to comparatively analyse (1) the nature of classroom activity, instruction practice and types of interaction generated in these courses, with or without ICT, in order to check whether we can detect some prevailing trends or practices as for each learning modality, (2) the students' self-perceived degree of confidence in digital competence, (3) the ICT impact on their learning, and (4) their attitudes towards computers, according to gender, age and learning modality.

5.1. Research question 1: are there any significant differences in the type and frequency of classroom activities implemented in the three learning modes?

Regarding the results obtained, we can defend that students are subjected to different types and frequencies of learning tasks depending on the learning modality. There seems to be an inverse relationship between teacher presence, via explanations and presentations in classroom practice, and increased technology use in the distance learning mode. Subsequently, we have observed a reduction in communication, interaction or social exchange in the way of work in small groups and student interaction or support among participants, as far as technology is more present in the learning process.

It could be suggested that there is room for further interaction among students in blended and distance learning mode courses and that students consider themselves ready to use technology with that purpose. Teachers or instructors might be using ICT mainly as content repositories to support theoretical explanations and reducing the ICT potential to foster interaction in the way of tutorial management, learning reflection or contact among students.

5.2. Research question 2: do students show any difference in their self-perceived digital competence attending their specific learning modes?

As regards students' computer self-efficacy, our research highlights the engagement potential of distance learning students, also signaled by other previous research (Ciampa, 2014; Joosten, 2010), which defended that technology-enhanced learning activities have enormous potential to promote student engagement, motivation, active learning attitude, and course retention. However, in our study, distance learning students do not necessarily show a higher motivation than in other learning modalities. In other words, the students' engagement capacity might not be fully exploited for their own learning benefit. The type of activities implemented in their courses, which differed significantly from the other learning modalities, did not entail a specific motivational load. This may be in line with what other researchers have also suggested about course instructors' preference for instructional design and their neglect of

motivational stimulation (Huett et al., 2008; Jones et al., 2006).

This survey has also found a relationship between gender, age, occupation and increased technology use and bigger self-confidence to use ICT. Men, younger students, those undertaking some sort of studies or working, and distance learning students seem to show bigger self-confidence in their technological ability, in contrast with the lack of differences between males and females on self-efficacy reported by former research (Cai et al., 2017). Somehow, this also modifies the results of former studies (Law, Pelgrum, & Plomp, 2008; Wastiau et al., 2013), whose analysis did not find any overall relationship between high levels of infrastructure provision and student and teacher use, confidence and attitudes. We must admit though that their study also included infrastructure provision and teacher use of technology, unlike ours, which exclusively focuses on student use and the degree of confidence these show.

5.3. Research question 3: how do students in the different learning mode acknowledge the impact of ICT on their learning?

In our research, no significant differences were detected in this respect among the different learning modes, as aforementioned. The impact of ICT in learning could be measured in terms of choice satisfaction. This is, whether students would continue opting for the same learning modality undertaken based on the satisfaction they get from fulfilling their own initial learning expectations. We consider that this may be a key and strategic piece of learning for students to enroll in future courses in the way of motivation retrospection (Dörnyei, 2001) or satisfaction experimented from previous learning experiences. In this way, students' initial motivation would be supported and enhanced by the learning experimented with the use of ICT. From the evidence found, it could be concluded then that students seem to be similarly content with the learning mode selected.

5.4. Research question 4: do students consider that ICT offer a similar learning potential in the three learning modes?

In general, our students attach great potential to ICT in their learning, which definitely contributes to consolidating students' learning attitudes.

Our research could be further developed in the future with a deeper analysis on the aims with which technology is being used in the different learning modes, or the type of hardware and software employed by the students in their lessons, to see whether the current results are confirmed or new trends emerge. These issues exceeded the scope of our current research, which originally tried to get a more holistic view of the attitudes of Spanish adult students involved in ever growing diverse educational and learning contexts.

The evolution and the advance of technology allow professionals to diversify the educational offer and adapt it to the problems and needs of today's society. Furthermore, if schools are to be transformed into ICT-mediated teaching environments in order to enrich learning, education must face two strongly interrelated challenges: firstly, to clearly demonstrate the educational value of ICT and, secondly, to convince public institutions of the need for investment to achieve a real change in education through the inclusion of ICT. Therefore, scientific evidence about students' attitudes towards the use of ICT becomes a means to achieve greater quality in the teaching-learning process by being able to adapt curriculum design and the use of resources to their skills and opinions.

We must also bear in mind that the use of ICT generates a change in the structure of educational organizations promoting a new culture that allows us to advance in the knowledge of the corporate environment.

Appendix 1

Students' attitudes towards ICT questionnaire.

(Adapted from the Survey of Schools 2013).

Question 1: In lessons how often are you engaged in the following activities (whether using ICT or not)?

Tick one box for each row.

Item	Never or almost never	Several times a month	Once a week	Every day or almost every day
1 Listen to teacher presentation or explanation				
2 Listen to a student presentation or explanation				
3 Read a book or look at films or videos at the same time				
4 Do exercises and tasks individually				
5 Work in small groups				
6 Work on something at my own pace				
7 Students help each other to better understand and learn				
8 Take time for us to discuss how to learn better				

Question 2: How confident are you doing the following tasks?

Tick one box for each row.

Item	Not at all	A little	Somewhat	A lot
1 Produce text using a word processing programme (e.g. Word)				

2	Edit digital photographs or other graphic images
3	Edit online text containing Internet links
4	Create a database with Excel
5	Email a file to someone
6	Create a presentation with Power Point or Prezi
7	Create a multimedia presentation (text, graphics, video ...)
8	Participate in a discussion forum on the Internet
9	Create blogs or web sites
10	Install software on my computer
11	Participate in social networks

Question 3: Do you consider that using ICT during lessons has a positive impact on the following?

Tick one box for each row.

Item	Not at all	A little	Somewhat	A lot
1				
2				
3				
4				
5				
6				
7				

Question 4: To what extent do you agree with the following statements?

Tick one box for each row.

Item	Strongly disagree	Disagree	Agree	Strongly agree
1				
2				
3				
4				

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