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Perspectives of Higher Education in Spanish and Portuguese Institutions on Artificial Intelligence: A Content Analysis

Perspectivas de la Educación Superior en instituciones españolas y portuguesas sobre la inteligencia artificial: un análisis de contenido

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ABSTRACT

In the past two years, artificial intelligence has made its way into the daily lives of citizens and, consequently, has also reached higher education institutions. It's incorporation has raised doubts and expectations, prompting many universities to guide their communities by creating reference documents. In this context, the present research aims to analyse institutional documents on the use of artificial intelligence in universities. To this end, a systematic search was conducted in 91 Spanish institutions and 97 Portuguese institutions. From these 188 higher education institutions, a total of 19 documents were obtained and subjected to content analysis. The results indicate that one of the main opportunities offered by the use of artificial intelligence is the personalisation of learning. At the same time, one of the most significant challenges lies in the role that artificial intelligence will play in education, as it undoubtedly involves rethinking certain teaching-learning processes and taking into account certain ethical considerations.

RESUMEN

En los últimos dos años, la inteligencia artificial se ha abierto paso en la vida cotidiana de los ciudadanos y, en consecuencia, también ha llegado a las instituciones de enseñanza superior. Su incorporación ha suscitado dudas y expectativas, lo que ha llevado a muchas universidades a orientar a sus comunidades mediante la creación de documentos de referencia. En este contexto, la presente investigación pretende analizar los documentos institucionales sobre el uso de la inteligencia artificial en las universidades. Para ello, se realizó una búsqueda sistemática en 91 instituciones españolas y 97 portuguesas. De estas 188 instituciones de enseñanza superior, se obtuvieron un total de 19 documentos que fueron sometidos a un análisis de contenido. Los resultados indican que una de las principales oportunidades que ofrece el uso de la inteligencia artificial es la personalización del aprendizaje. Al mismo tiempo, uno de los retos más significativos reside en el papel que la inteligencia artificial desempeñará en la educación, ya que sin duda implica replantear ciertos procesos de enseñanza-aprendizaje y tener en cuenta ciertas consideraciones éticas.

KEYWORDS – *PALABRAS CLAVE*

Artificial Intelligence, Higher Education, University, Teaching-Learning, Content Analysis

Inteligencia artificial, Educación Superior, Universidad, Enseñanza-aprendizaje, Análisis de contenido

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1. INTRODUCTION

The last decade has been marked by significant changes, many of which are related to technological and digital innovation (Saavedra, 2016). In this context, as the European Parliamentary Research Service (2020) points out, Artificial Intelligence (AI) has also been part of these changes, transforming different areas of citizens' daily lives. These areas undoubtedly include the teaching-learning (T-L) processes in higher education, with opportunities on the one hand and challenges and ethical dilemmas on the other (Zawacki-Richter et al., 2019). In higher education, the use of AI has increased significantly over the past five years, partly due to the proliferation of available tools (Chu et al., 2022).

AI is a broad, multidisciplinary field that encompasses classical search and automated reasoning methods, as well as deep learning techniques and autonomous agents (Russell & Norvig, 2022). In recent years, however, attention has increasingly focused on generative AI—systems capable of producing original content such as text, images, or code. This surge in interest is reflected in the proliferation of guidelines, standards, and recommendations published mainly from 2022 onwards, including UNESCO's *Recommendation on the Ethics of Artificial Intelligence* (2022), the OECD's *Guidelines for Evaluation* (2023), and the *Artificial Intelligence and Education Report* by Oficina C, highlighting the urgent need for robust governance frameworks for these technologies.

As a result, both private and public organisations have shown interest and contributed their views on the topic. For example, the technology company Intel (n.d.) proposes a number of reasons for integrating AI in higher education, including the possibility of accelerating research processes and the importance of training future generations in innovation, among others. Another organisation that has commented on the issue is Educause, which has tried to define the opportunities, risks, good uses and uses that involve some risk (Robert, 2024). Similarly, and taking into account these risks from a more ethical perspective, the European Commission (2022) has developed a guide on the ethics of AI integration for educators, which considers elements such as human agency, fairness, humanity and justified choice.

In this vein, one of the most recent and comprehensive frameworks in the context of higher education is that proposed by UNESCO (2023), entitled Harnessing the Era of Artificial Intelligence in Higher Education: A Primer for Higher Education Stakeholders. Such a framework is the one adopted in this article, which explores the implications of AI for higher education and serves as a comprehensive and practical tool for higher education stakeholders to guide them in the responsible implementation and use of AI. The guide covers an understanding of AI, its techniques and subfields, and how it can be applied in learning, teaching, and assessment to personalise education and analyse student progress. It also examines higher education administration and management, highlighting improvements facilitated by AI. Academic research is discussed with a focus on AI tools and their ethical implications. Additionally, the guide analyses the transition from higher education to the labour market in the AI era and addresses key challenges such as technological inequality and inclusion issues. The ethics of AI in higher education are emphasised, underscoring the need for clear guidelines. Finally, the report offers a practical guide for the responsible integration of AI into educational institutions. For this article, we will focus on the sections AI and Learning, Teaching and Assessment, Key Challenges for AI in Higher Education and The Ethics of AI in Higher Education. The following is

a brief summary of the concepts established in the framework, on which the analysis is focused. As will be seen later in the methodology section, the coding of the analysis carried out in this article has been extracted from this framework (Table 1).

Table 1

Description of the concepts studied according to the document proposed by UNESCO (2023) on AI in higher education

AI and Learning, Teaching, and Assessment	Details how AI can be applied to improve the educational process. AI facilitates personalised learning by providing individualised feedback and identifying students who need additional support. Technologies such as intelligent tutoring systems, chatbots, and augmented/virtual reality are explored to support students and professors. Additionally, AI plays a crucial role in analysing and assessing student progress, helping to detect patterns and provide appropriate support and teacher professional development
Key Challenges for AI in Higher Education	Examines the main challenges associated with using AI in higher education. Topics discussed include global inequality in AI distribution, issues of inclusion and diversity, and environmental sustainability. Also discusses the future of AI in higher education and the need for institutions to prepare for these changes
The Ethics of AI in Higher Education	Discusses the importance of implementing ethical guidelines for the use of AI in higher education institutions. Based on the UNESCO Recommendation on the Ethics of Artificial Intelligence (UNESCO, 2021) presents values and principles that should guide moral conduct in the development and use of these technologies. This section addresses academic integrity, regulation, data security and privacy, data bias, and commercialisation of AI

Undoubtedly, this interest in understanding and addressing AI in T-L processes is rooted in a gap regarding the possibilities and responsibilities associated with its integration in educational contexts and, more specifically, in higher education (Zawacki-Richter et al., 2019). Accordingly, this article aims to analyse official documents that address AI, specifically guides, recommendations, regulations, and informs addressed to professors and students from higher education institutions located on the Iberian Peninsula — specifically in Spain and Portugal—. The analysis will focus on the dimensions of opportunities, challenges, and ethics of AI.

Based on this aim, a set of research questions will be addressed in relation to the use of AI at the university. Firstly, the opportunities and challenges of AI for students and professors will be explored (RQ1: What opportunities and challenges does AI imply for students and professors?) Secondly, it examines the ethical implications of using AI in education (RQ2: What ethical implications are considered when using AI in education?) These questions are central to understanding the current landscape and future directions of AI integration in higher education.

2. METHODOLOGY

The research was carried out from a qualitative and descriptive perspective, based on what Krippendorff (2018) refers to as documentary and content analysis. In this case, specifically, the analysis was carried out on texts and as indicated by Sánchez et al. (2021), it consists in interpreting and understanding written texts, taking into account the context in which they were produced. In this case, as detailed in the Procedure section, all publicly available documents produced by the institutions regarding the use of AI were included and analysed using the statistical analysis software Atlas.ti.

2.1. Procedure

The process began with a systematic search of the websites of all higher education institutions in Spain (n=91) and Portugal (n=97), covering a total of 188 public and private institutions. The inclusion criterion was the presence of an open institutional document aimed at the university community that provided instructions or guidance on the use of AI (Table 2).

Table 2

Inclusion and exclusion criteria.

Inclusion	Exclusion
Content focus on AI guidance: The document must provide instructions, recommendations, or guidance specifically related to the use of AI.	**Lack of AI focus:** Documents that mention AI incidentally but do not offer specific instructions or guidance on its use are excluded.
Open-access availability: The document must be publicly accessible without restrictions	**Restricted access:** Documents not available openly.

Once the documents for analysis were located, an analysis process was conducted using Atlas.ti software, version 24 (ref. L-689-15D). The coding framework was based on UNESCO's guide "Harnessing the Era of Artificial Intelligence in Higher Education: A Primer for Higher Education Stakeholders" (2023), with sections such as "AI and Learning, Teaching, and Assessment," "Key Challenges for AI in Higher Education," and "The Ethics of AI in Higher Education". This framework allowed for a structured analysis grounded in an established international reference, ensuring that the evaluation of the documents was both systematic and aligned with recognised global priorities in the field of AI and higher education. The main categories used are presented in Table 3.

Table 3

Dimensions and Categories of Analyses

Dimensions	Categories
Dimension 1: AI opportunities in learning, teaching and assessment	1.1. Personalised learning 1.2. Learner inclusion and wellbeing 1.3. Analysing and assessing student progress 1.4. Teacher professional development
Dimension 2: Challenges for AI in higher education	2.1. Global inequality in the distribution of AI 2.2. AI, inclusion and diversity 2.3. AI and sustainability 2.4. The future of AI and higher education
Dimension 3. Ethics of AI in higher education	3.2. Academic integrity 3.4. Regulation and guidelines 3.5. Data security and privacy 3.6. Data bias 3.7. Commercialisation

2.2. Sample analysed

The search described above produced a total of 19 documents, which are described in Table 4 —It should be noted that the table includes documents from Spanish institutions and one document from a Portuguese institution, as no other open-access documents with these characteristics were identified in Portuguese institutions at the time of analysis—. Of these 19 documents, 18 come from Spanish universities and one from a Portuguese university. In terms of date of publication, most of them (n=13) were published for the first time in 2023, others do not give a date of publication (n=5), and only one was published in 2024. Finally, regarding the language of publication, documents in Spanish, Catalan, English, and Portuguese were found.

It's important to highlight the diversity of the 19 documents found, of which seven were information available on web pages, and 12 were PDF documents. Among the variety of documents, universities often use the terminology of recommendations, guidelines and reports.

Table 4

Dimensions and Categories of Analyses

Language	Institution[a]	Country	Date of publication	Document Type
Spanish	Universidad Autónoma de Madrid	Spain	n/d	PDF document
Spanish	Universidad Carlos III de Madrid	Spain	July 2023	PDF document
Spanish	Universidad Complutense de Madrid	Spain	July 2023	PDF document

Language	Institution[a]	Country	Date of publication	Document Type
Spanish	Universidad de Burgos	Spain	March 2024	PDF document
Spanish	Universidad de Granada	Spain	n/d	Web page
Spanish	Universidad de Málaga	Spain	n/d	Web page
Spanish	Universidad de Murcia	Spain	May 2023	PDF document
Spanish	Universidad Europea de Madrid	Spain	September 2023	PDF document
Spanish	Universidad Internacional de La Rioja	Spain	December 2023	PDF document
Spanish	Universidad Nacional de Educación a Distancia	Spain	October 2023	PDF document
Spanish	Universidad Rey Juan Carlos	Spain	June 2023	PDF document
Portuguese	Universidade de Lisboa	Portugal	November 2023	PDF document
Spanish	Universitat de Barcelona	Spain	October 2023	PDF document
Catalan	Universitat de Vic	Spain	n/d	PDF document
Catalan	Universitat Jaume I	Spain	February 2023	Web page
Spanish/Catalan/English	Universitat Oberta de Catalunya	Spain	October 2023	Web page
Catalan	Universitat Pompeu Fabra	Spain	n/d	Web page
Catalan/Spanish	Universitat Ramon Llull	Spain	December 2023	Web page
Catalan	Universitat Rovira i Virgili	Spain	July 2023	Web page

Note. An Order by institution.

3. RESULTS

The results obtained after an in-depth analysis of the 19 documents included in the content analysis carried out by means of the selection process described in the previous section are developed below in relation to the research questions presented previously. In this sense, following Gibbs (2012), both narrative and descriptive results are presented, combining both quantitative information and illustrative examples.

3.1. Opportunities and Challenges of Integrating AI Into T-L Processes

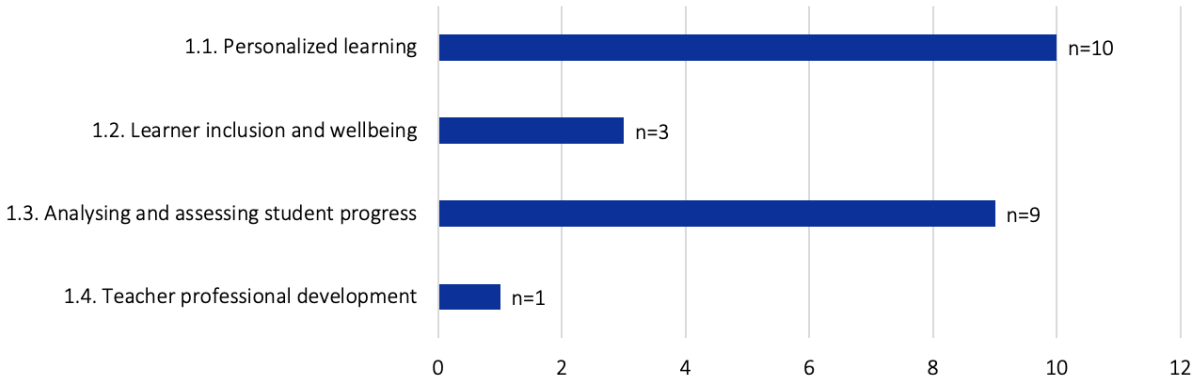
In this section, taking as a reference the classification of AI opportunities in T-L and evaluation and the challenges of UNESCO (2023) mentioned in the mythology —dimensions 1 and 2 in Table 2—, the documents have been analysed with a focus on these concepts since both dimensions are closely related.

3.1.1. AI opportunities in learning, teaching and assessment

AI is perceived as an opportunity in 17 of the documents. In these 17 documents, the opportunities provided by AI in education are most frequently seen as centred on its use for the personalisation of learning (1.1) (n=10), analysis and assessment of student progress (1.3) (n=9), learner inclusion and wellbeing (1.3) (n=3) and Teacher professional development (1.4) (n=1), as can be shown in Figure 1.

Figure 1

Frequency of Dimension 1: AI opportunities in learning, teaching and assessment



In this part, with the potentialities that appear with greater frequency in the texts analysed, we find proposals such as that of the Universitat de Barcelona (2023), which considers that the use of AI in education can facilitate the creation of virtual and personalised learning environments for students or, also, the conception of the Universidad Internacional de la Rioja (2023) who also perceive an opportunity for personalisation of learning through the use of virtual assistants who can solve questions, tasks and queries about the contents worked on in the classroom, thus responding more quickly to the individual needs of the student body. In terms of the assessment and monitoring opportunities provided by AI in higher education, it is considered that language models can be used as a more accurate option for accessing, processing and generating feedback information (Universidade de Lisboa, 2023). In addition, applying AI can facilitate providing instant feedback by reviewing certain types of learning proposals in real-time (Universitat Pompeu Fabra, n.d.).

However, it should be noted that there are also several universities that consider it important to take advantage of this facility for monitoring, which should be complemented with tasks that promote student self-reflection in relation to their internships and work (Universitat Jaume I, 2023). In an intermediate range of frequency are all those ideas that have been labelled as "other".

Throughout the study, it has been considered appropriate to include this type of label, given that it has been used to mark other types of potential that are not explicitly mentioned in the UNESCO document. The decision is mainly due to the fact that several institutions consider that there are other possibilities closely related to the generation of content or the development of critical thinking (n=6). For example, the Universidad de Malaga (n.d.) points out that the use of this type of tool can be of help in carrying out content generation tasks in different formats (video, image, text) and also for translation or transcription. In this sense, there are universities

such as, for example, the Universidad Autónoma de Madrid (n.d.), consider that this use of the generative possibilities of AI must necessarily involve accompanying students in the construction of prompts and the development of both critical thinking and creativity so that the use of AI is not merely for the generation of content without reflection but involves reasoning, exploration and decision-making.

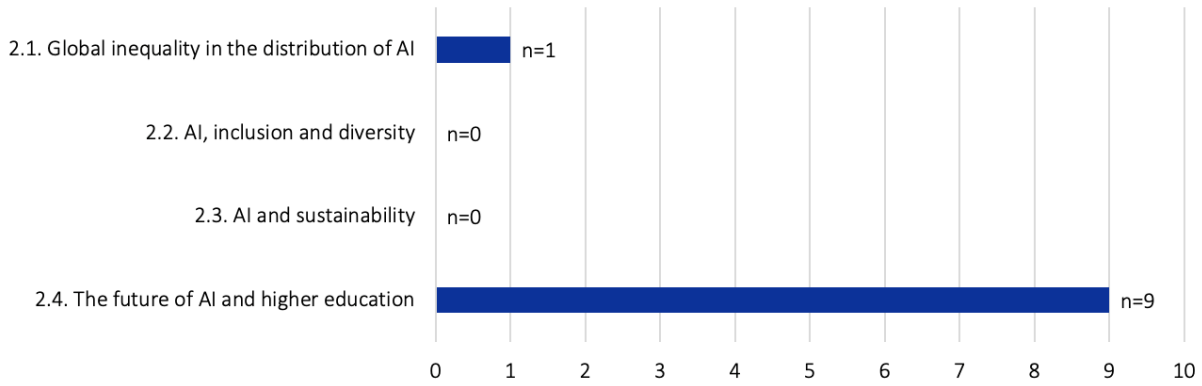
In the range of the least frequent labels are those related to inclusion and wellbeing of learners (n=3) and teacher professional development. Among these labels are ideas related to the personalisation of learning by adapting resources and Universal Design for Learning guidelines and the personalisation of recommendations according to the needs of students (Universitat Rovira i Virgili, 2023). Even so, for all this to happen, according to the Universitat de Barcelona (2023), it is essential to train teaching staff in the use of AI in teaching.

3.1.2. Challenges for AI in higher education

UNESCO (2023) proposes a total of 4 challenges for AI in higher education. AI is perceived as an opportunity in 10 of the documents. In these 10 documents, the challenges provided by AI in education are most frequently seen as centred on the future of AI and higher education (2.4) (n=9) and Global inequality in the distribution of AI (2.1.) (n=1). No records were found in the analysed documents regarding inclusion and diversity (2.2) and sustainability (2.3), as can be shown in Figure 2.

Figure 2

Frequency of Dimension 2: Challenges for AI in Higher Education



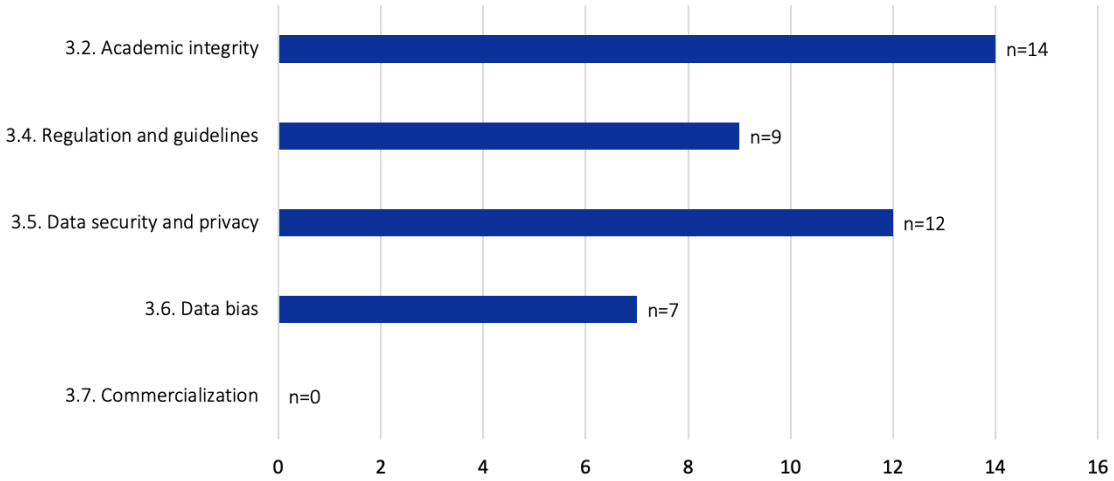
The main ideas that emerge in the texts are closely related to ethical considerations - which are developed in depth in the following section - and the potential risks derived from its application (Universidad de Granada, n.d.), the veracity of the information used in T-L processes (Universitat de Barcelona, 2023) or the rethinking of T-L processes, evaluation and the teaching role (Universidad Rey Juan Carlos, 2023). On the other hand, concern about possible inequality of distribution is less frequently mentioned (n=1). The Universidad de Burgos (2024) considers that there may be digital divides and inequalities in access to AI that need to be taken into account in their integration into higher education T-L processes.

3.2. Ethics of AI in Higher Education

Ethics is a concept that appears in 15 of the 19 documents analysed. In these 15 documents, Academic Integrity (3.2) (n=14) is most frequently mentioned, followed by concerns about Data Security and Privacy (3.5) (n=12) and Regulation and Guidelines (3.4) (n=9). The same frequencies were noted for Data Bias (3.6) (n=7) and Commercialisation (3.7) (n=0), as can be shown in Figure 3.

Figure 3

Frequency of Dimension 3: Ethics of AI in Higher Education



3.2.1. Academic integrity

When considering the global analysis (all dimensions), academic integrity had the highest number of identifications in the documents (n=14), corroborating the assertion by Universidad Rey Juan Carlos (2023) that one of the main concerns raised by the use of ChatGPT in higher education pertains to academic integrity. Plagiarism was a central theme discussed in ten of the topics addressed in these documents (n=14). These documents address the issue of plagiarism from different perspectives, ranging from the warning that indiscriminate use can result in plagiarism without the user realising (Universitat Pompeu Fabra, n.d.) to the difficulty of anti-plagiarism tools in detecting it, as the generated content, although based on public or private information, is new and can infringe copyright (Universidad de Granada, n.d.; Universidad Nacional de Educación a Distancia, 2023).

Universidad de Málaga (n.d.) recommends that the teaching staff clearly establish plagiarism policies in their classes and educate their students about the proper use of these AIGen tools, as implemented by Universidad Nacional de Educación a Distancia (2023), which expressly states that, in the case of assessments and final projects, the incorporation of content generated by AIGen tools is not permitted, unless otherwise specified by the teaching staff in the task instructions. Universitat de Barcelona (2023) also highlights the importance of training students in the correct and ethical use of AI, emphasising that they should be aware that these tools can make mistakes and that submitting texts generated without proper review and filtering is not an ethical practice. This view is corroborated by Universidad Complutense de Madrid (2023), which indicates that teachers should demonstrate to students the negative

consequences of improper use of these tools for their learning, such as plagiarism and ignorance on certain topics.

It is essential that students clearly understand for what purposes they can use AI and for what they should not use it. Furthermore, they must recognise the need to properly credit the sources and tools used in the preparation of their work, thus avoiding presenting as their own any content that was not produced by themselves (Universidad de Málaga, n.d.).

Regarding the use of materials generated by these tools, Universidad Autónoma de Madrid (n.d.) and Universidad Complutense de Madrid (2023) warn that, besides plagiarism resulting from the verbatim copying of texts without giving due credit, the use of these materials without analysis, reflection, and subsequent elaboration is a mechanical activity that does not promote learning.

In relation to the intellectual property of AIGen, two main perspectives are discussed: Universidade de Lisboa (2023) focuses on the material produced by these tools, while Universidad Europea de Madrid (2023) and Universitat Rovira i Virgili (2023) address the intellectual property of the material used to train AIGen.

According to Universidade de Lisboa (2023), Portuguese legislation clarifies that the content generated by these tools is not protected by copyright and can be used freely, provided it is properly cited and identified in the academic work. However, it is not necessary to attribute co-authorship to AIGen.

On the other hand, Universidad Europea de Madrid (2023) and Universitat Rovira i Virgili (2023) point out intellectual property issues related to the fact that AI systems need large volumes of information and data to be interpreted by the algorithms, and this existing information may be subject to copyright. Universitat Rovira i Virgili (2023) also points out how countries have controversial positions on this point; the United States seems to have a more liberal view in this regard, while in Europe, countries like Italy have already banned the use of ChatGPT due to potential intellectual property issues.

Assessment was also a topic addressed in relation to its academic integrity. Universidad de Granada (n.d.), Universidad Nacional de Educación a Distancia (2023), and Universidad de Málaga (n.d.) emphasise that it is essential to adapt teaching and assessment methodologies to respond to these new challenges posed by AI, considering that, as mentioned earlier, there is an inability of plagiarism detection tools to identify texts generated by AI. Universidad Autónoma de Madrid (n.d.) recommends that students strictly follow the rules and limits set by teachers for conducting assessments and tasks, being crucial, in any circumstance, to reference the AI tools used and to cite all sources from which information was obtained.

3.2.2. Regulation and guidelines

Universitat de Barcelona (2023) emphasises the importance of training teachers in the use of AI so that they can reap its benefits in the classroom, ensuring that teachers are well-informed about AI tools and can adequately integrate them into their teaching and assessment methodologies. Universidad Complutense de Madrid (2023) suggests that teachers, through

training actions, should not oppose the use of these tools, but act as mentors and guides, helping students to use them effectively and ethically from the outset.

Universidad Europea de Madrid (2023) and Universidad Internacional de La Rioja (2023) go a step further, proposing the creation, maintenance, and updating of specific training for the university community, students, administrative staff, and teachers on ethics, its impacts and consequences, ensuring that everyone is aware of the ethical and practical aspects involved, as well as the implications of using AI. Universidad Internacional de La Rioja (2023) also refers to training objectives that include following responsible practices in the use, distribution, dissemination, and production of AI-based technologies and services, in accordance with ethical standards.

Universidad de Burgos (2024) sees training as something more structured, proposing the development of curricula on AI ethics at all educational levels. This involves challenges such as collaboration between technical and humanistic skills and the ethical training of researchers. The integration of these areas is fundamental for a holistic and ethical approach to AI in education.

Universidad de Granada (n.d.) stands out for having institutionally adopted Microsoft's Copilot, an AI-powered coding assistant tool, which, at least in the corporate version, follows strict guidelines to protect user information, preventing the use of this data to improve machine learning algorithms.

3.2.3. Data security and privacy

Universitat de Barcelona (2023) highlights the importance of investigating the impact of AI on education to ensure its safe use. Universidad de Málaga (n.d.), Universidad Autónoma de Madrid (n.d.), Universitat Pompeu Fabra (n.d.), and Universitat Ramon Llull (2023) emphasise the importance of securely and privately storing and processing data, ensuring that everyone is aware of data privacy laws, particularly the GDPR. Universidad de Burgos (2024) further raises concerns about transparency in data collection by AIGen tools, a concern echoed by Universidad de Granada (n.d.), which warns that information becomes public and beyond the user's control. Therefore, it is essential not to input personal or confidential data into these platforms.

To mitigate these risks, Universidad Europea de Madrid (2023) proposes adopting an ethical framework for AI, including regular audits to detect biases, privacy issues, and unfair outcomes, in addition to avoiding and combating the use of AI techniques that compromise the privacy or security of students. Universidad Complutense de Madrid (2023) and Universidad Nacional de Educación a Distancia (2023) emphasise the need to avoid inputting personal, professional, third-party, or confidential information into AIs, as this data is used to train the systems and can be disclosed without control.

Universidad de Granada (n.d.) stands out for having institutionally adopted Microsoft's Copilot, an AI-powered coding assistant tool, which, at least in the corporate version, follows strict guidelines to protect user information, preventing the use of this data for training AIGen.

3.2.4. Data bias

Bias can arise at various stages of the data lifecycle, including collection, treatment, and processing. For example, bias in the labelling process occurs when the classification of data is influenced by human prejudices. In the selection of the data set, bias is introduced when the data is not representative of the actual population. Cognitive bias refers to human prejudices that influence the collection and interpretation of data. Gender bias, specifically, occurs when data reflects gender prejudices and stereotypes, resulting in models that perpetuate these inequalities.

Universitat Pompeu Fabra (n.d.), Universidad de Málaga (n.d.), and Universidad Nacional de Educación a Distancia (2023) warn of the possibility that the data used to train AI may be biased or contain prejudices (social, linguistic, hegemonic worldviews), causing these biases to be perpetuated in their responses, which aligns with Universidad Autónoma de Madrid (n.d.), which recommends vigilance regarding biases in AI use.

Conversely, concern about the construction of data sets that can be used to train these tools leads Universidad Europea de Madrid (2023) to expressly recommend the development of inclusive and fair data sets to train AI systems, ensuring that representative data helps to avoid biases. Universidad Internacional de La Rioja (2023) proposes the development of AI products and services, ensuring that AI does not perpetuate or amplify existing inequalities but serves as a tool to promote equity and inclusion in society.

4. DISCUSSION AND CONCLUSSION

Recent developments and the increased adoption of AI tools have led to growing calls from educators, policymakers, and private sector leaders for more regulation and guidelines. This heightened scrutiny has culminated in calls for regulatory interventions (UNESCO, 2023). Higher education institutions, in particular, have shown significant interest in producing documents to support both teachers and students in this evolving landscape. Moreover, this interest is also evident in the fact that the documents available are in several languages - Spanish, Catalan, English and Portuguese - which indicates a clear interest on the part of higher education institutions to share their reflections and concerns, given that as Fan et al. (2024) point out, although the target audience is multilingual, there is often a preference for content in the first language.

The framework used in this article presents AI as a transformative force capable of revolutionising higher education by offering personalised learning tools, intelligent tutoring systems, and augmented and virtual reality technologies. However, it also highlights the associated risks and challenges, such as the ethics of AI use, data privacy, and the need to avoid algorithmic biases. Effective AI integration requires not only technical and ethical expertise but also a cultural shift within higher education institutions to fully embrace this new technology (UNESCO, 2023).

In relation to the first research question, corresponding to the opportunities and challenges of integrating IA in higher education, higher education institutions undoubtedly perceive a number of possibilities arising from the integration of AI in teaching-learning processes. One of

the recurring ideas in the content analysis, which is also reflected in the existing literature, is closely linked to the possibility of providing personalised feedback adapted to the interests of the students, thus promoting a greater degree of autonomy in their learning process (Michel-Villarreal et al., 2023).

As mentioned above, universities such as the Universitat the Barcelona (2023), the Universidad de la Rioja (2023), the Universidade de Lisboa (2023) and the Universitat Jaume I (2023) highlight the usefulness of AI in creating personalised content for students. At the same time, they consider it necessary to go one step further by proposing activities that enable the reflective use of these tools. This last idea is closely linked to one of the questions that most concern some teachers today: What will be the role of the teacher with the integration of AI in education? In this sense, it is important to remember that although AI offers many possibilities and facilitates the support of the tasks inherent in any T-L process, it is still a technological tool, not a human one. Therefore, the role of teachers, researchers and higher education institutions today is closely linked to the idea of designing and planning a context that safely integrates AI (Tubella et al., 2024).

Indeed, with regard to the second research question, one of the main concerns when discussing the integration of AI in T-L processes is ethics. The urgency of this issue is underlined by various directives, such as those of UNESCO (2019, 2021), the European Commission (2022) or, more recently, the Conference of Rectors of Spanish Universities (CRUE) (2024), which have developed guidelines and recommendations that take into account the importance of ethics and the challenges that all this entails. This is clear from the documents analysed, as the main concerns of the universities are, on the one hand, the future of higher education and, on the other hand, the different ideas about the ethics of the use of IA. In this direction and in response to these two concerns, the Universitat de Barcelona (2023) is of the opinion that there is a need for continuous training, ethical education and responsible integration of AI tools in educational environments.

In the same vein, and focusing on the importance of continuous training for today's teachers both to carry out their profession and to provide adequate support to students in their education it is clear that it is essential for university teachers to develop their digital competence and for higher education institutions to support them in doing so (Basantes-Andrade et al., 2020). Furthermore, and considering that, as Castañeda et al. (2023) point out, DigCompEdu is a tool that institutions use as a reference when planning their digitisation processes, it would be interesting to include some indicators that explicitly refer to AI. Cukurova et al. (2024) suggest that teacher training in AI should focus on three main areas: (1) ethics, (2) pedagogical potential, and (3) technical knowledge.

It should be noted that the present study was carried out between late spring and early summer 2024 and that IA is a current and daily published element, so it is possible that some institutions may have updated or generated content after the work was carried out. It should also be noted that although the search was systematic, documents may have been inadvertently omitted due to differences in terminology or document privacy. Nevertheless, the article provides an overview of the situation and the perceptions of higher education institutions in Spain and Portugal, which may be useful for planning possible interventions and accompanying both teachers and students in their approach to AI and all these new tools, which it is essential to

lose the fear and anxiety, because of the AI capabilities and potential implications, and learn to use in order to be part of the citizenship of the current century (Li & Huang, 2020).

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Conceptualization, C.C.S.; data curation, A.S.-C. and C.C.S.; formal analysis, A.S.-C. and C.C.S.; funding acquisition, A.S.-C. and C.C.S.; investigation, A.S.-C. and C.C.S.; methodology, A.S.-C.; supervision, A.S.-C.; writing-original draft preparation, A.S.-C. and C.C.S.; writing-review and editing, A.S.-C.

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