Izzivi prihodnosti / Challenges of the Future, Članek / Article
Avgust / August 2023, leto / year 8, številka / number 3, str. / pp. 148-177.

DOI: 10.37886/ip.2023.007

AI and Organizational Transformation: Anthropological Insights into Higher Education

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Abstract:

Research Question (RQ): What are the emerging practices that vehicle the institutionalization process of artificial intelligence (AI) systems in teaching, learning, and research practices? What are the emerging perceptions related to the implementation and use of AI systems in higher education (HE)?
Purpose: The paper aims to explore and analyze, from an anthropological perspective, the impact of AI systems on teaching, learning and research practices and meanings in HE, including the ethical and moral considerations related to their implementation and use.
Methods: This study utilized an ethnographic framework and an online ethnography to explore the relationships between practices and meanings in the implementation of AI systems in HE. It also conducted a systematic review of studies on the use of AI in HE in Google scholar, Scopus, Springer and ScienceDirect to identify dominant themes and concepts. The research considered the cultural context in which AI practices are situated and explored how AI influences and is influenced by cultural norms, values and power dynamics.
Results: The research reveals how the introduction of AI systems affects teaching, learning and research practices and perceptions at HE. It sheds light on the silenced aspects of social practices and perceptions around this issue to provide elements for ethical development and use of AI systems.
Organization: The study seeks to raise the awareness of HE organizations about the potential impact of AI systems on teaching, learning, and research processes. It can guide educational institutions to make informed and ethical decisions regarding the implementation and use of AI technologies in their educational practice through the lens of organizational anthropology.
Society: The societal impact of the study lies in its potential to (re)shape educational practices and perspectives and to foster important ethical discussions. By addressing the impact of AI in HE, the study contributes to the creation of a more informed and technology-aware society.
Originality: The originality of the study lies in the interdisciplinary combination of exploring the impact of AI systems on teaching, learning and research practices from an anthropological perspective.
Limitations / Further research: Limitations of the study include that it relies on mainstream news databases and does not consider the perspective of users (administrators, teachers, students). Inclusion of non-Western sources and surveys or in-depth interviews to capture administrator/teacher/student engagement with AI tools could improve future research.

Keywords: artificial intelligence systems, higher education, organizational anthropology, organizational culture, ethnographic framework, online ethnography, ethics.

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Prejeto: 13. julij 2023; revidirano: 15. julij 2023; sprejeto: 28. avgust 2023. /
Received: 13th July 2023; revised: 15th July 2023; accepted: 28th August 2023.

1 Introduction

Human-technology interaction has become a standard focus for organizational anthropologists (Jordan 2019). These studies emphasize stakeholder perspectives, with a particular focus on processes and the analysis of how people think, behave and interact with technological objects. This includes the study of meanings, values, practices and ethical implications. In light of this, a promising research topic has emerged with the launch of open access to Chat Generative Pre-Trained Transformer (ChatGPT, OpenAI, 2023) in November 2022. The free availability of generative "intelligent" robots (chatbots) for various tasks such as writing, designing images, videos and presentations, as well as their accessibility and user-friendly interface, have quickly attracted many users, leading to observations of heterogeneous reactions among colleagues in education regarding potential (positive/negative) changes in practice, the ethical use of artificial intelligence (AI) and related implications.

ChatGPT (OpenAI, 2023) is a chatbot based on a large language model and supported by AI. Undoubtedly, AI, understood as computer systems that mimic human intelligence in tasks such as learning, perception, reasoning, analysis and problem solving (Unesco, 2019a; 2019b), is a fascinating topic and field of study, mainly because of the promises, unknowns and myths surrounding this "material culture" of humanity. From an anthropological point of view, it can be seen as a dynamically emerging technological object, created in a specific social, economic, and historical context and developed by specific actors to (supposedly) improve people's quality of life (Moya & Vázquez, 2010).

AI systems accelerate change and constantly evolve, leading to new practices. This makes researching and constructing knowledge about this new phenomenon a challenge, but also a necessity (Czarniawska, 2012), especially in more conservative fields such as education, a central institution for "managing knowledge" and training people for society. Here, there are various enthusiastic accounts, but also questions about the integration of AI systems into the culture of teaching and learning. However, there is currently a lack of scholarly literature that attempts to understand the complex cultural layers that have influenced the institutionalization of AI in HE organizations and that includes the voices of the actors in this process.

In this context, the aim of this article is to explore these issues from an anthropological perspective. In this first research project, the following questions will be answered: What practices, i.e., actions, behaviors and other forms of human interaction observed in specific cultural contexts, facilitate the institutionalization process of AI systems in teaching, learning, and research? What emerging perceptions are associated with the implementation and use of AI systems in higher education (HE)? I want to explore that the perceived disruption of AI systems in the education system is interwoven with existing tensions regarding the integration of technology in the education sector and embedded in a broader context.

2 Theoretical framework

2.1 AI Development Through Time

Technology develops in specific cultural, social, economic, and political contexts. Kuhn (1970) and Foucault (2001) have provided a framework for understanding this development. Kuhn's "paradigms" represent the dominant beliefs, methodologies, and theories in a scientific field during a specific period. Foucault's "epistemes" shape knowledge assumptions, concepts and rules within a historical period and organize and structure understanding.

The drive to develop AI systems originated in a distinct positivist, technocratic and capitalist milieu. The early visionaries who laid the foundation for intelligent information-processing machines were active in the first decades of the 20th century, a time when the notion of AI robots capable of cognitive processes first emerged in the realm of science fiction (Rockwell, 2017). This fundamental paradigm has persisted in subsequent eras.

Before 1949, computers were not capable of storing instructions; they focused solely on executing them. It was not until the development of computers with stored programs that the foundation for intelligent information processing was laid. Moreover, the development and use of computers in this era was exorbitantly expensive (Bertsou & Pastorella, 2017), especially in academia, where these advances were focused.

From 1957 to 1974, AI technology made significant advances. Over time, engineers were able to transform computers into devices that could store larger amounts of information while becoming faster, more affordable, and increasingly accessible (Rockwell, 2017). Machine learning algorithms underwent remarkable improvements, and scientists refined their ability to select algorithms that best met their challenges. In 1965, ELIZA was the first chatbot developed that could replicate psychotherapeutic conversations. However, significant progress still needed to be made to achieve the ultimate goals of natural language processing (NLP), abstract reasoning and self-awareness.

Research progress slowed in the late 1960s, the 1970s and the 1980s, limiting technological progress and leading to delays in deployment, all of which hindered the growth and realization of AI's potential (Nilsson, 2010).

In the 1990s and 2000s, major corporations such as IBM, Microsoft, and Apple achieved major milestones in AI and drove innovation in the technology industry to generate revenue (Encyclopedia Brittanica, 2023). The flood of Big Data driving AI algorithms, combined with the improved computing power of machines, has accelerated experimentation. Deep learning techniques, known as deep neural networks, have enabled continuous machine learning from

experience and driven progress in image recognition, NLP, and other fields. NLP in particular has improved machine understanding and human-like language generation (Oxford Internet Institute & Google, 2023). In addition, expert systems that simulate human decision-making have been introduced, highlighting the evolving capabilities of AI.

Although OpenAI has been closely associated with AI over the last decade, it is important to recognize that the landscape of AI technologies is large and diverse. These technologies span a wide range of applications, including online shopping interfaces, web search engines, digital assistants (e.g., Siri, Alexa, Google Assistant), translation software (e.g., DeepL, Google Translate), self-parking vehicles, navigation systems (e.g., Google Maps), social networks (e.g., Facebook, LinkedIn, Twitter, or more recently X), and streaming platforms such as Netflix, Amazon Prime, and Spotify that use AI for personalized content recommendations. This underscores the significant impact and progress in AI, driven primarily by the dynamic engagement and significant investment of the private sector. Indeed, the involvement of private companies is a key driver for AI development. In 2022, there were 32 major machine learning models developed by industry, in stark contrast to the mere three models developed by academia in the past (HAI AI-Index Report, 2023).

On the other hand, AI technology is currently undergoing a proliferation and is in a phase commonly referred to as the "Age of Implementation". This phase marks the practical application of AI in the real world (Lee, 2018, p. 13, in Unesco, 2021b, p.7). Computer systems can process vast amounts of information, a task that would be overwhelming for individual humans. The widespread adoption of AI has led to significant changes that are reshaping traditional notions of work, expertise, information, communication, computing, and simulation, and even challenging the spatial boundaries of organizations (Latour, 1996). Consequently, the presence and integration of AI into daily life has fundamentally changed our perception of the world, and redefined various operational concepts in everyday life.

2.2 Defining AI

The concept of "artificial intelligence" is interpreted differently in different disciplines and from different points of view (Bearman, et al., 2022). In the context of organizational anthropology, AI is understood as an interdisciplinary field that aims to replicate human mental processes in technological design (Dodogovic, 2007 in Zawacki-Richter et al., 2019, p.16).

In policy terms, AI is defined by the AI ACT as machine-based systems that operate with different levels of autonomy, and produce outcomes such as predictions, recommendations, or decisions that affect physical or virtual environments (European Commission, 2023a). This act also emphasizes the ability of AI to mimic human reasoning, learning, planning, and creativity (European Commission, 2023b).

In education, AI serves as an umbrella term that encompasses technologies such as machine learning, natural language processing, data mining, neural networks and various algorithms

(Pedró, 2020). AI systems exhibit intelligent behaviors in observing, learning, forming abstractions, and solving problems (Foltynek et al., 2023). These systems play an important role in solving problems traditionally attributed to human intelligence (Popenici & Kerr, 2017).

The conceptualization of AI revolves around the notions of "intelligence" and "agency" (Floridi, 2023). However, the human-centric view of intelligence is only a fraction of the broader spectrum (Hoffman, 2015). The transformation of intelligence over the last century has led to its multi-faceted nature, encompassing different technologies and media (Latour, 1996). The advent of AI is prompting us to explore forms of intelligence that go beyond traditional human capabilities (Ortega, 2023).

AI systems generate coherent texts that resemble human communication, but they lack the subjective essence inherent in human expression (Ferrarelli, 2023). These systems are not truly intelligent but rely on statistical models for efficient and accurate responses (Leetaru, 2018 in Unesco, 2021b, p.11). Current natural language processing models often neglect the creative and social elements of human communication (de Jager, 2023).

The inherent biases of AI, shaped by the perspectives of its creators, can influence its results (Unesco, 2021b). Access to limited data sources, cultural biases, and linguistic differences affect AI results (Bender et al., 2021). Integrating AI technology into society also involves considerations of data privacy, carbon emissions, and resource use (Atlas, 2023; Pedró, 2020; Salas-Pilco & Yang, 2022).

In this context, understanding the information generation, ethical implications, and sustainable impacts of AI is crucial for its applicability in educational and research contexts (Floridi, 2023).

2.3 Intersections of AI and HE

Artificial Intelligence in Education (AIED) is a relatively young field, originating in the 1970s. In the twenty-first century, it was suggested that AI could improve educational practice in several ways. Originally a field explored by computer scientists, AIED has evolved into a cross-disciplinary force (Humble & Mozelius, 2022) that is gradually leaving its mark on education, with implications for teaching, learning, and research (Unesco, 2019b).

HE institutions are dynamic social entities set in a broader socio-historical and economic context (Brenneis et al., 2005). Throughout history, universities have evolved from autonomous centers of knowledge pursuit to transnational entities focused on developing skills and adapting knowledge to economic demands (Brenneis et al., 2005; Lion, 2022). This shift towards an entrepreneurial paradigm has led to the exploration of AI, datafication, and digitalization as tools to address evolving educational challenges (Lion, 2022).

In addition, it is important to consider that today's society is shifting away from a disciplinary focus to emphasize achievement and performance (Han, 2018). Hyperactivity, extreme expectations, and diminished otherness characterize this era, which is changing meaningful relationships in favor of hyperconnectivity (Han, 2018). Students immersed in digitalized platforms exhibit instant gratification and personalized consumption habits that challenge both established literacy and forms of knowledge and assessment (Eaton, 2023; Lion, 2022, p.150). In the midst of this development, the institutions of HE are struggling with the rapid evolution of cultural norms and expectations (Lion et al., 2023).

Meanwhile, AI in HE has made significant strides and includes various applications to enhance learning, teaching, and administration (Baker, 2016; Baker et al., 2019). These applications include adaptive learning systems, automated assessment tools, and decision support for institutional management (Baker et al., 2019; Owoc et al., 2021). However, the integration of AI into education remains heterogeneous and is influenced by discipline-specific factors and institutional mindsets (Salas-Pilco & Yang, 2022; Unesco, 2021).

The integration of AI into HE has led to different reactions among stakeholders. In some contexts, its use is encouraged to promote creativity and innovation, while others exercise caution or even impose prohibitions (Atlas, 2023; Rensfeldt & Rahm, 2023). This process of integration has historical parallels with the introduction of automation, reflecting both the hopes of enthusiasts and apocalyptic concerns (Eco, 2000). The COVID-19 pandemic highlighted the complexity of technology-mediated learning and underscored the need for pedagogical and cultural adaptations (Lion, 2022).

It is imperative to explore the ethical dimensions of AI in education. Questions arise about the motives of technology developers, unequal access, ownership of data, academic integrity, and pedagogical relevance (Zawacki-Richter et al., 2019; Unesco, 2021b). Following Litwin's (2006) findings on the integration of new pedagogical tools and cultures in HE, a parallel can be drawn for the assimilation of AI. To effectively implement AI technologies, it is essential to thoroughly understand the pedagogical culture of educators. This approach ensures a successful integration of AI that is compatible with existing educational practices. When integrating AI into HE, the focus should be on technologies that enhance human cognition and expand pedagogical possibilities (Unesco, 2021b). Emphasizing a multidimensional approach that takes into account pedagogical, ethical, social, cultural and economic factors is essential (Lion, 2022). The complexity of education cannot be reduced to algorithms alone, which underlines the need for a comprehensive understanding of the role of AI in educational practices (Lion, 2022).

Considering these reflections on the theoretical construction process of the research problems and questions (see Figure 2.3.1), this study aims to explore the emerging practices that drive the institutionalization of AI systems in teaching, learning, and research in HE. Furthermore,

the study aims to explore the emerging perceptions related to the implementation and use of AI in HE. To address these research questions and contribute to the existing knowledge gap, the study adopts an anthropological approach.

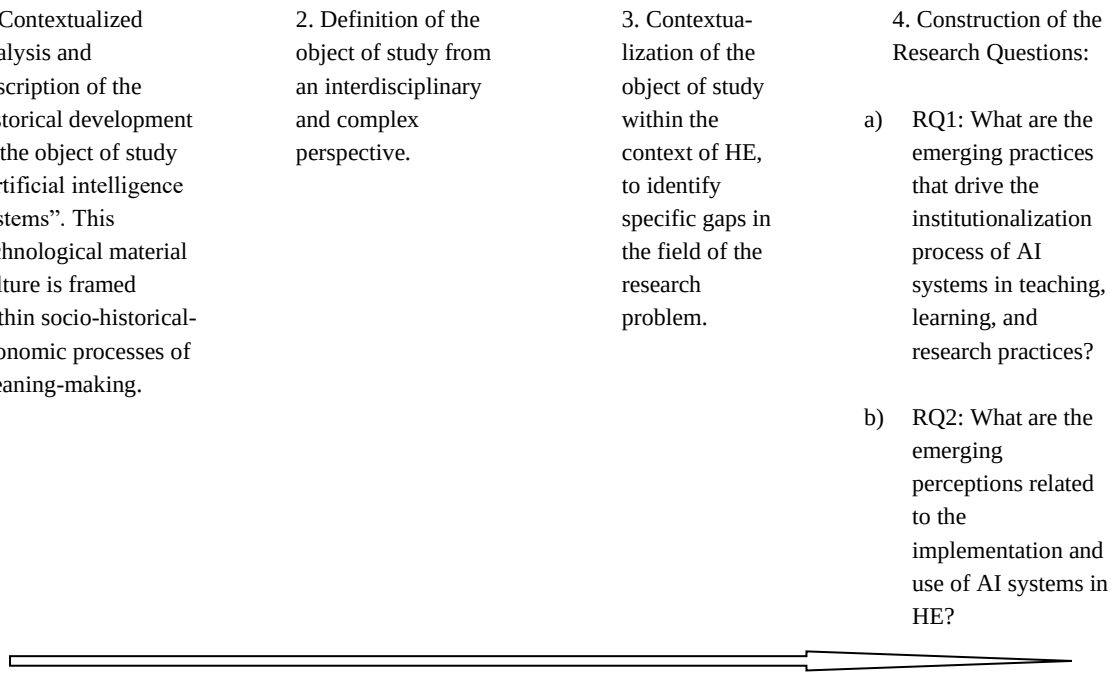

Figure 1. Process of constructing the research problems and questions.

3 Methods

Anthropology is a humanistic scientific discipline that, through its methods, theories, and particular way of collecting data, can offer special insights into understanding what goes on inside complex organizations to help organizations improve organizational problems or better understand how organizations function (Jordan, 2019). Therefore, the methodological framework of this study is based on ethnographic fieldwork that describes the relationships between practices and meanings that constitute the individuals of an organization (Guber, 2011) (see Figure 3.2.). This implies the importance of a situated understanding (Restrepo, 2018, p.25).

Following Cresswell's (2013) approach, the construction of research data involved the research data, such as prolonged engagement and sustained observation in fieldwork (HE organizations in Argentina and Slovenia, and the internet). I systematically took notes on my observations in notebooks (Guber, 2011). Since 2011, I have been working as an assistant professor and researcher in HE organizations in Argentina and Slovenia, which allowed me to observe practices and processes "from the inside" and to engage and implicate myself in the object of study (Giddens, 1993). As an "insider" I was able to learn about and internalize the culture of higher education organizations and build trust with the actors, my "colleagues". This in turn

enabled me to check and refute misinformation or bias that may have arisen from my own bias (Creswell, 2013, p.250).

Objects of study are not created outside their historical contexts (Latour, 1993) or paradigms (Kuhn, 1970). Knowledge is not independent of the practices of knowing (Hine, 2011). Data does not "speak for itself", it is always constructed, and needs to be interpreted (Guber 2011; Hansen n.d.). For this reason, the study is methodologically and epistemologically situated within the framework of organizational anthropology, which is referred to as "complexity theory" (Podjed, 2011). This means that the process of data collection, analysis and interpretation has been placed in a wider context (Jordan, 2019, p.8). In other words, the processes described are framed by "rich, thick descriptions" (Geertz, 1991) of historical, social, political, and economic dimensions (Rockwell, 2009, p.119), which not only give meaning to the practices and subjects' accounts, but also, according to Creswell, help to validate the trustworthiness of the study (Creswell, 2013, p.252).

Given the difficulty of understanding many important aspects of contemporary cultural life without including the cyber world, media, and information sources, I have used immersive virtual ethnography on the internet as a research method (Kozinet, 2010) to gain valuable insights into the subject matter and expand my knowledge base in terms of actors' understanding of reality and the subject (Hine, 2011). Trainings, blogs, webinars, videoconferences, workshops, conferences, official statistics, reports, books, manuals, conversations with colleagues, and even academic papers are considered strategically relevant ethnographic material because of the way they represent and frame reality, as well as their embeddedness in practice (Hine, 2011, p.51). Between February and June 2023, I actively participated in a series of virtual workshops and seminars in Slovenia, Argentina, Spain, Germany, the UK and the USA, as well as reviewing and reading materials directly related to AIED. I actively participated in participatory observations and meticulously took detailed notes, striving to identify my assumptions or biases on the topic (Creswell, 2013; Guber, 2011;).

Twining et al. (2017, in Salas-Pilco & Yang, 2022) emphasized the importance of qualitative studies in understanding the use of technology in education, as they help to identify themes and patterns. In this regard, I found it important to include the review of scientific studies in the study to provide an overview of recently published articles and their main findings (Lo, 2023). The review was conducted using virtual scientific catalogues and search engines. To ensure clear and reliable data construction and interpretation for this study, I primarily relied on searching trusted databases such as Google Scholar, Scopus, Springer, and ScienceDirect, using the keywords "artificial intelligence" / "inteligencia artificial" / "umetna inteligenca" together with "education" / "educación" / "izobrazba" and/or "higher education" / "educación superior" / "visoko šolstvo", and/or "university" / "Universidad" / "univerza", and/or "research" / "investigación" / "raziskovanje", and/or "regulations" / "legislación" / "predpisi", and/or "AI act" / "Ley de Inteligencia Artificial" / "Zakon o umetni inteligenci", and/or "guidelines" /

"pautas" / "smernice", and/or "ethics" / "ética" / "etika", and/or "anthropology" / "antropología" / "antropologija" (see Table 1).

Table 1. Slovenian English Spanish keywords

English keywords	Slovenian keywords	Spanish keywords
"artificial intelligence"	"umetna inteligenca"	"inteligencia artificial"
+	+	+
"education"	"izobrazba"	"educación"
and/or	*and/or*	*and/or*
"higher education"	"visoko šolstvo"	"educación superior"
and/or	*and/or*	*and/or*
"university"	"univerza"	"Universidad"
and/or	*and/or*	*and/or*
"research"	"raziskovanje"	"investigación"
and/or	*and/or*	*and/or*
"regulations"	"predpisi"	"legislación"
and/or	*and/or*	*and/or*
"AI act" Artificial"	"Zakon o umetni inteligenci"	"Ley de Inteligencia Artificial"
and/or	*and/or*	*and/or*
"guidelines" /	"smernice"	"pautas"
and/or	*and/or*	*and/or*
"ethics"	"etika"	"ética"
and/or	*and/or*	*and/or*
"anthropology"	"antropologija"	"antropología"

The review also included a search for relevant publications and professional, official, or regulatory documents on AI from sources such as the European Union, UNESCO, and various university blogs worldwide. The aim was to identify the most used themes and concepts in the literature and to understand the social impact of AI systems in the field of HE and research.

Table 2. Criteria of inclusion/exclusion

Criterion	Inclusion	Exclusion
Topic of the publication	Discuss AI in the field of education, specifically in the field of HE.	Do not discuss AI in the field of education, specifically in the field of HE.
Methodology	Qualitative studies preferred.	Quantitative studies avoided.
Data type	Academic articles, relevant blogs, relevant publications and professional, official, or regulatory documents on AI from sources such as the European Union, UNESCO, and various university blogs worldwide.	Non-academic publications, such as articles from mass and social media, were not taken into consideration.
Time period	Between 2010 and 2023.	Publications outside the period.
Language	English, Spanish or Slovenian	Non-English, Spanish, or Slovenian

In terms of inclusion and exclusion criteria (see Table 2), I focused on materials about AI that relate exclusively to HE or research in general (not discipline-specific). When relevant works were found that broadened the perspective, they were included. Selection criteria included consideration of year of publication (between 2010 and 2023), language (English, Spanish, or Slovenian), avoidance of duplicate articles, ensuring that publications were published in reputable indexed journals or on appropriate websites (with visible dates, authors, and references), and ensuring open access or access via e-libraries or by contacting authors. The exclusion process was based on title reviews, abstracts and keywords. After the initial review, a potential number of articles were identified for further full-text review.

The selected works were imported into the reference management software Zotero. I read these works carefully to identify the common themes in these publications and documents, as well as the specific practices and perspectives emerging in the process of integrating AI in HE and in research, and the disciplinary context of the production of the materials. I focused on discussions of how AI is integrated into existing educational and research practices and how it influences or is influenced by cultural norms, values, and power dynamics of HE employees. I paid attention to descriptions of AI use, its impact on education/research processes, and the experiences and perceptions of the people involved. All these facts were summarized in an Excel file.

Because one of the dimensions of analysis focuses on AI systems in research, I decided to experiment with Large Language Models as well. In his study of the Internet, Hine (2011, p. 54) notes that ethnographers can use active engagement with the digital tool to gain a deeper understanding of the medium. In this respect, experimenting with AI for me meant exploring my own social competence in using it and learning what it means to be a user of AI in the context of HE and research. By immersing myself in the activities of the actors in my study, I sought, in the spirit of Malinowski (1973), to gain a deeper understanding of culture from the

perspective of its members. I used Scite Assistant, a paid online AI program that thoroughly reviews academic literature and databases, and Humata.ai as a research assistant, a system that helps create systematic literature reviews. Humata.ai was used to search the publications and identify relevant information. Scite Assistant was shown to be useful in identifying relevant authors from the field. The reliability of the data produced by the AI tools was verified by personally reviewing the sources and texts. The free version of ChatGPT (OpenAI, 2023) free version was mainly used to organize my thoughts and for brainstorming and proofreading.

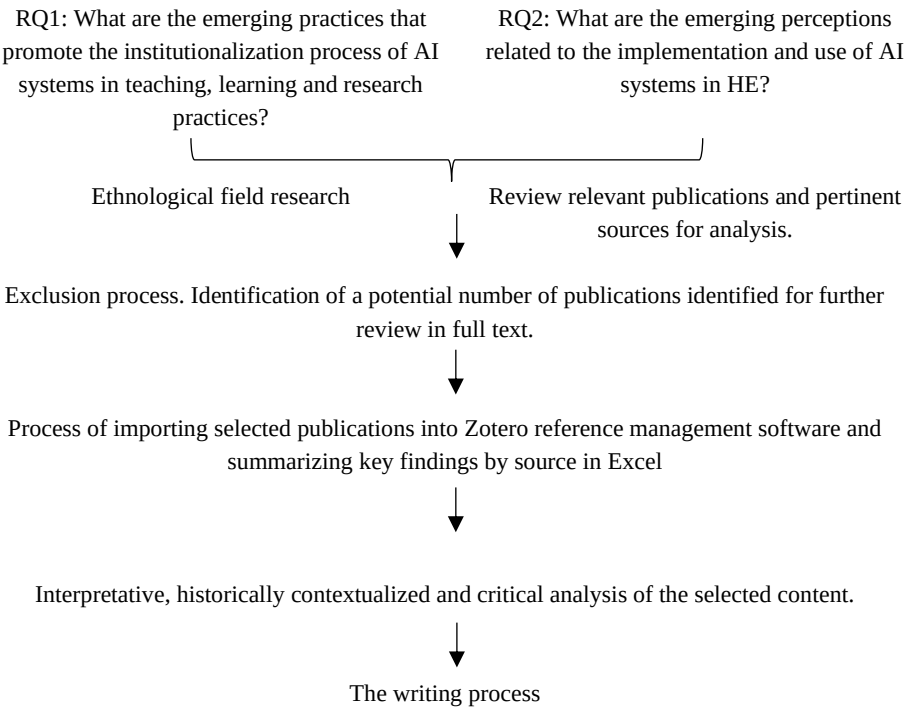

Figure 2. Research Design

The information gathered was then verified using various methods (Creswell, 2013; see Figure 2). To avoid my subjectivity interfering with the production of knowledge, reflexive questioning and critical analysis were constant procedures during my research and analysis process (Guber, 2011; Hansen n.d., p. 10). As my research activities in cyberspace consisted mainly of participation in "mediated quasi-interaction" (Thompson, 1995 in Hine, 2011, p.51), the methodological strategy was to work interpretatively (Geertz, 1991). This approach is based on developing an understanding of the meanings underlying and enacted in practices, embedding the understanding in a context of production and reception (Hine, 2011, p.50), which in my case is located in Slovenia within the project of AI as an educational tool and incorporates my previous knowledge of the use of digital media in educational contexts and practices (see e.g., Bacher et al., 2015). Peer review provided me with an external check on the research and interpretation process (Creswell, 2013, p. 251). I also used the process of triangulation, where I corroborated the generated data and interpretations from different sources such as peers, actors/informants and theories, and contextualized the problematic in broader historical, processual and social contexts (Denzin & Lincoln, 2023).

4 Results

4.1 Overview

AI integration is reshaping education by addressing ethical use, role shifts, and integrity challenges. Key findings from the literature review and ethnography are presented in detail in the next chapters.

4.2 Geopolitical and Disciplinary Centralization of Research

The exploration of AI in HE reveals diverse domains such as teaching, research, industry, and media (Elsevier, 2018). The importance of AI is evident globally, shaping international competitiveness and driving scholarly output, which I will divide into "practices" and "perceptions".

4.2.1 Emerging Practices and Institutionalization of AI Systems (RQ1)

The geopolitical landscape illustrates the influence of AI on HE, with nations adopting policies to promote AI ecosystems. An AI Index analysis of the legislative files of 127 countries shows that the number of bills containing "artificial intelligence" has increased from just 1 in 2016 to 37 in 2022. An analysis of parliamentary records on AI in 81 countries also shows that mentions of AI in global legislative proceedings have increased by almost 6,5 times since 2016 (HAI, 2023). Legislative records show evolving perspectives on AI, from concerns about automation to the protection of human rights.

The European Union emphasizes data governance and protection of data, which is critical to the integration of AI (HE). These legal instruments include the General Data Protection Regulation (GDPR) (European Union, 2018), (European Union, 2018a), the European Commission Digital Strategy (European Commission 2022), the Ethical Guidelines for Artificial Intelligence (European Commission 2019), and the Artificial Intelligence Act (European Commission, 2023a). Other important official documents include the White Paper on Artificial Intelligence (European Commission, 2020) and the OECD Principles on AI (OECD, 2023), as well as the AI and Education Guidance for Policymakers (UNESCO 2021a), the Recommendation on the Ethics of Artificial Intelligence (Unesco, 2021b), Artificial Intelligence: Examples of Ethical Dilemmas (Unesco, 2021c), the Beijing Consensus on Artificial Intelligence and Education (Unesco, 2019).

4.2.2 Emerging Perceptions and Implementation of AI Systems (RQ2)

Different regions have different AI research landscapes. (Elsevier, 2018). According to a Stanford University report (HAI, 2023), the United States and China are leaders in AI research and development. Nevertheless, more and more countries are engaging in this field (Ayra, 2023). India ranks third in AI publications, on par with countries such as France, Canada,

Russia, Singapore, the Netherlands, Germany, Turkey, and others that are major contributors (Elsevier, 2018).

The U.S. leads in AI research across corporate and academic sectors, while China's ambitious policies drive its pursuit of AI leadership. China's research is led by corporations, but with fewer published articles. Europe, the largest AI research region, has robust international collaboration but is struggling with an exodus of academic talent (Ayra, 2023; Elsevier, 2018).

The majority of AI publications in HE come from computer and information sciences, which account for about 43% and often rely on quantitative methods. In contrast, social science and humanities disciplines such as economics, anthropology, history, and political science contribute only 0.8% of the total literature (Zawaki-Richter et al., 2019). The disciplinary imbalance affects perspectives on AI studies (du Boulay, 2023). The focus of AI in education is limited (4%) but increasing in online learning (Dogan, et al., 2023). The use of AI in HE is focused on "educational technology".

Interest in incorporating AI into education is increasing, leading to more studies investigating how teachers can effectively use AI tools and what impact this might have. While some scholars argue that a deep understanding of AI is not necessary (Lee, 2017), others emphasize the importance of providing individuals with foundational knowledge of AI and its many applications, which are rapidly expanding (Southworth et al., 2023). Southworth et al. (2023) suggest that this means giving HE employees more opportunities to understand the basics of machine learning, deep learning, and other impactful AI techniques that affect our daily lives. Currently, studies show that the integration of AI into curricula is mainly limited to certain STEM fields such as data science, computer science, and engineering (Zawaki-Richter et al., 2019).

Empirical studies are limited. Noteworthy research by Goda et al. (2014) examined chatbot interactions prior to group discussions and showed that they increased student engagement and critical thinking. Duzhin and Gustafsson (2018) compared instructional strategies and preferred online homework with feedback. Khare et al. (2018) highlighted the benefits of AI integration, such as student support and personalized grading. Krassmann et al. (2018) studied the role of chatbots in distance education to address social isolation. Sandoval (2018) demonstrated the effectiveness of chatbots in responding to student queries. Stachowicz-Stanusch and Amann (2018) demonstrated the potential of chatbots as learning assistants. Song et al. (2019) linked student engagement to learning outcomes through virtual agents. Gao et al. (2023) compared AI-generated summaries, emphasizing accuracy and ethical concerns.

In summary, despite notable AI education programs in HE institutions, there are no widespread AI initiatives. Many studies emphasize theoretical benefits rather than practical success. AI

systems often rely on limited data sources-self-reports, observations (see Bozkurt et al., 2021; Celik et al., 2022).

More research is needed on ethical aspects of AI in education, including data use, privacy, human-centered AI, and ethics (Bearman et al., 2022; Bozkurt et al., 2021; Dogan et al., 2023; du Boulay, 2023; Pedró, 2020). From the literature review, it appears that this research topic is still under development. Some scholars also argued the importance of educating students about academic integrity and the consequences of academic misconduct and plagiarism (Eaton, 2023; Lo, 2023; Rudolph et al., 2023). The human costs associated with AI systems, such as the impact on teachers who must adjust their curriculum, are also silenced in the literature, regulations, and policies (du Boulay, 2023; Floridi, 2023). The field lacks critical reflection on the challenges and risks associated with AI in HE, as well as a strong connection to theoretical pedagogical perspectives (du Boulay, 2023).

However, studies often disregard the continued marginalization of already marginalized groups in the integration of AI into education, including people with disabilities and ethnic minorities (Green, et al., 2022). Despite the appreciation of human-centered approaches, regulations on human-generated data and AI ethics in education are lacking (Dogan et al., 2023). Greene et al. (2022) emphasize the need to focus on human agency by considering pedagogy, curriculum, and instructional design.

AI research lacks a common language for different perspectives and disciplines, making knowledge sharing difficult. Educators' voices are often overlooked due to limited teacher involvement (Celik et al., 2023; Zawacki-Richter et al., 2019), while Rudolph et al. (2023) suggest involving students. Pedró (2020) criticizes tech corporations for imposing methods that conflict with established educational practices. Dogan et al. (2023) emphasize the lack of integration of AI and educational theories and focus more on technology.

4.3 Practices, Perceptions, and Cultures

4.3.1 Practices arising from the institutionalization process of AI in education (RQ1)

Research has identified three key areas of AI integration in HE: organizational/administrative, learning, and teaching processes. AI applications have been observed to influence institutional change and impact various aspects of management, student learning, and teacher support (Baker et al., 2019).

Organizational/administrative practices include improving decision-making processes through AI, including identifying research patterns. Common practices include using AI-enhanced interfaces such as chatbots on university websites to answer frequently asked questions, leading to reassignment of tasks. Chatbots help communicate with applicants and support faculty and administrators (Stachowicz-Stanusch & Amann, 2018; Jara, 2022), while AI also facilitates data collection, as exemplified by Georgia State University's use of AI systems to reflect and

improve through interactions with applicants and students. AI systems also automate tasks and collect feedback through chatbots, as mentioned by (Owoc et al., 2021).

Notably, initiatives in HE organizations are establishing research projects and centers to integrate AI into education and investigation. These initiatives deploy innovative technologies, impact research and education communities, and address privacy issues (Chaka, 2022). Examples include the Department for Continuing Professional Development at Oxford University, the Center for Innovative Teaching and Learning at the University of South Florida, and the AI4ALL research center at Stanford University, the Research and Development Center (*Slovenian* Raziskovalno razvojni center) at the University of Ljubljana (Slovenia), and the Academic Development Center (*Slovenian* Akademski razvojni center - ARC) at the Faculty of Organizational Studies in Novo mesto (FOS, Slovenia), to name a few.

Following the release of ChatGPT on November 30th the development of HE policies and guidelines regarding for the use of AI tools in academic integrity has expanded rapidly (Lion, 2022; Sullivan et al., 2023). Many universities, such as the University of Greenwich, Walden University, University of Edinburgh, University of Helsinki, Hong Kong Polytechnic University, and others, have redefined their academic integrity policies to include specific guidelines for the use of AI.

Additionally, HE institutions have organized open workshops and conferences to explore the potential of AI tools. Examples include workshops such as basic uses of ChatGPT (*Slovenian* ChatGPT osnove uporabe) at FOS in Slovenia or practical overview of ChatGPT and other forms of artificial intelligence *(Spanish* Una visión práctica del Chat GPT y otras formas de Inteligencia Artificial) at UNED in Spain. Conferences such as Artificial Intelligence in Higher Education: Harnessing the Power of Technology to Enhance Learning and Teaching (*Slovenian* Umetna inteligenca v visokem šolstvu – Bomo izkoristilo moč tehnologije za izboljšanje učenja) at Doba Faculty in Slovenia, Artificial Intelligence. What it is and for what it is used for *(Spanish* Inteligencia artificial. Que es y para que sirve at UNED, Spain), AI and teaching: How to approach ChatGPT in the classroom? *(Spanish* IA y enseñanza: ¿Cómo abordar ChatGPT desde el aula?), organized by the University of San Martin and Red Alfamed in, and the proliferation of MOOCs such as "Artificial Intelligence: Ethics & Societal Challenges" at Lund University are an example of the institutionalization of AI in HE.

The use of AI in education is increasing, often driven by a neoliberal approach that prioritizes personalized learning (Bojorque & Pesante, 2020; Bozkurt et al., 2021; Chiu et al., 2023; Owoc et al., 2021). Educational robotics and AI tools to assist with writing are becoming more common (Currie, 2023; Narayanaswamy, 2023; Rudolph et al., 2023). HE institutions are incorporating AI into their curricula, particularly in computer engineering and STEM. Examples such as the Stanford HAI-Human-Centered Artificial Intelligence Institute-(established 2019) show extensive integration efforts (Southworth et al., 2023).

Historically institutionalized HE culture includes student evaluations, learning progress assessment, and the influence of AI on HE assessment practices (Owoc et al., 2021). AI-driven automation improves administrative processes (Bojorque & Pesante, 2020), supported by algorithms that identify gaps, as demonstrated by Mendoza Jurado's (2020) model at Domingo Savio Private University. AI contributes to student feedback and grading of essays (Rudolph et al., 2023). AI is also used in attendance tracking through facial recognition (Menezes et al., 2020) and anti-cheating (Owoc et al., 2021).

Several practices are improving student performance using AI, such as machine learning algorithms that predict exam results and identify potential dropouts (Tomasevic et al., 2020). AI-driven chatbots promote critical thinking (Chaka, 2022), which is consistent with Industry 4.0 skills. AI recommendation systems enhance learning (Hinojo et al., 2019; Khare et al., 2018), and AI predictive models identify behavioral patterns and predict dropouts (Bedregal-Alpaca et al., 2020). AI systems in platforms such as Moodle streamline student self-organization and administrative tasks (Haderer & Ciolacu, 2022), including exam registration and feedback through tools such as the Primuss web portal (PRIMUSS university application portal).

AI chatbots play a role in teacher-student communication and enhancing student well-being (Krassman et al., 2018). Chaka (2022) highlights chatbots as preferred tools for learning delivery, taking forms such as voice assistants, intelligent tutors, etc. Alternatively, Baker (2016) points to the growth of tutoring systems such as Cognitive Tutor but emphasizes the need for continued evaluation and updating due to potential changes in accuracy in evolving academic environments.

AI technology is being integrated into education to assess teaching performance and improve quality management (Bojorque & Pesante, 2020; Gutiérrez et al., 2018). An AI model named Social Mining was introduced by Gutiérrez et al. (2018) to analyze student feedback on teacher performance, effectively using machine learning algorithms. In addition, Bojorque and Pesante (2020) discuss the use of AI quality management systems to optimize examiner time and manage supervision, which is particularly relevant for experts such as faculty at Universidad Politécnica Salesiana.

In HE, certain AI systems are finding extensive applications. For example, Watson, developed by IBM for Deakin University (Australia), helps new students by providing guidance information through natural language interaction. Watson's scope has expanded to cover areas such as admissions, course enrollment, financial aid, and more. It provides evidence-based answers to help students make informed decisions. At FOS in Slovenia and in Universidad de San Andres in Argentina, ChatGPT (OpenAI, 2023) is used by faculty and students to explore ideas and critical perspectives. However, due to misuse concerns, there is skepticism about its adoption. AI systems are also playing an increasingly important role in research practice,

serving as research assistants using chatbots. Furthermore, AI is already being used for data analysis. The topic of AI is rapidly expanding in research projects to include both practical applications and academic investigations. This emerging field has led to the creation of review papers that address the challenges and opportunities of this disruptive technology. As the field continues to evolve, it is critical to collect and incorporate additional data to further improve our understanding of the impact of AI on research practice.

Several initiatives are advancing ethical practices in AI. The Montreal AI Ethics Institute stands out for its concise research summaries and comprehensive dictionary of AI terms (Green et al. 2022, p.68). Another important aspect is the transparent communication of model capabilities, limitations, and preprocessing during fine-tuning, as in ChatGPT (Atlas, 2023). Elite universities such as Harvard, MIT, and Lund University offer courses that address the ethical implications of AI and promote awareness and responsible development.

However, comprehensive AI initiatives in HE is ongoing but limited (Southworth et al., 2023). A research gap exists in the integration of AI into teacher education and the use of AI for effective classroom use (Celik et al., 2022). There is limited evidence on the impact of AI on learning outcomes and its role in understanding effective learning processes (Zawacki-Richter et al., 2019). Claims about the revolutionary potential of AI in education are often based on conjecture and optimism (Nemorin, 2021 in Unesco, 2021b, p.13).

4.3.2 Representations and discourses around the inclusion of AI in education (RQ2)

Education stakeholders view AI as a disruptive technology (Unesco, 2021a). Experts emphasize the growing role of ICT in HE, advocate new learning environments and a redefinition of the teacher role (e.g., Lo, 2023; Southworth et al., 2023; Unesco, 2021b; Zawacki-Richter et al., 2019). Experts are overly optimistic about the benefits of AI in education. They often emphasize the potential of AI to: "personalize and adapt experiences" (Bozkurt et al., 2021), "Develop students' skills" (Atlas, 2023), "alleviate workloads and, improve productivity for professionals" (Atlas, 2023; Bozkurt et al., 2021), "facilitate analysis of large datasets" (Bozkurt et al., 2021), "enhance teaching and learning" (Chaka, 2022), "empower teachers, reduce burnout" (Sousa et al, 2021), "adapt to evolving societal needs, prepare for challenges" (Duţă & Martínez-Rivera, 2015), "improve management systems" (Sousa et al., 2021), "enable remote learning for individuals with disabilities, refugees and other minorities from isolated communities" (Sousa et al., 2021), "provide access to learning resources anytime, anywhere" (Jara, 2022), "automate time-consuming tasks" (Jara, 2022), and "augment human capabilities in education and research" (Popenici & Kerr, 2017).

Field research reveals diverse perspectives. Conversations, blogs, and conferences among those engaged in the emergence of ChatGPT (OpenAI, 2023) reflect fear, uncertainty, and anticipation. Generative AI, such as ChatGPT (OpenAI, 2023), generates distrust, as one colleague noted in an informal conversation:

> "Perhaps you ask ChatGPT for specific information or elaboration. However, when we lack fundamental knowledge about a topic, GPT or similar applications may not be the ideal source for that information. Our initial step should be to comprehend the subject we inquire about enabling us to validate the answers and outputs generated by these tools. Their effectiveness is maximized when utilized in conjunction with existing subject knowledge. At times, ChatGPT may produce imaginative responses, crafting sophisticated learning content."

Teachers are fearful of role changes, while experts adapt to increasing responsibilities (Unesco, 2021a). The misuse of chatbots threatens academic integrity as it is seen as a new form of plagiarism, and there are fears that authentic learning experiences will be hindered. Some suggest discouraging the use of ChatGPT (OpenAI, 2023) for end results. Instead, they suggest encouraging its use as a resource for learners' creative process. The exclusive use of AI for tasks is seen as a barrier to the development of critical thinking and individual expression.

Common concerns also include intrusiveness, curriculum content, and teaching methods. The integration of AI into education is seen as a gradual process, with challenges in maintaining human interaction, empathy, ethics, equity, and access.

Academics (Dogan et al., 2023; González & Calvo 2022; Haderer & Ciolacu, 2022) and tech figures such as Elon Musk, Gary Marcus, and Steve Wozniak emphasize the need for regulation and transparent policies. Calls for AI regulation in education are growing louder. Sources such as the U.S. Department of Education and the European Union (2019) recommend prioritizing human involvement in policy. Human participation is advocated as a key policy priority (Schneiderman, 2023). In HE, training datasets create biases and recognition problems, and ethical dilemmas including inequity in access and equity (Currie, 2023; McGrath et al., 2023; Pedró, 2020). Paid AI applications create inequalities and exclude those without Internet access or digital devices in certain countries.

5 Discussion

As we delve into the intricacies of the research findings, it becomes clear that a nuanced understanding of the interplay between technology use and pedagogical practices is essential to finding a way to effectively integrate AI in education. Exploration of the practices underlying the institutionalization of AI systems in teaching, learning, and research has revealed a multifaceted landscape deeply rooted in economic, political, social, and cultural contexts (Ferrarelli 2023; Lion, 2022), with influential economic institutions such as the World Economic Forum predicting widespread adoption of AI technologies by businesses by 2025 (Jara, 2022). This forecast is a compelling incentive for governments and HE institutions to prioritize the rapid expansion of education and skills aligned with emerging technologies encompassing both STEM subjects and vital non-cognitive soft skills—a recognition of the impending demand in these areas. Against this backdrop, universities that are becoming

transnational neoliberal enterprises are increasingly perceived as key players in generating relevant knowledge that is attuned to the economic needs of society (Brenneis et al., 2005). In other words, the integration of AI into HE curricula aims to prepare students for a technology-driven world.

Transforming AI practices in HE organizations involves three key areas of integration: (1) organizational/administrative, (2) learning, and (3) teaching processes (Baker et al., 2019). Organizational/administrative practices include AI-assisted decision making, evident in chatbots for FAQs and data collection (Jara, 2022; Owoc et al., 2021; Stachowicz-Stanusch & Amann, 2018). AI is also evaluating quality management (Bojorque & Pesante, 2020; Gutiérrez et al., 2018). Research initiatives and centers at HE is addressing AI, addressing privacy concerns, and adopting innovative technologies (Chaka, 2022; Southworth et al., 2023).

The teaching profession is undergoing a profound transformation that is reshaping teachers into interdisciplinary content creators working with AI teaching assistants and tutors. This transformation harnesses the capabilities of AI to enhance personalized experiences, streamline administrative tasks, enable personalized learning, monitoring, and assessment, and expand access to education. AI-driven practices also extend to student performance enhancement through predictive algorithms and AI-driven critical thinking chatbots (Chaka, 2022; Tomasevic et al., 2020). Teaching and learning methods are changing, especially in assessment approaches. Experts emphasize the need for innovative assessment formats (Lo, 2023), which aligns with calls by Lion (2022) and Pedró (2020) to advance innovative practices aligned with emerging learning and instructional support models (HE).

Different new practices have emerged in diverse organizational structures and cultures and are accepted to varying degrees by stakeholders. While educational cultures in general are gradually changing, it is important to recognize that cultural norms, habits, and expectations are rapidly evolving. Several emerging practices have been illustrated that are embedded in existing dynamic and heterogeneous organizational structures and cultures, with varying levels of inclusion and acceptance among stakeholders (Lion, 2022). This influence extends to the establishment of centers, projects, workshops, and conferences aimed at institutionalizing AI in HE and discussing its potential uses, limitations, and implications for teaching, learning, and research practices.

AI development is primarily driven by for-profit private corporations (Caramani, 2017), resulting in limited examination of how this technology is produced and integrated and its impact on stakeholders. These perspectives often prioritize the needs of users without fully considering the pedagogical implications of adopting new educational technologies. This underscores the importance of collaborating with educators to ensure that the development of AI systems is aligned with classroom needs (Pedró, 2020). These practices progressively

address challenges in knowledge architecture and interaction processing processes within the educational community and provide recommendations to improve academic performance.

Ethical considerations gain prominence with initiatives such as the Montreal AI Ethics Institute and transparent communication of AI capabilities (Atlas, 2023). Some scholars such as Popenici & Kerr (2017) voice concern about the concentration of power and control within the hidden algorithms that drive AI solutions, while Holmes (2019) is critical of the issue of ownership of data and its potential exploitation for commercial purposes. The global AI landscape is characterized by a concentration of influence from select companies and countries, including major players such as Microsoft, IBM, Google, Apple, and key regions such as the United States, China, and the European Union. This concentrated influence also extends to the education sector, as Unesco (2021b) points out, citing a burgeoning private sector market for the use of AI in schools and universities. The lines of influence between state and non-state actors, especially corporations, may be blurring (Tett, 2021).

In terms of the diverse perceptions resulting from the implementation of AI systems in HE, the research I conducted shows that the integration process involves different interpretations, debates, and negotiations that influence the understanding of AI by universities, faculty, students, administrators, and society. While the educational potential of AI is recognized, there is also apprehension about its adoption, reflecting historical parallels to the adoption of automation, audiovisual media, and other technologies, and encompassing both optimistic hopes and anxious concerns (Eco, 2000). Some stakeholders emphasize the ability to streamline work, enhance education, and personalize learning, empowering both students and teachers. Others express concern about teacher shortages and changing educational needs, as well as the potential misuse of AI tools such as ChatGPT (OpenAI, 2023) by students.

Some educators feel that they do not always have the specific knowledge and skills needed to effectively address the evolving challenges of college teaching (Manuale, 2012). There are also concerns about role change and the loss of human interaction. The discourse underscores the need to maintain human agency and participation and to prioritize human influence over machine influence in education (Hrastinski et al., 2019). In this context, experts emphasize that AI should enhance human skills, not replace them (Bozkurt et al., 2021; Unesco, 2021b). In this context, Popenici and Kerr (2017) stated that education is a human-centric endeavor. Ethical challenges, biases, and credibility issues remain (Celik et al. 2022; Gao et al. 2023). All stakeholders, from programmers to users, must take responsibility for the creation and use of ethical AI and avoid creating a divide between those in power and uninformed users (Gartner & Krašna, 2023). To address these concerns, regulations, transparency, and guidelines for the responsible use of AI in higher education are critical.

In addition, as Rudolph et al. (2023) also identified, educators express profound concern about the impact of AI on the culture of academic integrity. The use of ChatGPT (OpenAI, 2023) in

writing is perceived as a threat. While the use of ChatGPT (OpenAI, 2023) to submit work is a potential undermining of the learning process for some, for others it constitutes plagiarism and is understood as misconduct.

The results of the research (see Figure 3) I conducted echoes concerns raised by other scholars (Bearman et al., 2022; du Boulay 2023; Floridi 2023; Foltynek et al., 2023; Gartner & Krašna, 2023; Hijmans & Raab, 2022; Holmes, 2019) regarding data and algorithms, privacy rights, consent issues, personal freedom, and bias in AI. The collection of extensive personal data, known as "dataveillance" (Lupton & Williamson, 2017), raises vulnerability concerns due to inadequate privacy laws in many countries. Algorithmic bias is recognized as a significant concern because algorithms can perpetuate biases with various negative effects (Hume, 2017). Rudolph et al. (2023) acknowledges that AI systems such as ChatGPT (OpenAI, 2023) do not understand language as well as humans but can extract information and make simple inferences. They caution against relying solely on AI for important tasks and emphasize the need for further work on robustness and truthfulness.

The issue at hand reveals a long-standing concern within HE, echoing historical parallels (Lion, 2022). Traditionally, HE institutions have been known to focus on academic and professional preparation in a variety of disciplines. However, the pedagogical dimension of teaching often takes a back seat, with a disproportionate focus on isolated disciplinary knowledge. As a result, faculty may lack the specific skills needed to effectively address the evolving challenges of higher education teaching (Manuale, 2012).

On the other hand, the process of integrating human created technology into education is thwarted, as it has been in the past, by "enthusiasts" whose perceptions focus on simplifying work and optimizing education, and by "apocalyptic" whose discourse is concerned with teacher shortages and changing educational needs (Eco, 2000).

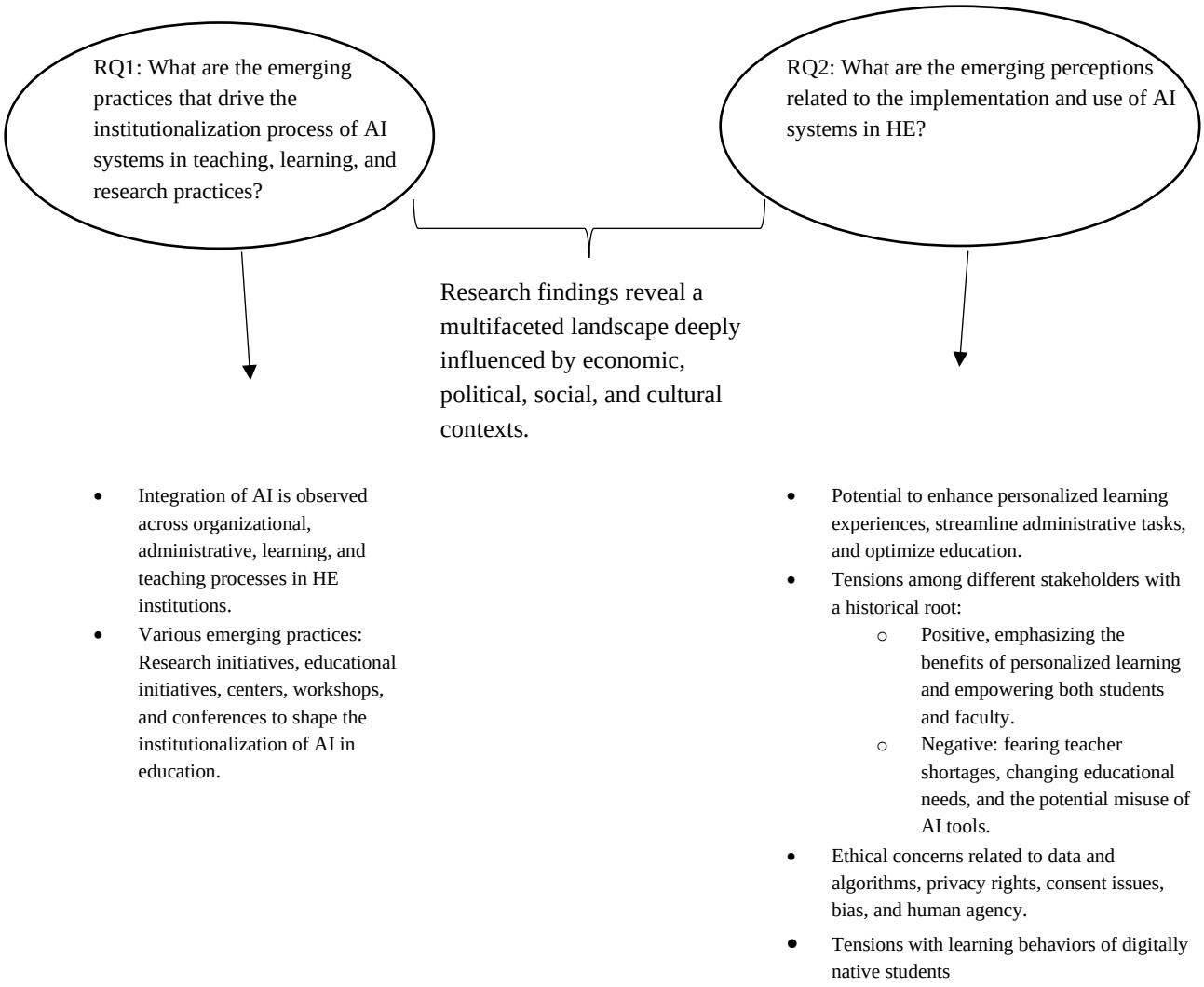

Figure 3. Synthesized results and discussion

Furthermore, these tensions also stem from the rapid integration of technological tools from the innovative private technology sector into the education workforce. Unfortunately, this integration often ignores the biases, values, educational culture, and practices of the employees, as well as their needs and difficulties during the integration process. Consequently, this transformation becomes disjointed, complex, and challenging.

Finally, educators must also grapple with the unique dynamics of teaching in an era when new generations of learners are raised within a technology-saturated paradigm. In today's world, learners communicate via digitized social networking apps where practices such as copying and pasting to share ideas and interests are routine (Eaton, 2023). This generation embraces instant gratification and exhibits a culture of personalization in their consumer behavior. As education adapts to this evolving landscape, it must address these multi-faceted challenges to ensure meaningful and effective learning experiences.

6 Conclusions

The purpose of this article was to explore the integration of AI systems in higher education (HE) from an anthropological point of view and to show their importance for social actors. Understanding their diverse interpretations is essential to understanding the social field under study.

Although definitive forecasts of its evolution are not possible, the study has revealed current practices and representations. The study has uncovered a multifaceted landscape shaped by economic, political, social, and cultural factors. The integration of AI involves organizational, administrative, learning, and teaching processes in HE institutions. Emerging practices include research initiatives, centers, workshops, and conferences to institutionalize AI.

In terms of perceptions, the potential of AI to personalize learning and streamline tasks is recognized. However, different representations, tensions, and concerns became apparent. Stakeholders view AI positively for personalization, but also express concern about teacher shortages, changing needs, and misuse. Concerns about academic integrity and marginalized groups are expressed, echoing Selwin's (2014) critique of the impact of technology.

Ethical considerations play a significant role, involving data, privacy, consent, bias, and human agency. The private sector-driven development of AI and adaptation to technology-driven societies add to the complexity.

This study concludes that thorough ethical, societal, and pedagogical evaluation within existing dynamics is critical. It calls for rethinking practices and addressing tensions before implementing AI. Educators must fully integrate AI education (Southworth et al., 2023) and prepare students for a technology-driven world. Inclusive AI education is needed that balances ethics and interests (Hijmans & Raab, 2022).

Limitations of the study include that it focuses on written publications and excludes faculty and student perspectives. It is important to recognize that communication and the production of meaning encompasses multiple modalities, such as visual, auditory, and nonverbal means that play a significant role in shaping human interaction and understanding. By excluding these "human," "contextual" forms of communication, the study may have overlooked important insights and perspectives that could significantly impact understanding of AI development and its sociocultural implications. Experiments with AI-enhanced programs also have their limitations. Sample size, evolving AI, and language biases also affect the results (Lo, 2023). Another limitation of this study is the inherent bias and epistemological implications associated with producing AI technologies and research in specific languages, particularly English. The dominance of English as the primary language of AI development and dissemination reflects a particular geopolitical perspective and worldview. This linguistic bias can lead to the exclusion or marginalization of other cultures, languages, and knowledge systems. Therefore, it is

important to recognize the geopolitical and epistemological implications of language choices in AI research and development.

In summary, this study aimed to raise awareness among HE organizations about AI's potential impact on teaching, learning, and research processes, while the anthropological perspective highlighted the social aspects for ethical AI development and use (Tett, 2021). Diverse AI research perspectives challenge knowledge sharing and interdisciplinary understanding, with limited inclusion of educators, students, and diverse voices. Integration of AI and education theories requires attention, and opportunities remain for impactful AI education research that requires longitudinal studies and comprehensive evaluations. This area lacks comprehensive regulations for human-generated data and AI ethics in education. Aligning AI systems with ethical principles requires design, stakeholder engagement, and accountability (González & Calvo, 2022).

References

1. Atlas, S. (2023). *ChatGPT for Higher Education and Professional Development: A Guide to Conversational AI*. University of Rhode Island.
2. Ayra, N. (2023). *Overview of the AI Index Report: Measuring Trends in Artificial Intelligence*. Stanford University. https://aiindex.stanford.edu/report/
3. Bacher, S., Bordignon, F., Grosso, T., Molek, N., Pereyra, A., Fontao, M. (2015). Competencias mediáticas. Diagnóstico entre estudiantes de nivel secundario del AMBA en Argentina. *Avatares de la Comunicación y la Cultura*, *9*. https://publicaciones.sociales.uba.ar/index.php/avatares/article/view/4825
4. Baker, R. S. (2016). Stupid Tutoring Systems, Intelligent Humans. *International Journal of Artificial Intelligence in Education 26*(2), 600–614. doi: 10.1007/s40593-016-0105-0.
5. Baker, T., Smith, L., Anissa, N. (2019). Educ-AI-Tion Rebooted? Exploring the Future of Artificial Intelligence in Schools and Colleges. *Nesta*. Retrieved 10 July 2023 (https://www.nesta.org.uk/report/education-rebooted/).
6. Bearman, M., Ryan, J., Ajjawi, R. (2022). Discourses of Artificial Intelligence in Higher Education: A Critical Literature Review. *Higher Education*. doi: 10.1007/s10734-022-00937-2.
7. Bedregal-Alpaca, N., Tupacyupanqui-Jaén, D., Cornejo-Aparicio, V. (2020). Análisis Del Rendimiento Académico de Los Estudiantes de Ingeniería de Sistemas, Posibilidades de Deserción y Propuestas Para Su Retención. *Ingeniare. Revista Chilena de Ingeniería 28*(4), 668–83. doi: 10.4067/S0718-33052020000400668.
8. Bender, E. M., Gebru, T., McMillan-Major, A., Shmitchell, S. (2021). On the Dangers of Stochastic Parrots: Can Language Models Be Too Big? *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency* (pp. 610–23). Virtual Event. Canada: ACM.
9. Bertsou, E., Pastorella, J. (2017). Technocratic Attitudes: A Citizens' Perspective of Expert Decision-Making. *West European Politics 40*(2), 430–58. doi: 10.1080/01402382.2016.1242046.

10. Bojorque, R., Pesántez-Avilés, F. (2020). Academic Quality Management System Audit Using Artificial Intelligence Techniques. T. Ahram (ed.): *Advances in Artificial Intelligence, Software and Systems Engineering*, *Advances in Intelligent Systems and Computing* (pp. 275–83),. Cham: Springer International Publishing.
11. du Boulay, B. (2023). Artificial Intelligence in Education and Ethics. O. Zawacki-Richter and I. Jung: *Handbook of Open, Distance and Digital Education*. Singapore: Springer Nature.
12. Bozkurt, A., Karadeniz, A., Baneres, D., Guerrero-Roldán, A. E., Rodríguez, M.E. (2021). Artificial Intelligence and Reflections from Educational Landscape: A Review of AI Studies in Half a Century. *Sustainability 13*(2), 800. doi: 10.3390/su13020800.
13. Brenneis, D., Shore, C., Wright, S. (2005). Getting the Measure of Academia: Universities and the Politics of Accountability. *Anthropology in Action 12*(1), 1–10. doi: 10.3167/096720105780644362.
14. Celik, I., Dindar, M., Muukkonen, H., Järvelä, S. (2022). The Promises and Challenges of Artificial Intelligence for Teachers: A Systematic Review of Research. *TechTrends 66*(4):616–30. doi: 10.1007/s11528-022-00715-y.
15. Chaka, C. (2022). Fourth Industrial Revolution—a Review of Applications, Prospects, and Challenges for Artificial Intelligence, Robotics and Blockchain in Higher Education. *Research and Practice in Technology Enhanced Learning, 18*(2). doi: 10.58459/rptel.2023.18002.
16. Chavarriaga, O., Florian Gaviria, B. Solarte, O. (2014). A Recommender System for Students Based on Social Knowledge and Assessment Data of Competences. *Open Learning and Teaching in Educational Communities., Lecture Notes in Computer Science* (56–69), *vol 8719.* Springer.
17. Creswell, J. W. (2013). *Qualitative Inquiry and Research Design*. California: Sage.
18. Czarniawska, B. (2012). Organization Theory Meets Anthropology: A Story of an Encounter. *Journal of Business Anthropology* 1(1),118. doi: 10.22439/jba.v1i1.3549.
19. Denzin, N., Lincoln, Y. (2023). *Collecting and Interpreting Qualitative Materials*. Sage.
20. Dogan, M. E., Goru Dogan, T., Bozkurt, A. (2023). The Use of Artificial Intelligence (AI) in Online Learning and Distance Education Processes: A Systematic Review of Empirical Studies. *Applied Sciences 13*(5), 3056. doi: 10.3390/app13053056.
21. Duţă, N., Martínez-Rivera, O. (2015). Between Theory and Practice: The Importance of ICT in Higher Education as a Tool for Collaborative Learning. *Procedia - Social and Behavioral Sciences, 180*, 1466–73. doi: 10.1016/j.sbspro.2015.02.294.
22. Duzhin, F., Gustafsson, A. (2018). Machine Learning-Based App for Self-Evaluation of Teacher-Specific Instructional Style and Tools. *Education Sciences 8*(1),7. doi: 10.3390/educsci8010007.
23. Eaton, S., (2023). Academic Integrity and Artificial Intelligence: Implications for Plagiarism and Academic Writing. https://youtu.be/9QNNPVSC24w.
24. Eco, H. (2000). *Apocalypse Postponed: Essays by Umberto Eco*. Indiana University Press.
25. Elsevier. (2018). *ArtificiaI Intelligence: How knowledge is created, transferred, and used*. Vol. 2018. Elsevier.
26. Encyclopedia Brittanica (2023). Artificial Intelligence (AI). https://www.britannica.com/technology/artificial-intelligence (Retrieved 5 June 2023).
27. European Commission. (2019). *Ethics Guidelines for Trustworthy AI*.
28. European Commission. (2020). *White Paper on Artificial Intelligence: A European Approach to Excellence and Trust*.

29. European Commission. (2022). *European Commission Digital Strategy*.
30. European Commission. 2023. *EU AI Act: First Regulation on Artificial Intelligence*.
31. European Commission (2023b). *Digital Education Action Plan (2021-2027)*.
32. European Commission (2023a). *Digital Skills and Jobs Platform*.
33. European Union. (2018a). *Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on Copyright and Related Rights in the Digital Single Market and Amending Directives 96/9/EC and 2001/29/EC*.
34. European Union. (2018b). *General Data Protection Regulation GDPR.*
35. Ferrarelli, M. (2023). *¿Cómo Abordar La Inteligencia Artificial En El Aula?*. Buenos Aires: CIAESA.
36. Floridi, L. (2023). AI as Agency Without Intelligence: On ChatGPT, Large Language Models, and Other Generative Models. *Philosophy and Technology*. doi: 10.2139/ssrn.4358789.
37. Foltynek, T., Bjelobaba, S., Glendinning, I., Zeenath R. K., Santos, R., Pavletic, P., Kravjar, P. (2023). ENAI Recommendations on the Ethical Use of Artificial Intelligence in Education. *International Journal for Educational Integrity 19*(1), 1–4. doi: 10.1007/s40979-023-00133-4.
38. Foucault, M. 2001. *The Order of Things*. London: Routledge.
39. Gao, C. A., Howard, F., Markov, N., Dyer, E., Ramesh, S., Luo, Y., Pearson, T. (2023). Comparing Scientific Abstracts Generated by ChatGPT to Real Abstracts with Detectors and Blinded Human Reviewers. *Npj Digital Medicine 6*(1), 1–5. doi: 10.1038/s41746-023-00819-6.
40. Gartner, S., Krašna, M. (2023). Etika umetne inteligence v izobraževanju. *Revija za elementarno izobraževanje journal of elementary education 16*(2), 221–37.
41. Geertz, C. (1991). *La Interpretación de Las Culturas*. México: Gedisa.
42. Giddens, A. (1993). Hermenéutica, Etnometodología y Problemas Del Análisis Interpretativo. *Studies in Social and Political Theory*, 71–77.
43. Goda, Y., Yamada, M., Matsukawa,H., Hata, K., Yasunami, S. (2014). Conversation with a Chatbot before an Online EFL Group Discussion and the Effects on Critical Thinking. *The Journal of Information and Systems in Education 13*(1), 1–7. doi: 10.12937/ejsise.13.1.
44. González, E., Calvo, E. (2022). Ethically Governing Artificial Intelligence in the Field of Scientific Research and Innovation. *Heliyon* 8(2). doi: 10.1016/j.heliyon.2022.e08946.
45. Green, Et., Singh, D., Chia, R. (2022). *AI Ethics and Higher Education : Good Practice and Guidance for Educators, Learners, and Institutions*. Globethics.net.
46. Guber, R. (2011). *La Etnografía. Método, Campo y Reflexividad*. Buenos Aires: Siglo XXI.
47. Gutiérrez, G., Canul-Reich, J., Ochoa Zezzatti, A. Margain, L., Ponce, J. (2018). Mining: Students Comments about Teacher Performance Assessment Using Machine Learning Algorithms. *International Journal of Combinatorial Optimization Problems and Informatics 9*(3), 26–40.
48. Haderer, B., Ciolacu, M. (2022). Education 4.0: Artificial Intelligence Assisted Task- and Time Planning System. *Procedia Computer Science* 200, 1328–37. doi: 10.1016/j.procs.2022.01.334.
49. HAI (2023). Stanford AI-Index Report.
50. Han, B. C. (2018). *The Expulsion of the Other: Society, Perception and Communication Today*. Wiley.
51. Hansen, P. (n.d.). The Colonization Of Anthropology. *SOAS*. Retrieved (https://www.soas.ac.uk/sites/default/files/2022-06/04%20The%20Colonization%20Of%20Anthropology%20file58313.pdf).

52. Hijmans, H., Raab, R. (2022). Ethical Dimensions of the GDPR, AI Regulation, and Beyond. *Direito Público 18*(100). doi: 10.11117/rdp.v18i100.6197.
53. Hine, C. (2011). *Virtual Ethnography*. UK: SAGE Publications.
54. Hoffman, D. (2015). *What do you think about machines that think?* https://www.edge.org/response-detail/26036 (Retrieved 31 May 2023).
55. Holmes, W. (2019). Artificial Intelligence in Education. A. Tatnall (ed.): *Encyclopedia of Education and Information Technologies* (pp. 1–16). Cham: Springer.
56. Humble, N., Mozelius, P. (2022). The Threat, Hype, and Promise of Artificial Intelligence in Education. *Discover Artificial Intelligence 2*(1), 22. doi: 10.1007/s44163-022-00039-z.
57. de Jager, S. (2023). Semantic Noise in the Winograd Schema Challenge of Pronoun Disambiguation. *Nature: Humanities and Social Sciences Communications 10*(161).
58. Jara, A. (2022). The Role of Artificial Intelligence in the Future of Education. *GetSmarter Blog*. https://www.getsmarter.com/blog/market-trends/the-role-of-artificial-intelligence-in-the-future-of-education/(Retrieved 30 May 2023).
59. Jordan, A. T. (2019). Business Anthropology. *Oxford Research Encyclopedia of Anthropology*.
60. José Sousa, M., Dal Mas, F., Pesqueira, A., Lemos, C., Verde, J.,Cobianchi, L. (2021). The Potential of AI in Health Higher Education to Increase the Students' Learning Outcomes. *TEM Journal* 488–97. doi: 10.18421/TEM102-02.
61. Khare, K., Stewart, B. (2018) Artificial Intelligence and the Student Experience: An Institutional Perspective. *IAFOR Journal of Education 6(*3), 63–78. doi: 10.22492/ije.6.3.04.
62. Kozinet, R. (2010). *Netnography. Doing Ethnographic Research Online*. Londres; California: Sage.
63. Krassmann, A. L., Josende Paz, F., Silveira, C., Rockenbach Tarouco, L. M., Bercht, M. (2018). Conversational Agents in Distance Education: Comparing Mood States with Students' Perception. *Creative Education 9*(11), 1726–42. doi: 10.4236/ce.2018.911126.
64. Kuhn, T. (1970). *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press.
65. Latour, B. (1993). *Nunca Hemos Sido Modernos. Ensayo de Antropología Simétrica*. Madrid: Debate.
66. Latour, B. (1996). Social Theory and the Study of Computerized Work Sites. .J. Orlikowski, G. Walsham, M. R. Jones, and J. I. Degross (eds.): *Information Technology and Changes in Organizational Work, IFIP Advances in Information and Communication Technology* (pp. 295–307). Boston, MA: Springer US.
67. Lion, C., Steinman, J., Landau, M., Albarello, F., Bacher, S. (2023). *Conversatorio: IA y Enseñanza: ¿Cómo Abordar ChatGPT Desde El Aula?*
68. Lion, K. (2022). Is Artificial Intelligence the Magic Potion That Will Lead Us to Improve the Quality of Higher Education? E. Green, Ş. Divya, and R. Chia (eds.): *AI Ethics and Higher Education Good Practice and Guidance for Educators, Learners, and Institutions*, *Globeethics* (pp. 147–70).
69. Litwin, E. (2006). *El Oficio de Ensenar*. Buenos Aires: Paidos.
70. Lo, C. K. (2023). What Is the Impact of ChatGPT on Education? A Rapid Review of the Literature. *Education Sciences 13*(4), 410. doi: 10.3390/educsci13040410.
71. Lupton, D., Williamson, B. (2017). The Datafied Child: The Dataveillance of Children and Implications for Their Rights. *New Media & Society 19*(5), 780–94. doi: 10.1177/1461444816686328.
72. Malinowski, B. (1972). *Los Argonautas Del Pacifico Sur*. Barcelona: Planeta Agostini.

73. Manuale, M. (2012). Repensar La Docencia Universitaria. *Revista Aula Universitaria 13*, 5–7.
74. Moya, M., Vázquez, J. (2010). De La Cultura a La Cibercultura: La Mediatización Tecnológica En La Construcción de Conocimiento y En Las Nuevas Formas de Sociabilidad. *Cuadernos de Antropología Social*, *31*, 75–96.
75. Nilsson, N. (2010). *The Quest for Artificial Intelligence : A History of Ideas and Achievements*. Cambridge; New York: Cambridge University Press.
76. OECD. 2023. *Artificial Intelligence*. https://www.oecd.org/digital/artificial-intelligence/.
77. OpenAI. (2023). *ChatGPT* (July) [*Large language model*]. https://chat.openai.com/chat
78. Ortega, A. (2023). Nuevas Inteligencias. *TELOS Fundacion Telefonica*. https://telos.fundaciontelefonica.com/nuevas-inteligencias/.
79. Owoc, M. L., Sawicka, A., Weichbroth, P. (2021). Artificial Intelligence Technologies in Education: Benefits, Challenges and Strategies of Implementation. M. L. Owoc and M. Pondel (eds.): *Artificial Intelligence for Knowledge Management, IFIP Advances in Information and Communication Technology* (pp. 37–58). Cham: Springer International Publishing.
80. Oxford Internet Institute, Google (2023). Guia Basica de La IA. https://atozofai.withgoogle.com/intl/es-419/machine-learning/.
81. Pedró, F. (2020). Applications of Artificial Intelligence to Higher Education: Possibilities, Evidence, and Challenges. *IUL Research 1*(1), 61–76. doi: 10.57568/iulres.v1i1.43.
82. Podjed, D. (2011). Multiple Paradigm Research on Organisational Culture: An Introduction of Complexity Paradigm. *Organizacija*, *44*.
83. Popenici, S. A. D., Kerr, S. (2017). Exploring the Impact of Artificial Intelligence on Teaching and Learning in Higher Education. *Research and Practice in Technology Enhanced Learning 12*(1), 22. doi: 10.1186/s41039-017-0062-8.
84. PRIMUSS university application portal. Germany. https://www3.primuss.de/cgi-bin/bew_anmeldung_v2/index.pl?FH=fhin&Language=en
85. Rensfeldt, A. B., Rahm, L. (2023). Automating Teacher Work? A History of the Politics of Automation and Artificial Intelligence in Education. *Postdigital Science and Education 5*(1), 25–43. doi: 10.1007/s42438-022-00344-x.
86. Restrepo, E. (2018). *Etnografía, Alcances, Técnicas y Éticas*. Lima: Fondo Editorial de la Universidad Nacional Mayor de San Marcos.
87. Rockwell, A. (2017). The History of Artificial Intelligence'. *Science in the News*. https://sitn.hms.harvard.edu/flash/2017/history-artificial-intelligence/ (Retrieved 23 June 2023).
88. Rockwell, E. (2009). *La Experiencia Etnográfica: Historia y Cultura En Los Procesos Educativos*. Buenos Aires: Paidós.
89. Rudolph, J, Samson, T., Shannon, T. (2023). ChatGPT: Bullshit Spewer or the End of Traditional Assessments in Higher Education?. *Journal of Applied Learning & Teaching* 6(1). doi: 10.37074/jalt.2023.6.1.9.
90. Salas-Pilco, S. Z., Yang, Y. (2022). Artificial Intelligence Applications in Latin American Higher Education: A Systematic Review. *International Journal of Educational Technology in Higher Education 19*(1), 1–20. doi: 10.1186/s41239-022-00326-w.
91. Sandoval, Z. V. (2018). Design and Implementation of a Chatbot in Online Higher Education Settings. *Issues In Information Systems*. doi:10.48009/4.
92. Schneiderman, B. (2023). *107th Note on Human-Centered AI*. https://groups.google.com/g/human-centered-ai/c/iocE4F4_dhg/m/QxaAHJ8wAQAJ (Retrieved 5 July 2023).

93. Selwin, N. (2014). *Distrusting Educational Technology Critical Questions for Changing Times.* Routledge, Taylor & Francis Group.
94. Song, D., Rice, M., Young E. (2019). Participation in Online Courses and Interaction With a Virtual Agent. *The International Review of Research in Open and Distributed Learning 20*(1). doi: 10.19173/irrodl.v20i1.3998.
95. Southworth, Jane, Kati Migliaccio, Joe Glover, Ja'Net Glover, David Reed, Christopher McCarty, Joel Brendemuhl, and Aaron Thomas. 2023. 'Developing a Model for AI Across the Curriculum: Transforming the Higher Education Landscape via Innovation in AI Literacy'. *Computers and Education: Artificial Intelligence* 4:100127. doi: 10.1016/j.caeai.2023.100127.
96. Stachowicz-Stanusch, A., Amann, W. (2018). *Management and Business Education in the Time of Artificial Intelligence: The Need to Rethink, Retrain, and Redesign*. (Research in Management Education and Development). Information Age Publishing.
97. Tett, G. (2022). *AnthroVIsion. How Anthropology Can Explain Bussiness and Life*. London: Penguin Random House.
98. Tomasevic, N, Gvozdenovic, N., Vranes, S. (2020). An Overview and Comparison of Supervised Data Mining Techniques for Student Exam Performance Prediction. *Computers & Education, 143*, 103. doi: 10.1016/j.compedu.2019.103676.
99. Unesco (2019a). *Beijing Consensus on Artificial Intelligence and Education* - UNESCO Biblioteca Digital. https://unesdoc.unesco.org/ark:/48223/pf0000368303 (Retrieved 24 May 2023).
100. Unesco (2019b). *La Inteligencia Artificial En La Educación.* https://es.unesco.org/themes/tic-educacion/inteligencia-artificial (Retrieved 24 May 2023).
101. Unesco (2021). Artificial Intelligence: Examples of Ethical Dilemmas. https://www.unesco.org/en/artificial-intelligence/recommendation-ethics/cases (Retrieved 29 May 2023).
102. Unesco (2021a). *AI and Education: Guidance for Policy-Makers*.
103. Unesco (2021b). *Recommendation on the Ethics of Artificial Intelligence*. https://unesdoc.unesco.org/ark:/48223/pf0000381137/PDF/381137eng.pdf.multi (Retrieved 29 May 2023).
104. Zawacki-Richter, O., Marín, V., Bond, M., Gouverneur, F. (2019). Systematic Review of Research on Artificial Intelligence Applications in Higher Education – Where Are the Educators?. *International Journal of Educational Technology in Higher Education 16*(1), 39. doi: 10.1186/s41239-019-0171-0.

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Povzetek:

UI in organizacijska preobrazba: Antropološki vpogledi v visokošolsko izobraževanje

Raziskovalno vprašanje (RV): Kateri so nastajajoči postopki, ki omogočajo institucionalizacijo sistemov Umetne Inteligence (UI) v poučevanju, učenju in raziskovalnih praksah? Kakšne so nastajajoče predstave, povezane z uvedbo in uporabo sistemov UI na področju visokega šolstva?
Namen: Članek si prizadeva raziskati in analizirati, z antropološkega vidika, vpliv sistemov UI na poučevanje, učenje in raziskovalne prakse ter pomene v visokem šolstvu, hkrati pa preučuje etične in moralne vidike njihove uvedbe in uporabe.
Metoda: Pri tej raziskavi smo uporabili etnografski okvir in spletno etnografijo, da smo preučili odnose med praksami in pomeni pri uvedbi sistemov UI v visokem šolstvu. Prav tako smo izvedli sistematičen pregled v Googlu Scholar, Scopus, Springerju in Science Directu študij o uporabi UI v visokem šolstvu, da bi prepoznali prevladujoče teme in koncepte. Raziskava je upoštevala kulturni kontekst, v katerem so bile postavljene prakse UI, in preučila, kako UI vpliva in je vplival na kulturne norme, vrednote in dinamiko moči.
Rezultati: Raziskava razkriva, kako uvajanje sistemov UI vpliva na poučevanje, učenje in raziskovalne prakse ter dojemanje v visokem šolstvu. Osvetljuje zamolčane vidike družbenih praks in dojemanja te tematike, da bi podala elemente za etično razvijanje in uporabo sistemov UI.
Organizacija: Raziskava si prizadeva povečati ozaveščenost med organizacijami visokega šolstva o potencialnem vplivu sistemov UI na poučevanje, učenje in raziskovalne procese. Lahko vodi izobraževalne organizacije k obveščenim in etičnim izbiram glede uvedbe in uporabe UI tehnologij v njihovih izobraževalnih praksah, skozi prizmo organizacijske antropologije.
Družba: Družbeni vpliv raziskave leži v njenem potencialu za (ponovno)oblikovanje izobraževalnih praks ter perspektiv in spodbujanje pomembnih etičnih razprav. Z naslavljanjem posledic UI v visokem šolstvu raziskava prispeva k ustvarjanju bolj obveščene in tehnološko ozaveščene družbe.
Originalnost: Izvirnost raziskave leži v njenem meddisciplinarnem povezovanju raziskovanja, z antropološkega vidika, vpliva sistemov UI na poučevanje, učenje in raziskovalne prakse.
Omejitve/nadaljnje raziskovanje: Nekatere omejitve raziskave vključujejo zanašanje na glavne baze novic in odsotnost perspektive uporabnikov (administratorjev, učiteljev, študentov). Vključitev ne-zahodnih virov ter uporaba anket ali poglobljenih intervjujev za zajem angažiranosti administratorjev/učiteljev/študentov z orodji AI bi lahko izboljšala prihodnje raziskave.

Ključne besede: sistemi umetne inteligence, visoko šolstvo, organizacijska antropologija, organizacijska kultura, etnografski okvir, spletna etnografija; etika.