Research Article

Perspectives on online learning: Advantages and challenges in higher education

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ARTICLE INFO	ABSTRACT
	Online learning in higher education has established itself as a key educational strategy that transforms the teaching and learning process in universities. In this context, it is crucial to examine the different effects that this method can generate in order to identify both the opportunities and challenges that teachers face when adopting this modality. The aim of this research is to analyse the perspectives of online learning, focusing on the advantages and challenges it presents in higher education. The information was collected through semi-structured interviews with 47 teachers from the University of Cadiz and the University of Seville. The analysis of the data obtained highlights the benefits that online learning offers, such as flexibility and accessibility, as well as the difficulties related to technical problems and access to technology. The results underline the significant opportunities that online learning offers to improve the educational process, provided that the necessary teacher support and training is available. This study also provides valuable recommendations to guide future teachers and researchers in the effective integration of this method in higher education. **Keywords:** online learning, higher education, digital learning, impact, educational innovation

INTRODUCTION

Currently, the educational field is immersed in an era of constant transformation, driven by the need to incorporate innovative digital tools that enrich the learning experience of students. Previous studies show that the influence of the integration of information and communication technologies (ICT) in educational practices is manifested through small educational innovations adapted to the individual methodology of teachers, which are intrinsically linked to their training and attitudes towards teaching and learning (Macas Granda et al., 2021). On the other hand, in the last decade, the expansion of online learning has reached the educational field, which has led research to focus on exploring the potential of emerging technologies in virtual environments (Isela Aguilar Vargas & Otuyemi Rondero, 2020).

The advancement of digital technologies has allowed online learning to become an increasingly accessible and efficient educational modality. This technological transformation has facilitated the creation of flexible and personalised learning environments, improving accessibility and educational inclusion (Cedeño, 2019). In

this context, online learning has positioned itself as a key strategy for higher education, offering new perspectives and educational opportunities. As technology has developed and been more widely adopted, its impact on higher education has intensified, promoting a continuous evolution of teaching and learning methodologies (Drysdale et al., 2013). This perspective plunges us into an exciting technological evolution that promises not only to enrich but also to revolutionise the educational experience in higher education institutions. The increasing accessibility and sophistication of digital technologies not only offer innovative educational resources, but also open up an unprecedented range of opportunities for teaching and learning in higher education. The ability of online learning to create interactive virtual environments, where students can access educational content in a flexible and personalised way, transcends the traditional boundaries of the classroom, fostering participation, autonomy and critical thinking (Chen et al., 2010; Henrie et al., 2015; Junco et al., 2013).

From a theoretical perspective, it is crucial to understand the contributions that online learning can offer, whether as a beneficial resource that facilitates the dissemination of information, or as an element that poses challenges in terms of educational interaction and assessment (Dorrego, 2016). It is therefore crucial to critically reflect on the contributions of online learning in education, especially in the context of the development of new methodologies and digital tools, which poses a challenge that educational theory needs to address seriously.

Although several studies have reported positive aspects of the integration of online learning in higher education institutions, its effective implementation is hampered by various barriers that limit its widespread adoption (Nouraey & Al-Badi, 2023). The present research aims to understand the perceptions of university lecturers in relation to the implementation of online learning in higher education institutions. To achieve this objective, two key research questions are formulated to guide our study:

RQ1:   What are university lecturers' perceptions of the implementation of online learning as an educational resource in higher education?

RQ2:   What are the future recommendations for the use of e-learning in higher education institutions?

This study not only seeks to understand the current state of implementation of online learning in higher education, but also to provide different perspectives and recommendations that can guide future teachers, researchers and educational leaders in the successful integration of this emerging educational modality in the educational process.

THEORETICAL FRAMEWORK

Definition and Evolution of E-Learning

Online learning, also known as e-learning, refers to the use of digital technologies and the Internet to facilitate teaching and learning (García Aretio, 2009). This educational modality allows learners to access educational resources and content from anywhere and at any time, using the Internet-connected devices such as computers, tablets and smartphones (Simonson et al., 2011). Online learning encompasses a wide range of educational activities, from fully online courses to hybrid approaches that combine face-to-face teaching with digital components (García Aretio, 2004).

The evolution of online learning can be understood through several key stages, reflecting technological development and pedagogical trends over recent years (García Aretio, 2015). Before the advent of the Internet in the 1970s, online learning was mainly conducted through penny post, radio and television. Students received printed materials and sent their assignments by post, while radio and television began to make their first public broadcasts providing instructional content through audiovisual media. With the birth and expansion of the Internet in the 1980s and 1990s and the advent of personal computers, the first advances in distance education began to emerge, with the development of the first learning management systems (LMS), which allowed educational institutions to manage and distribute digital content to students (Karrer, 2007).

As the Internet infrastructure improved and became more accessible, e-learning has experienced significant growth in the 2000s. E-learning platforms became more sophisticated, evolving from learning platforms to content management and even content creation. The proliferation of mobile devices and the

development of educational applications marked a new phase in the evolution of e-learning. Learners could now access educational content from anywhere, using smartphones and tablets, in the 2010s. With all this, face-to-face institutions began to bet on novelty, reinvesting, totally or partially, their classes. This gave rise to new trends, such as blended-learning (b-learning) or the first massive open online courses (MOOCs), which offered massive, online and free access to high-quality courses taught by prestigious universities (Cormier & Siemens, 2010). Today, online learning continues to evolve with the incorporation of emerging technologies such as artificial intelligence, virtual reality and augmented reality. These innovations promise to further transform higher education by providing more immersive and interactive learning environments. In addition, the COVID-19 pandemic accelerated the adoption of e-learning globally, highlighting its importance as an essential tool for educational continuity in times of crisis.

The Role of E-Learning in Higher Education

In recent years, the move towards digitalisation in higher education is accelerating by leaps and bounds, including the adaptation of teaching methods and other aspects that contribute to improving educational quality (Solórzano Álava et al., 2022). This evolution has led universities to reconsider and develop new pedagogical models that guarantee high quality standards, raising questions about the way to achieve these goals (Ortiz et al., 2021).

The arrival of the COVID-19 pandemic put e-learning systems in all universities to the test, forcing a rapid adaptation to the use of ICT for the delivery of educational activities. Although different methods, techniques and curricula for effective knowledge transfer in virtual environments are still being evaluated, uncertainty persists about the future development of higher education in this digital environment. However, e-learning is characterised as a collaborative effort that demands adequate ICT training from students and teachers (Espinosa et al., 2021).

In this context, it is necessary to consider that e-learning provides several benefits in the university context, offering greater autonomy to students by allowing them to control their own time and pace of study, select the content and decide when and how to study using different devices, as well as allowing students from anywhere to access quality education regardless of their geographical location (Hidalgo et al., 2022). In this sense, we can establish that e-learning has revolutionised access to knowledge and interaction in the virtual classroom, offering innovative tools that can enrich teaching. However, this change is not without its challenges. For many teachers, the transition from the traditional classroom to the virtual classroom involves a significant learning curve. Mastering new technologies and teaching methodologies requires time and adaptation, which can generate stress and affect their pedagogical effectiveness (Fernández Batanero et al., 2021; Montenegro Rueda & Fernández Batanero, 2023). To this end, HEIs must provide adequate support in terms of technological and pedagogical training, as well as consider the individual needs of teaching staff to ensure that e-learning not only enhances the student learning experience, but also enriches teaching practice. This is the only way to ensure that e-learning has a genuinely positive impact on all actors in the educational process.

Thus, while there has been much discussion about the benefits and challenges for students, it is essential to expand knowledge about the impact of e-learning on university teaching staff. This group, fundamental in the educational process, faces a new reality transformed by technology, which merits a deep reflection on how e-learning affects their performance, satisfaction and professional development.

METHOD

Design

To better understand the nature and scope of this methodology, it is essential to break down how qualitative research is conducted from an interpretive perspective. In this sense, qualitative methodology relies on the collection and analysis of non-numerical data, such as in-depth interviews, participant observations and document analysis. However, the interpretive approach recognises that the researcher is inherently part of the research process and that his or her own experiences, values and preconceptions may influence the interpretation of the data. Therefore, reflexivity and transparency is encouraged throughout the

Table 1. Distribution of participants by gender and years of experience

		N	%
Gender	Men	18	38.3
	Women	29	61.7
Years of experience	Between 0 and 5 years	4	8.5
	Between 5 and 15 years	36	76.6
	More than 15 years	7	14.9

research process, implying that the researcher should be aware of their position and potential biases, and be open to questioning and critique by other researchers (Daza, 2018).

Following this line, the steps to be followed in the present research are as follows:

- **Identification of the problem:** This involves a thorough review of the existing literature to detect gaps in knowledge and clearly define the area of interest.

- **Defining the research objective and research questions:** Define the research objectives and formulate relevant research questions. These objectives should be clear, specific and achievable, guiding the direction of the study.

- **Selection of the research design:** For this study, a qualitative design is chosen, which allows for an in-depth and detailed exploration of participants' experiences and perceptions.

- **Designing the data collection instrument:** The data collection instrument is designed. In this case, a semi-structured interview approach is chosen, allowing flexibility to explore emerging themes while maintaining a consistent frame of reference.

- **Sample selection:** Inclusion and exclusion criteria are clearly defined to select participants who can best contribute information relevant to the research problem.

- **Conducting the interviews:** Once the sample is selected, the interviews are conducted. This process must be carried out with methodological rigour.

- **Transcription and coding of the interviews:** The interviews must be faithfully transcribed for later analysis. Coding the interviews involves identifying and categorising the responses into relevant themes or patterns.

- **Analysis of the results:** Finally, the coded data is analysed. This analysis allows for the identification of trends, patterns and relationships between the different emerging themes.

Sample

For the selection of the sample, convenience sampling was used as a selection technique, more specifically through snowball sampling, potential subjects were identified in the selected population. Accessible teachers were interviewed through telephone calls, carried out between September and October 2023. During these calls, informed consent was obtained from the participants for their inclusion in the research. Regarding the choice of the sample in the present research, a total of 47 university teachers were selected from the faculties of education of the universities of Seville and Cadiz (Spain). Regarding the gender distribution of the selected sample, it is evident that the majority of the selected teachers are women (61.7%) compared to men (38.3%). On the other hand, the vast majority of the teachers had between 5-15 years of teaching experience as university lecturers (85.1%). **Table 1** shows the percentage of research participants according to their gender and years of teaching experience.

Data Collection Instrument

A semi-structured interview was used as the main instrument for data collection. The interview questionnaire, beyond the introductory questions (concerning the socio-demographic data of the participants), included six questions aimed at exploring the assessment and perception of the use of e-learning perspectives in higher education. **Table 2** shows in detail the questions posed for each interviewee.

The expert judgement strategy was chosen to validate the interview script using the Delphi method. This process included the creation of a complementary document to the interview that contained a series of open questions. This document was distributed to a group of 8 educational technology specialists from various

Table 2. Interview questions

Q	Questions
1	Demographic questions: gender, age, years of experience
2	How would you describe your initial experience in introducing e-learning?
3	What have been the main challenges you have faced in introducing online learning in higher education?
4	What, in your experience, are the most significant opportunities that online learning can provide in higher education institutions?
5	From your teaching perspective, what changes or developments do you expect to see?
6	How could the preparation of teachers to effectively integrate this technology in the classroom be improved?
7	Finally, is there anything else you would like to add?

Table 3. Participants of the Delphi method

Participant	Specialty	University
Expert 1	Educational technology	University of Seville
Expert 2	Educational technology	University of Granada
Expert 3	E-learning	University of Seville
Expert 4	Educational technology	University of Pablo de Olavide
Expert 5	Educational innovation	University of Pablo de Olavide
Expert 6	Online learning	University of Seville
Expert 7	Online learning	University of Córdoba
Expert 8	E-learning	University of Huelva

universities in Andalusia, Spain. The selection of these experts was carried out following two mechanisms. First, those who met two or more of the following criteria were identified:

- Having training in the use of ICT, educational innovation or e-learning.
- Have taught in subjects such as 'educational technology', 'new technologies applied to education', 'e-learning', 'online learning' or similar subjects.
- Have published relevant research in academic journals or conferences in the field of emerging technologies and e-learning.
- Have been actively involved in research projects related to the use of e-learning and new technologies.

To ensure the inclusion of experts with solid knowledge and experience in emerging technologies, such as extended reality in education, specific criteria were used, as detailed in **Table 3**.

In addition, the 'expert competence coefficient' or 'K-coefficient' method was used for the selection of experts. This coefficient is calculated with the formula:

$$K = \frac{1}{2}(Kc + Ka).$$

In this sense, Kc represents the 'experience coefficient' or the information that the expert possesses about the topic, and Ka is the 'argumentation coefficient' or the basis of the expert's judgement (Fernández Batanero et al., 2018). In our research, the 8 selected experts presented a K-coefficient above 0.8, which reflects a very high level of competence (Martínez Cepena et al., 2021). The expert evaluations were carried out in several successive rounds and anonymously, using the Delphi method, in order to reach a consensus while maintaining the autonomy of the participants. This can be seen in **Appendix A**.

Data Collection Procedure

The interviews were conducted remotely via telephone calls, ensuring the privacy and confidentiality of participants by maintaining anonymity throughout the process. This methodology was selected to create a comfortable and safe environment, encouraging interviewees to share their experiences openly and honestly. The telephone interviews made it possible to overcome geographical limitations, facilitating the participation of teachers from different schools in the province of Seville, Spain. Each interview lasted between twenty and thirty minutes and was conducted in Spanish. Participants gave their informed consent both verbally and in writing, via email, before beginning their participation in the study.

All subjects gave informed consent for inclusion before participating in the study. The research was conducted in accordance with the Declaration of Helsinki (WMA, 2013), and the fundamental principles of

Table 4. Codes, categories, subcategories, and empirical evidence

Categories	Subcategories	Results
Advantages (AD)	Digital competences (DC)	"Online education enables the development of digital skills that are essential in the modern world" (INTERVIEW 02).
	Flexibility (FL)	"One of the main advantages is that you can adapt the timetable and the location" (INTERVIEW 23).
	Accessibility (AC)	"We have been able to reach a wider group of students, including those with disabilities, thanks to digital accessibility tools" (INTERVIEW 35).
	Feedback (RE)	"The ability to give continuous and detailed feedback in real time is a great advantage" (INTERVIEW 14).
Disadvantages (DI)	Technical problems (TP)	"Technical problems are a constant frustration. Connection interruptions and software glitches often disrupt the flow of the class" (INTERVIEW 45).
	Lack of training (LA)	"Many of us teachers have not received adequate training to teach online, which affects the quality of our classes" (INTERVIEW 09).
	Technology gap (GA)	"This technological inequality negatively affects the performance and participation of some students" (INTERVIEW 29).
	Workload (WO)	"The preparation of digital materials and the management of platforms is very time-consuming" (INTERVIEW 31).
	Evaluation and feedback (EF)	"Providing detailed and personalised feedback in a digital environment can be complicated and time-consuming" (INTERVIEW 43).
Future prospects (FP)	Education policy (EP)	"It is essential that clear and uniform guidelines for the implementation and evaluation of online education are developed at the national level" (INTERVIEW 20).
	Lifelong learning (LL)	"It is important that online education programs are designed with adults in mind as they seek to continue their education in a flexible way" (INTERVIEW 02).

research integrity were respected in accordance with the guidelines of the Research Ethics Committee of the University of Seville.

Data Analysis Procedure

In the process of analysing the information, several stages were followed: first, the interviews were recorded; then, these recordings were transcribed, and a pre-reading of the transcripts was carried out. Subsequently, the coding of categories and deductive subcategories was carried out, which involved the construction of the corresponding categorical system. In addition, a semantic network was elaborated to address the identified macro category. To facilitate the content analysis, the software Atlas. Ti (2022) software was used to facilitate the content analysis.

In this sense, we will begin to explain the codes, category and subcategories elaborated in this study. With regard to the categories, three main groups have been elaborated: 'advantages' (AD), 'disadvantages' (DI), and 'future perspective' (FP). With regard to the category 'advantages' (AD), four sub-categories have been developed: 'digital competences' (DC) which refers to the improvement of teaching competences in the use of ICT, 'flexibility' (FL) related to the opportunity offered by online learning in terms of location and time flexibility, 'accessibility' (AC), linked to the ability to reach students from different geographical locations, thus widening the audience and the impact of their teachings and, 'feedback' (RE) which refers to the instant feedback users receive when using this tool. Regarding the category 'disadvantages' (DI), we found five subcategories analysed: 'technical problems' (TP), which refers to the dependence on technology can cause technical problems, such as failures in the Internet connection, problems with teaching platforms or lack of familiarity with digital tools, 'lack of training' (LA) related to the need to train teachers in the use of technologies, 'technological gap' (GA) linked to the problems caused by not having the right tools to access training, 'workload' (WO) referred to the increased workload of teachers, due to the need to adapt content, manage forums and deal with virtual queries and, 'assessment and feedback' (EF) related to the fact that assessing and evaluating students' performance fairly and providing effective feedback in an online environment can be complicated, especially with the risk of plagiarism and the use of impermissible aids during assessments. Finally, looking at the category 'future perspectives' (FP) we find two subcategories: 'education policy' (EP) as it refers to the development of guidelines, strategies and decisions taken by governmental and educational authorities to implement and improve online learning in the education system and, 'lifelong learning' (LL) linked to lifelong learning of teaching competences.
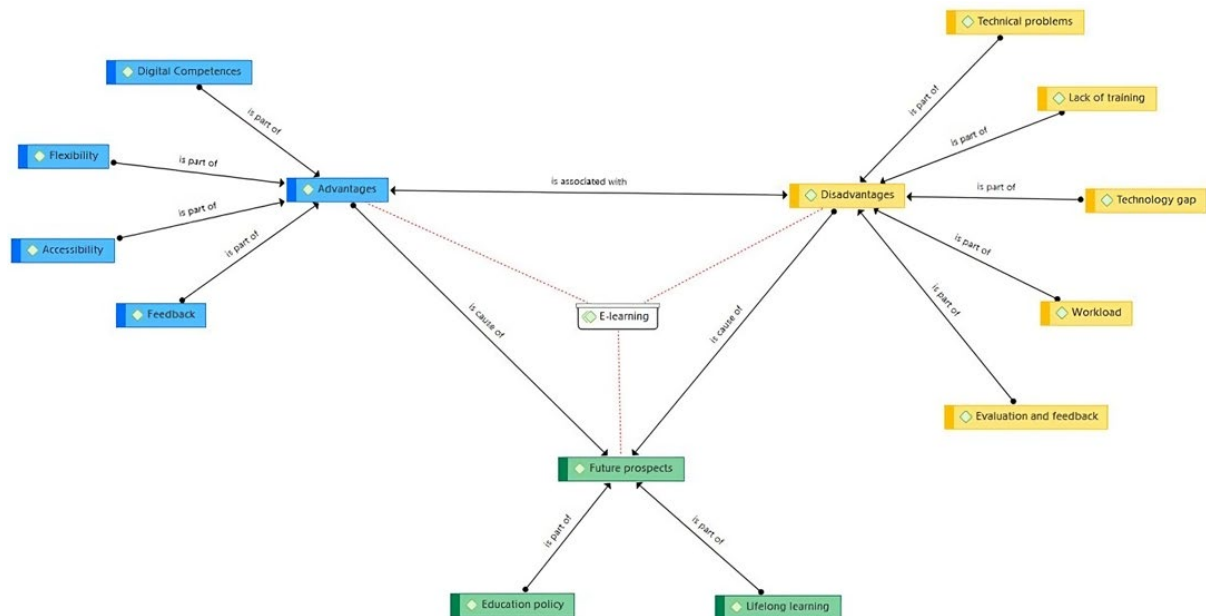
Figure 1. Graphical representation of categories and subcategories in a semantic network (Source: Authors)

Table 4 presents a detailed analysis of the categories, subcategories and empirical evidence obtained through the research participants' responses.

RESULTS

In order to present the findings, the most relevant information obtained from the interviews with the participants has been thoroughly analysed, keeping coherence with the objectives of the study and the predefined categorisation (see **Figure 1**). The research results show three main themes (advantages, disadvantages and future perspectives) that will be examined in the following sections.

Benefits

With regard to the category 'advantages' (AD), after conducting the interviews with teachers, the results show that one of the main advantages obtained by applying e-learning in the classroom is the improvement of the much-needed digital competences of both students and teachers, as these become necessary when developing/applying them. However, it has also been visualised that this digital tool allows for instant feedback to be provided to students when they are performing tasks through this tool, improving the speed and fluency of the teaching and learning process.

> "One of the most important benefits is undoubtedly the improvement of digital skills. Students and teachers not only learn the course content, but also develop crucial technology skills" (INTERVIEW 07).

> "Online platforms allow for immediate feedback. This not only helps students to correct mistakes and continuously improve, but also increases their motivation and engagement" (INTERVIEW 21).

On the other hand, a large percentage of the responses analysed also suggest two major benefits of online learning. One of them is closely related to the flexibility it provides to users, as it can be applied regardless of place and time. The other is the accessibility it gives to the community, allowing it to reach a wider group of users thanks to its inclusive nature and the ease of use it offers.

> "The possibility of adjusting their study schedule according to their own needs and regardless of their location allows students to better balance their personal and professional obligations with their education" (INTERVIEW 23).

> "This tool has been able to reach a wider range of learners, including those with disabilities, thanks to digital accessibility tools" (INTERVIEW 34).

Disadvantages

Regarding the category 'disadvantages' (DI), the vast majority of the teachers interviewed revealed that in order to implement e-learning, it is necessary for teachers to have the necessary digital training. Although they acquire digital competences as they use this training, many teachers do not have initial training when they start. However, emphasis has also been placed on the possible technical errors that can be caused by the use of this tool, regardless of the teacher's training, which can seriously affect the teaching and learning process of students.

> "Many teachers are unfamiliar with online learning platforms and may feel overwhelmed at first. Similarly, they may lack the skills needed to design and deliver online courses effectively" (INTERVIEW 15).

> "Difficulties may be experienced with the Internet connection, problems with access to learning platforms, and glitches in the software used to deliver classes" (INTERVIEW 04).

Another large percentage of respondents are concerned about the technology gap, as many of the students may not have the necessary technological resources to be able to use e-learning, creating a significant inequality among users. On the other hand, the development of this tool may create a heavy workload for teachers.

> "Not all students have access to a reliable computer or a high-speed internet connection. This inequality can seriously affect their ability to participate fully in online courses" (INTERVIEW 40).

> "Online learning has significantly increased the workload of teachers. Not only must they prepare and adapt course content for digital formats, but they must also manage online platforms, respond to an increased volume of emails and provide technical support to students" (INTERVIEW 34).

Finally, a significant percentage of the teachers interviewed revealed that, although they can provide immediate feedback to learners on certain tasks, others require more detailed and time-consuming responses from teachers, which is a major handicap to be taken into account.

> "In my experience, providing meaningful feedback to students can be tedious because of the sheer number of learners who can count on online learning. It takes up a lot of time" (INTERVIEW 11).

Future Perspectives

Finally, in relation to the category 'future perspectives' (FP), two main concerns have been identified for the near future regarding the use of e-learning. The first one is closely linked to education policy, with the need to establish coherent guidelines, and the second one is linked to lifelong learning, i.e., taking into account that it can be applied at all ages.

> "It is essential to establish clear and coherent guidelines for the implementation and evaluation of online education at the national level. This will enable students to learn with quality education" (INTERVIEW 28).

> "It is crucial that online education programmes are designed taking into account the needs of adults who wish to continue their education in a flexible way" (INTERVIEW 01).

DISCUSSION

Having analysed the data collected through the interviews with university lecturers, the discussions are organised around the two research questions posed:

Online learning in higher education has great relevance, especially in the current context where technology and pedagogical methods are constantly evolving. In this sense, answering the first research question (**RQ1**), related to the perception that university teachers have about the implementation of e-learning as an educational resource in higher education, we can highlight that their perception is varied, while some teachers are enthusiastic and adapt well to the changes that e-learning brings, others feel more reluctant or face greater difficulties to adapt.

Thus, among the benefits noted by participants about online learning, consistent with previous studies, is the ability to access educational content from anywhere and at any time, which offers unprecedented flexibility in education (Yuhanna et al., 2020). This modality is particularly valuable for students who face limitations in attending face-to-face classes, whether due to remote geographic location, demanding work schedules or personal responsibilities that require more autonomous time management. Along these lines, Khan (2007) elaborates on how technological advances have revolutionised education by offering greater flexibility in how, when and where students can learn. This flexibility is seen as an innovative approach to creating learning environments that are not only interactive and learner-centred, but also accessible without the traditional constraints of time and place. This flexible approach allows learners to customise their educational experience to best suit their individual needs, learning styles and life circumstances. Online learning not only facilitates the inclusion of these students, but also allows them to personalise their educational process in a way that better suits their individual circumstances, potentially improving their academic outcomes and their engagement in lifelong learning (Sancenon et al, 2020).

The development of certain digital skills is becoming essential to be able to function in today's world. They have practically reached all areas of society, which plays a fundamental role in this field. Online learning involves the constant use of digital tools and technology platforms, which leads to the development of digital skills among learners. This continuous exposure helps learners to become familiar with the handling of various technologies, which is crucial in today's digital age (Napso, 2023). Online learning not only provides access to up-to-date knowledge, but also plays a key role in the continuous development of digital competences. In a world where technology is advancing at a rapid pace, the ability to keep up with the latest trends and tools is essential. This mode of education enables students to acquire and hone digital skills on an ongoing basis, preparing them to confidently face the ever-changing challenges of the labour market. It also equips them with the versatility to adapt quickly to new situations and seize emerging opportunities. According to Matúšová (2022), this constant updating of digital skills not only increases students' employability, but also gives them a significant competitive advantage in an increasingly demanding and dynamic work environment.

The literature reviewed indicates that online learning can be effectively adapted to be accessible to Learners with various disabilities, using assistive technologies and universal design principles. This allows students with physical, visual or hearing limitations to access educational content on equal terms (She & Martin, 2022). The ability of online learning to adapt to the needs of individuals allows for a more personalised and effective educational experience, which enhances the holistic development of each student and fosters meaningful and lasting learning.

However, another opportunity offered by online learning has been the immediate feedback that such tools can provide. Instant feedback keeps students engaged in providing immediate answers to their questions and assignments. This not only helps maintain motivation but also ensures that students remain focused on the learning process (Wong & Yang, 2017). In the context of online learning, the integration of instant feedback significantly facilitates a more adaptive approach to education. This modality allows educational systems to dynamically respond to learner interactions in real time, adjusting learning materials and assessments to better suit the needs of the individuals involved in the educational system. This personalisation is crucial to optimise the educational process and improve learning outcomes for each student (Chen & DeBoer, 2015). In addition to enhancing individual learning, it is also closely linked to the ability to foster collaboration among students. By providing immediate feedback, students can adjust their contributions in group discussions and collaborative projects more effectively (Popta et al., 2017).

However, many faculty members have highlighted challenges in implementing e-learning in university institutions due, in part, to a lack of teacher preparation and training. The effectiveness of online teaching

depends to a large extent on the digital skills of teaching staff in designing and managing online courses. In addition, they point out that another difficulty they encounter are technical problems, mainly in terms of high-speed Internet access or availability of resources, which can affect the quality of interaction with students. One example is the case of a university lecturer who, after years of face-to-face teaching, found herself disoriented when she had to adapt her courses to a digital format in a short period of time. Despite her experience in the subject, the lack of specific training in digital tools and online pedagogy led her to feel insecure and less effective in her teaching (Mureșan & Gogu, 2012). These needs become an additional challenge for university institutions to provide the necessary training for quality online education. This digital divide is an obstacle not only for teachers but also for students, as some students have limited access to technologies, which can affect their academic performance. In a similar study, a teacher at a rural university shared how the lack of high-speed Internet access in his community affected not only his ability to teach online, but also his interaction with his students (Faloye et al., 2020).

In relation to teaching, teachers highlight some challenges in implementation. While some aspects of online learning allow for quick and automatic feedback, others require more detailed responses that can be time-consuming for teachers. An example of this is a literature teacher, who explained that while multiple-choice quizzes can be automatically corrected, essays and literary analyses require detailed and personalised feedback, which demands more time and effort on his part. This situation can compromise the quality of feedback and ultimately student learning (Cubillas et al., 2023). Thus, some teachers report that moving from face-to-face to online education can significantly increase their workload, as they must adapt content for digital format, manage multiple online platforms and respond to a higher volume of electronic communications from students. One engineering professor, who began teaching online during the pandemic, described how the need to adapt content to be interactive and suitable for digital platforms was far more time-consuming than he had anticipated. In addition, the need to respond to an increasing volume of emails and individual student queries, which were previously resolved quickly in the classroom, contributed to a significant increase in her daily workload. This increased responsibility resulted in a higher level of stress, which affected her personal and professional well-being (Babushko et al., 2022).

To address the second research question (**RQ2**) on future recommendations for using e-learning in university institutions, we can break it down into two main perspectives for the future. Firstly, it is essential to establish clear and coherent educational guidelines and policies for the implementation and assessment of online learning in university institutions. This will not only improve the quality of education but also ensure that students receive adequate and effective training through digital platforms (Area-Moreira et al., 2021). From the students' perspective, clarity and coherence in educational policies are essential to ensure a smooth and meaningful learning experience. Students value the flexibility offered by online education, especially those who combine studies with work or family responsibilities. However, they also demand institutional structure and support to enable them to make the most of these learning opportunities. The lack of clear policies can generate uncertainty and diminish the quality of the educational experience, affecting students' motivation and academic performance (Area-Moreira et al., 2021). On the other hand, teachers also play a crucial role in the implementation of these policies. Training and continuous professional development for teachers is necessary to ensure that they are prepared to meet the challenges of the digital environment. Teachers need clear guidelines to help them design and implement online education programmes that are effective and adaptable to students' needs. Without a well-defined policy framework, teachers may feel disoriented and overburdened, which could have a negative impact on the quality of teaching (Avello Martínez & Duart, 2016).

The need for well-defined educational policies will help institutions to adapt and continuously improve their online teaching methods. Likewise, these guidelines should take into account the design of online education programmes considering the needs of adults seeking flexibility in their training (Avello Martínez & Duart, 2016). This implies adapting content and methodologies to ensure that they are accessible and relevant for people of all ages, thus facilitating continuous learning and lifelong professional training. These recommendations not only address current concerns but also look at the sustainability and future evolution of online learning in the university context. As a result, institutions that adopt these recommendations will be better equipped to offer high quality education that is inclusive, accessible and adaptable to the changing needs of society.

CONCLUSION

The present research reveals valuable findings on the perspectives of online learning. On the one hand, it offers a broad and promising vision of the future of education as long as we are aware of the obstacles and are able to overcome them. Through this analysis, it can be concluded that e-learning has a number of significant advantages that are highly beneficial for the improvement of the teaching and learning process of students. This educational modality not only facilitates access to education at any time and from anywhere, but also promotes the development of essential digital competences in an increasingly technological world. Along these lines, perspectives on e-learning highlight its potential to transform education, but also point to the importance of carefully addressing its implications and challenges in order to maximise its benefits and ensure equitable and quality education for all.

Limitations

Some limitations identified in this study include the restricted geographical scope, given that its focus is on the perceptions of higher education teaching staff at the universities of Seville and Cadiz, which could limit the generalisability of the findings to a national level. It would be useful to carry out complementary research with stratified samples covering different autonomous communities and provinces in Spain in order to obtain a more comprehensive and representative perspective. Furthermore, by focusing exclusively on teachers' perceptions, a more comprehensive understanding may have been overlooked. It would be advisable to also incorporate students' perspectives in order to enrich the analysis with additional dimensions. In this way, a more holistic and complex perspective could be obtained, bringing more knowledge to the scientific community.

Recommendations and Future Lines of Research

The findings obtained in this research suggest several recommendations related to the use and implementation of online learning in the education system. Firstly, improving the technological infrastructure, ensuring that all educational institutions have high-speed Internet access and appropriate devices is critical to bridging the digital divide and ensuring that online learning is a viable option for all students. Secondly, it is essential to provide continuous training and support for teachers. Teachers play a crucial role in the effective implementation of online learning. Looking at future lines of research, a focused study from the perspective of learners could be established, resulting in gaining more knowledge and real insight into the implementation of this digital tool in the education system.

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APPENDIX A

Questions to Obtain the Expert Competence Quotient

A. Please tick the box that corresponds to the degree of knowledge you have on the following topics: ICT teacher training, ICT and inclusive education, disability, accessibility, ICT and disability, … Please rate yourself on a scale of 0 to 10 (0 being no knowledge and 10 being full knowledge of the state of the art).

Table A1. Degree of knowledge

0	1	2	3	4	5	6	7	8	9	10

Note. The score Kc (knowledge coefficient – value from 0 to 10 is obtained)

B. Self-assess the degree of influence that each of the following sources has had on your knowledge and criteria on the subject of teacher training in ICT, ICT and inclusive education, disability, accessibility, ICT and disability, …

Table A2. Degree of influence

	Low	Medium	High
Theoretical analysis carried out by you	0.30	0.20	0.10
Your experience gained from your practical activity	0.50	0.40	0.20
Work study on the subject by Spanish authors	0.05	0.02	0.01
Study of work on the subject by foreign authors	0.05	0.04	0.02
Your own knowledge about the state of the problem abroad	0.05	0.02	0.01
Your own intuition on the subject	0.05	0.04	0.02

Note. The Ka score is obtained (argumentation coefficient – value the sum of the answers given by the expert, according to the score is detailed)

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