

Analysis of Artificial Intelligence Policies for Higher Education in Europe

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ABSTRACT

This paper analyses 15 AI policies for higher education from eight European countries, drawn from individual universities, from consortia of universities and from government agencies. Based on an overview of current research findings, it focuses the comparison of different aspects among the selected AI policies. The analysis distinguishes between four potential target groups, namely students, teachers, education managers and policy makers. The paper aims at contributing to the further development and improvement of AI policies for higher education through the identification of commonalities and gaps within the existing AI policies. Moreover, it calls for further and in particular evidence-based research to identify the potential and practical impact of AI in higher education and highlights the need to combine AI use in (higher) education with education about AI, often called as AI literacy.

KEYWORDS

AI Literacy, Artificial Intelligence in Education, European Countries Comparison, Higher Education Research, Policy Development.

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I. INTRODUCTION

THE need for society to guide the development of Artificial Intelligence (AI) technologies in a way that maximizes their benefits and minimizes their risks is currently driving the development and implementation of AI policies. This is crucial for ensuring that AI systems are designed and used to serve the common good, are compatible with human values and ethical principles and are not misused. AI policies are essential for AI systems to operate fairly, ethically, and transparently according to societal norms and values. They can provide frameworks that enable organizations and citizens to thoughtfully address ethical challenges related to autonomy, bias,

explainability, privacy, and accountability, and to ensure that AI systems contribute positively to society [1]. AI systems should not perpetuate or escalate harm or inequality, as in cases of AI-enabled GPT detectors that have frequently misclassified non-native English writing as AI generated, raising concerns about fairness and bias [2]. AI policies are therefore needed to protect individual and public interests but also to encourage innovation in AI tools and applications and to promote cooperation in AI provision and use.

AI policies and regulations exist at different levels and address various stakeholders. In our study we focus on AI policies in higher education as our key research and working field.

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The rapid evolution of AI technologies has made available advanced tools for personalized and adaptive learning, data analytics, virtual assistants, and other applications that promise to enhance and disrupt teaching and learning. The uptake of these tools has given rise to a debate in education institutions about readiness, ethics, trust, and the impact and added value of AI, as well as the need for governance, regulation, research and training to cope with the speed and scale at which AI is transforming teaching and learning [3]. At the same time, on-the-ground use of AI by students and teachers is creating a practical need for agreements, policies, and regulatory processes. Alongside this technological potential, specific pedagogical concerns in the university context have emerged, as highlighted by educational research, focusing on personalized learning experiences, inclusion, and accessibility [4]. Experimental applications of AI in various universities have created the need for effective governance to ensure conscious and ethically aligned use, consistent with the traditional roles of educational institutions in providing ethical and responsible quality education [5]. The emerging necessity of a regulatory framework to protect users and the integrity of the higher education system has led to the current development of international ethical standards and regulations regarding AI use.

The examination of AI policies at a European level is a necessary step towards more ethical and cohesive AI frameworks, and more effective use of AI. Similarly, the identification of best practices and ethical guidelines can align the application of AI with broader European values, such as human dignity, privacy, and fairness. The examination of different AI policies at a European level also allows for the identification of the aspects that are addressed and whether advanced AI policies can serve as models to address risks such as biases, privacy issues, and security threats against potential negative impacts. Policies also often address issues of inclusion and accessibility. The comparison between different approaches is an essential step in the society-wide debate that is necessary if AI development is to benefit all segments of society while promoting social equity and avoiding widening the digital divide. Public perception and trust in AI are influenced by how well policies are seen to protect citizens' rights and promote transparency. The comparison of policies helps to identify those approaches that successfully build the public trust and acceptance which is critical for the widespread adoption of AI technologies.

This paper contributes to meeting the need of ethical use of AI and its regulation through the analysis of European AI policies in higher education. The structure of the paper is as follows: section II provides an overview of the background and related work, section III introduces the methodology and selected AI policies, and section IV gives the findings from their analysis. Section V discusses the results and section VI presents the conclusions.

II. BACKGROUND AND RELATED WORK

The recent development of AI-powered technologies has been faster than the development of any previous technology. AI has already been applied in many fields, such as medicine, communication, media, business, and education, enabling tasks to be carried out with greater speed and efficiency, with fascinating and promising results. In this context, educational institutions are both following practice in industry and also developing new technologies [6]. In their teaching they are not only enabling students to adequately use AI-powered tools, but also training them on how to use, improve, and create new AI tools.

The emergence of ChatGPT (Generative Pre-trained Transformer) at the end of November 2022, sparked a debate over the influence of AI-powered technologies on education [7]. AI-driven chatbots such as ChatGPT, Microsoft Bing AI, and Google Gemini are equipped

with advanced language models and user-friendly interfaces and these features allow them to engage in human-like conversations and generate original content in response to user prompts [8] [9].

AI encompasses a vast array of technologies, extending far beyond ChatGPT and the various LLMs [10]. These have profound implications for our daily lives, our societies and geopolitics. The intricate web of AI technologies and systems is not a stand-alone entity; rather, it is an integral component of large-scale socio-technical systems [11]. In order to fully comprehend the impact of AI on our future, it is imperative to assess its implications for the redefinition of education and the enhancement of governance capabilities in the coming years [12].

The capabilities of AI offer a number of potential benefits for education [10] [13] [14]. The use of AI-based technologies can provide an opportunity for personalized teaching and learning by diversifying objectives based on each student's abilities, interests, and motivations, with the goal of allowing all students to reach their full potential while neglecting ethical implications [15]. Furthermore, these technologies can enable and improve the individualization of content and teaching methods, promoting flexible and inclusive teaching by adapting methodologies to individual characteristics while pursuing the curriculum's core competences [16]. Evaluating student tasks and generating exercises based on students' current knowledge and expectations, which are assessed by means of placement tests or other forms of testing are just some of the applications of AI-based tools for individualised teaching [17].

In addition to providing assistance and support for students' learning, AI-based technology also offers support to teachers and education managers [18]. AI can assist teachers in updating and designing curricula, creating daily lesson plans and instructional materials, evaluating the student's knowledge, and tracking and reflecting both, students' academic growth and educators' own teaching and professional development. AI-powered tools can also assist university administrators with the analysis, organization, reflection, and use of data [17]. Thus, AI in education could drive a transformation in teaching and learning practices and program development, making it a crucial domain for educational research [19].

AI technologies may be transforming day-to-day educational practice while there is still a lack of evidence-based research and findings on the impact of AI in teaching and learning [7] [14] [20] [21]. However, García-Peñalvo [22] emphasizes the importance of digital transformation for governments, enterprises, and organizations, and warns against unethical use of technology. Hence, in addition to its numerous advantages and benefits, technology, as a whole, can also be employed for harmful objectives; thus, its improper utilization can cause disruption and result in negative consequences [23]. Therefore, it is imperative to implement measures that reduce or mitigate adverse AI outcomes, while simultaneously striving for ongoing enhancement, through the utilization of AI in efficient, meaningful, and ethical methods [24].

Furthermore, it is claimed that the explainability of AI systems is emerging promoting the use of methods that could produce transparent explanations and reasons for decisions made by AI systems. This promised explainability would help to ensure the integrity of the system and at the same time could enable human users to understand, appropriately trust, and effectively manage AI systems [25].

Even though the integration of AI into higher education may be advantageous, or even necessary, it is a topic of great concern for numerous parties because the information provided by AI is not always correct and may have a negative influence on various aspects of students' development. Among the risks raised by an increased use of AI are those associated with data manipulation, intellectual property theft, dealing with sensitive information, harassment, students' social

and emotional development, and ensuring compliance with applicable laws and regulations. Moreover, if not employed appropriately, the implementation of AI technology can have a negative influence on students' capacity for critical thinking, problem-solving, creativity, and ultimately impede their academic success. Such AI-related impacts emerge when students become unduly reliant on automated answers and solutions, neglecting to devote sufficient effort in reflecting them and developing their own solutions to assignments.

Education professionals are becoming increasingly concerned about the use of AI-based tools such as ChatGPT, Jenni AI, Jasper AI, StealthGPT, etc. to write essays and create modules, microlessons and other academic assignments [26]. Bozkurt et al. [10] point out that "we can neither disregard, resist, nor deny the enduring presence of generative AI-driven conversational agents" (p. 201) and that it may "lead students to progress and graduate based on work that is not their own in the traditional sense" (p. 54). Therefore, colleges and universities have to be cautious in regard to "the side practice related to abusive and unethical use and exploitation of data within the learning process" [22, p. 10]. Further, despite the fact that numerous technologies such as Turnitin, ZeroGPT, AI Content Detector, and GPTzero have been developed to identify content that is not human-produced, there are still significant challenges in this area because the precision and reliability of these tools remain in doubt. In fact, they do not provide a solid basis for making appropriate decisions regarding academic integrity [27], which is why many educators and colleges do not accept them.

An additional challenge presented by AI in transforming education is the constraint on social interaction. This is particularly true in an online environment where students are equipped with tools and platforms that enable personalized learning from any place and at any time. In a such a learning environment, students do not have direct engagement with teachers and their peers, which may have a negative impact on their social, psychological, academic, and emotional development. Further, given the widespread use of digital and AI tools and applications, it is nearly impossible to prevent students from being exposed to potentially dangerous content that can negatively impact their emotional, personal, social, and academic growth [28]. As AI-based tools continue to advance, the distinction between authentic content (including text, voice, photo, and video) and content generated by AI technologies is becoming less discernible. Thus, students have already begun to abuse AI technology by creating explicit photographs of their friends in order to harass them [29] [30] [31]. If such practice is not adequately observed, promptly regulated, and carefully prevented, it is foreseeable that instances of unethical AI utilization will escalate and broaden in the future through the improper exploitation of not only peers but also of teachers' and others' voices, videos, and images [32]. Hence, educational institutions must cultivate students' attitudes and consciousness regarding ethical and responsible utilization of AI-based technology, while also implementing measures to prevent misuse, cheating, theft, discrimination, and other examples of improper AI technology use [33].

The ethical, privacy and data-ownership implications arising from the use of AI are substantial concerns. According to Williamson et al. [34], the weight of the available evidence suggests that the current wholesale adoption of unregulated AI applications in schools poses a grave danger to democratic civil society and to individual freedom and liberty. In addition, Pisica et al. [35] point out that "responsibility toward the actions of algorithms, chatbots, and robots, the ethics behind those who create AI and those who operate AI, data privacy, and security are big themes that have been launched in the ethics debate about AI" (p. 4). Thus, considering the aforementioned challenges, numerous governments and educational institutions initially imposed restrictions on students' utilization of AI tools such

as ChatGPT. Likewise, many governments, universities and experts, have expressed concern about the issues of cheating, plagiarism, and the potential detrimental impact of AI use on students' intellectual abilities and cognitive development. Accordingly, experts across the globe have raised their voices for efficient AI regulations, e.g., Birkstedt et al. [36] who state:

Although public demand for ethical AI continues to grow, if AI technologies are to benefit individuals, then organizations, society, and stakeholders need to be able to trust the technologies and the organizations using them. Academic research should keep pace with the demand and lead discussions on sufficiently broad and practicable AIG (governance) approaches. (p. 160)

This need is also emphasized by Xiao et al. [37] who pointed out that "a comprehensive yet flexible policy could enable faculty and students to reap the benefits of using such technology in the classroom" (p. 4). Thus, efforts are underway to promote the formation of a policy that addresses the ethical and efficient integration of AI into educational practices [38]. Global international organizations such as the Council of Europe, UNESCO, European Commission, the Institute of Electrical and Electronics Engineers [IEEE]), national (UK, China, Japan, USA, etc.) and regional governments, educational and research institutions, enterprises, and other entities make significant efforts to formulate and implement appropriate policies to ensure the responsible and ethical utilization of AI technology in general (e.g., [39] [40]). Below we outline some of the policies of global organizations that are specifically related to the AI use in education (AIED) and significantly influence the policies on national, regional and institutional levels.

UNESCO

To address the issues mentioned above and to support Member States in the use of AIED, UNESCO released a framework for education policymakers aimed at realizing the goals of the 2030 Education Agenda while ensuring the fundamental values of equity and inclusivity in education [41]. With the guidance of policymakers on AI, UNESCO provides educational governance with an overview of basic concepts, methods, and technologies of AI as well as details on the new developments and their impact on teaching and learning using AI in a morally sound, inclusive, and unbiased manner. In addition, suggestions are made on how to learn and work in an AI-driven world and how to improve education and life through the use of AI. The framework also highlights the risks and difficulties of using AI to accomplish Sustainable Development Goal 4 (SDG 4) and provides specific advice on developing strategies and programs that address regional concerns [41].

European Commission

One year after the UNESCO framework had been released, the European Commission and its Directorate-General for Education, Youth, Sport and Culture issued ethical guidelines on the use of AI for educators [42]. Unlike the UNESCO framework which is directed at advising policy makers, the guidelines of the European Commission specifically target support for educators. The guidelines aim to increase teachers' understanding of the potential dangers and assist them in comprehending the power of AI and data usage in the classroom. In this way they enable teachers to utilise AI tools and to deal with them legally, consciously, constructively, and effectively [42].

Council of Europe

In the same year, the Council of Europe (CoE) published a report on the effects of using AI in education seen from the perspectives of Europe's fundamental values [43]. Regarding human rights questions, the focus is on how AI affects children's rights to education, their dignity, autonomy, privacy, data protection, and many more. Further, the report examines how the dominance of commercial AI applications may jeopardize democratic education, how some tools encourage individualism at the expense of social and cooperative

aspects of teaching and learning and how AIED could both strengthen and weaken democratic values. In addition, the legal challenges posed by the use of AI algorithms, such as the use of historical data to grade students, the tracking of learning data and biometric data, are scrutinised [43] [44]. Currently, the Council of Europe is developing with its appointed AI&ED Expert Group an international convention as a specific AI law for education which will be complementary to the EU AI Act [44] [45]. In addition, the CoE is currently working upon a set of actions to facilitate teaching and learning with and about AI such as the AI policy toolbox and a specialised assessment tool for AI in education systems.

EU AI Act

In March 2024, the European Union approved the first comprehensive international framework for limiting the risks of AI: the AI Act [46]. It follows an impact-oriented approach with four categories ranging from unacceptable risk (which is forbidden), high risk (which is regulated), limited risk (which may be taken with some obligations), and minimal risk (which remains unregulated) plus the additional category of general-purpose AI models that was added during later negotiations. Concerning the implementation of AI technology in education, recital 56 of the EU AI Act points out the importance of promoting high-quality digital education and training and allowing all learners and teachers to acquire and share the necessary digital skills and competencies, including media literacy, and critical thinking, to take an active part in the economy, society, and in democratic processes [46]. In accordance with Annex III, AI systems are qualified as ‘high risk’ if they are intended to a) determine access or admission to educational training, b) be used to evaluate learning outcomes, c) be applied for the purpose of assessing the appropriate level of education that an individual will receive or will be able to access, or d) be used for monitoring and detecting prohibited behaviour of students during tests [46]. In its article 4, the AI Act establishes the obligation of AI literacy for all providers and deployers, requiring them to “take measures to ensure, to their best extent, a sufficient level of AI literacy of their staff and other persons dealing with the operation and use of AI systems on their behalf” [46]. Thus, the role of education and training related to AI systems constitutes an essential pillar of the AI Act with respect to the existing chain through which AI systems are introduced as well as for the possible users, both as individuals and as groups.

AI Policy Implementation in (Higher) Education

Despite attempts to effectively govern the use of AI in (higher) education, there are still criticisms of adopted policies and requirements for them to be updated and improved. Thus, Birkstedt et al. [36] offer that these policies and principles provide little guarantee that they are being applied in reality due to a lack of concreteness and a stronger emphasis on what is happening rather than why what is a surprising statement. Furthermore, regarding the school sector, Williamson et al. [34] “recommend that school leaders pause adoption of AI applications until policymakers have had adequate time to fully educate themselves about AI and to formulate legislation and policy ensuring effective public oversight and control of its school applications” (p. 4). Likewise, the Bipartisan Senate AI Working Group priorities for AI policy in the United States include ensuring enforcement of existing laws for AI, increasing funding for AI innovation, and performing cutting-edge AI research and development, bolstering national security by addressing national security threats, risks, and opportunities for AI, and identifying ways to ensure higher education institutions and companies of all sizes can compete in AI innovation [47]. Hence, even though many global organizations, governments and institutions have adopted AI policies, due to the fast and unpredictable AI technology explosion and development, there is a need to revise existing and develop new policies which should enable effective and safe AI use in higher education.

All co-authors belong to the Network “Ethical Use of AI” (<https://ethicalai.ecompetence.eu/>) and as a European Network of researchers and teachers from universities, our main interest is in the exploration, analysis and promotion of AI policies for higher education and their potential improvements and practical applications. The European Network is an open and independent initiative run by and for researchers and teachers. Together with all interested colleagues we are meeting monthly without financial interests and without any funding to facilitate better and ethical use of AI in education, to facilitate AI literacy and to serve the society.

Several studies have already analysed and compared AI policies worldwide in different selected countries [48] or from specific rankings [37] [49] or from global institutions [50]. We decided to collect and analyse European AI policies from the eight European countries represented by the co-authors.

III. METHODS

This study aims to analyse policies on AI in higher education. This study is purposely conducted at an early stage in AI policy development, which is characterised by a lack of uniformity within and across the different levels of policy making. The domain is characterised by rather disparate initiatives and varying levels of maturity. This study aims to collect and analyse important themes and to highlight emerging directions in current practice, to set the ground for future consolidation and consensus making. Our research questions are “What aspects are addressed in the selected AI policies?” and “How do the policies differ in relation to issuers and target groups.”

A. Methods

Our analysis of the AI policies is based on the ethical principles from the AI High Level Expert Group guidelines for trustworthy AI that were published in 2019 after an open consultation with more than 500 contributors [51]. They include human agency and oversight, technical robustness and security, privacy and data governance, transparency, diversity, non-discrimination and fairness, environmental and social welfare, and accountability. Furthermore, they have inspired the EU Regulation on Artificial Intelligence, hereinafter “AI Act” [46] in the definition of grounds of assessment for the compliance of the AI-based systems.

The article performs a formal and content-related analysis of currently published European AI policies for higher education through case study methodology.

For our study, we selected the countries of all co-authors as basis for our research. We have identified and collected AI policies from universities as well as from national public authorities. To keep a balance between the countries, we have selected a national AI policy, if available, and AI policies from universities so that there are not more than four AI policies from each country. To avoid an amount of AI policies that we could not handle and analyse, we have selected and concentrated on AI policies that are from larger universities and already in practice for a longer time. Table I provides an overview of the analysis categories for each AI policy. The country overviews based on the completed tables for all AI policies are published in a separate document that is also published on the website of our European Network with a DOI [52]. The key findings are presented in the section V.

Our analysis framework (Fig.1) takes into consideration the four main target groups who an AI policy can be aimed at: students, teachers (including tutors and lecturers), educational managers (including administrators), and policy makers. In addition, their role (with respect to AI systems/tools), the area of AI application (use cases in higher education) and the scope of an AI policy are focused.

TABLE I. ANALYSIS CATEGORIES FOR THE SELECTED AI POLICIES

Basic information

Name:	[What is the name of the AI policy?]
Issuer:	[Who has authored and issued the AI policy?]
Country:	[In which country is the AI policy developed and issued?]
Educational level:	[Which educational level(s) does the AI policy address? It has to include higher education]
Description:	[What is short description of the AI policy?]
Link, URL, DOI:	[What is the website link, URL or DOI for the AI policy?]

Formal analysis aspects

Application area(s):	[For which application area(s) is the AI policy? Administration, research, teaching, formal examination, self-learning, self-assessment, all?]
Application scope(s):	[For which application scope(s) is the AI policy? Single university, group of universities, all universities in a region/in a country?]
Educational level(s):	[For which educational level(s) is the AI policy? Teachers & students (micro level), Design & teaching (meso level), Organisation & education system (macro level), all levels?]
Policy focus:	[What is the focus of the AI policy? AI use in Education (AI&ED), education about AI (AI literacy), both = AI and Education (AI&ED)?]
Type:	[Policy or guideline or recommendation?]
Status:	[Published or under development? In the first analysis round, only completed and published AI policies are compared, in a second analysis round, all AI policies (including those that are currently under development) are highlighted in country overview]
Geographical or political	[Is it applied to the whole country, a region, or an organisation?]
Introduction:	[Top-down or bottom-up? Directive of the management or co-creation by teachers, researchers or community?]

Content-related analysis aspects

Ethical considerations:	[Which ethical considerations for developing educational policies are evident in the published documents? Three potential dimensions: meta-ethics, normative ethics, applied ethics]
Ethical principles:	[Which ethical principles are addressed, followed and promoted in the AI policy?]

 Students**Role:** Users of AI tools**Application:** Learning & Research**Guidance:** Select and use AI tools correctly **Teachers****Role:** Users of AI tools**Application:** Teaching & Research**Guidance:** Select and use AI tools correctly **Education Managers****Role:** Purchasers & Users of ethical AI systems**Application:** Leadership & Administration**Guidance:** Provide, use and evaluate ethical AI systems **Policy Makers****Role:** Supervisors & Regulators of ethical AI systems**Application:** Policy planning & Monitoring**Guidance:** Control, regulate and safeguard ethical AI systems

The selected case studies are listed in the following section III.B. And the results of their analysis are presented in section IV.

B. Selected AI Policies

We have selected 15 AI policies from eight countries for our analysis. Table II provides an overview of the selected 15 AI policies and their details.

IV. RESULTS

In the section Results, we present the findings from the analysis of our 15 AI policies. First, we analyse the AI policies according how they are addressing different target groups. Afterwards, we analyse the AI policies according their different status.

A. Analysis of the AI Policies According the Target Groups

We analyse the 15 AI policies according to the four target groups: Students (TG1), Teachers (TG2), Education Managers (TG3) and Policy Makers (TG4) as presented in Table III.

The main criterion for our analysis is the amount of agency for the different target groups according to three potential levels:

1. NR = Not Relevant: the AI policy is not relevant at all for the specific target group,
2. SR = Some Relevance: the AI policy provides some relevance and actions for the specific target group but it is mainly directed to another target group,
3. R = Relevant: the AI policy offers guidance and greater emphasis for the specific target group (sometimes including a vision for the specific target group).

Fig. 1. Analysis framework - principal analysis dimensions.

TABLE II. OVERVIEW OF THE SELECTED AI POLICIES

ID	Name, Issuer (Country)
1	Guidelines for Dealing with AI in Teaching University of Vienna (Austria) https://phaidra.univie.ac.at/o:1879857
2	Artificial Intelligence Strategy German Federal Government (Germany) https://www.ki-strategie-deutschland.de/files/downloads/Fortschreibung_KI-Strategie_engl.pdf
3	What is Artificial Intelligence (AI)? How can I use AI ethically at university? Network "Ethical use of AI" (Germany) https://doi.org/10.5281/zenodo.10995669
4	Recommendations for the Use of Artificial Intelligence in Academic Performance and Examinations Humboldt University of Berlin (Germany) https://www.hu-berlin.de/de/studium/pservice/empfehlungen_ki_in_pruefungen_hu_2023-09-18.pdf
5	Strategic Programme on Artificial Intelligence (AI) containing 24 policies Italian government (Italy) https://assets.innovazione.gov.it/1637777513-strategic-program-aiweb.pdf
6	LLM Policy of the University of Siena University of Siena (Italy) https://www.unisi.it/sites/default/files/albo_pretorio/allegati/Linee%20guida%20UNISI%20Chat%20GPT_.pdf
7	Hellenic National Strategy for Artificial Intelligence Hellenic Ministry of Digital Governance (Greece) https://digitalstrategy.gov.gr/website/static/website/assets/uploads/digital_strategy.pdf
8	Albania's Digital Agenda and its action plan for 2022-2026 Council of Ministers (Albania) https://www.akshi.gov.al/wp-content/uploads/2022/06/vendim-2022-06-01-370-Agenda-Digjitale-e-Shqiperise-22-26-dhe-plani-i-veprimit.pdf
9	Generative AI and ChatGPT in the Classroom International Burch University (Bosnia and Herzegovina) https://www.ibu.edu.ba/offices/publications
10	Generative AI in education. Educator and expert views Department for Education (DFE) UK Government (United Kingdom) https://assets.publishing.service.gov.uk/media/65b0c90c160765000d18f74f/DfE_GenAI_in_education_-_Educator_and_expert_views_report.pdf
11	Principles on the use of generative AI tools in Education The Russell Group (UK Research Intensive University Group) (United Kingdom) https://russellgroup.ac.uk/news/new-principles-on-use-of-ai-in-education/
12	Declaration for an ethical use of Artificial Intelligence in Higher Education Universidad Internacional de La Rioja (UNIR) (Spain) https://bit.ly/unir-ia
13	Recommendations for teaching with generative artificial intelligences Carlos III University of Madrid (Spain) http://hdl.handle.net/10016/37989
14	Basic guide on the use of artificial intelligence by teachers and students Autonomous University of Madrid (Spain) https://www.uam.es/uam/media/doc/1606941290988/guia-visual-ia-gen.pdf
15	Artificial Intelligence in the university University of Granada (Spain) https://ceprud.ugr.es/formacion-tic/inteligencia-artificial

TABLE III. ASSIGNMENTS OF AI POLICIES TO TARGET GROUPS (TG)

ID	TG1	TG2	TG3	TG4	Comments
1	NR	R	SR	NR	Focused on teacher needs, minimal student focus.
2	NR	NR	NR	R	Emphasizes policy issues, not specific to other groups.
3	NR	R	NR	SR	Addresses systemic teacher issues but not students or managers.
4	SR	SR	SR	NR	Some student focus, less on teachers, involves managers.
5	NR	NR	NR	R	Primarily focused on policy issues.
6	NR	R	NR	NR	Focused mainly on teachers, no student relevance.
7	NR	NR	NR	R	Emphasizes policy maker issues.
8	NR	NR	NR	SR	Similar focus as Policy 7.
9	R	NR	NR	NR	Strong emphasis on student issues.
10	SR	R	SR	R	Addresses both students and teachers, includes management actions.
11	R	R	SR	NR	Greater emphasis on both students and teachers.
12	R	R	SR	SR	Comprehensive approach for students and teachers.
13	R	R	SR	NR	Highlights student and teacher needs.
14	R	R	SR	NR	Strong focus on students and teachers.
15	R	R	SR	NR	Emphasizes student and teacher engagement.

Legend: NR = Not Relevant - SR = Some Relevance - R = Relevant

In relation to the target group **Students**, the AI policies selected for analysis can be divided into the following three categories:

1. Several AI policies are not relevant to the student target group (1, 2, 3, 5, 6, 7, 8).
2. Some relevance to students can be found in a few AI policies (4, 10).
3. A larger number of AI policies address the practical issues and these have a greater emphasis on students (9, 11, 12, 13, 14, 15).

In relation to the target group **Teachers** (including *Tutors and Lecturers*), the AI policies selected for analysis can be divided into the following three categories:

1. Some are not relevant to the 'teacher' target group (2, 5, 7, 8, 9).
2. One AI policy addresses systemic issues faced by Universities and thus, it has much less emphasis on the 'teacher' target group (4).
3. The majority of policies address the 'teacher' target group (1, 3, 6, 10, 11, 12, 13, 14, 15).

In relation to the target group **Education Managers** (including *Administrators*), none of the AI policies selected for analysis discuss or plan for the ways that AI can be used to support the activities of academic managers. However, the AI policies identify (to varying degrees) actions which have implications for education managers. In this respect, the AI policies selected for analysis can be divided into the following three categories

1. Some are not relevant to the manager target group (2, 3, 5, 6, 7, 8, 9).
2. The majority of the relevant policies are addressed primarily to teachers and students, but describe some actions or processes which involve education managers or administrators (1, 4, 10, 13, 14, 15).

3. A smaller number address some of the systemic issues raised by Generative Artificial Intelligence (GenAI) for the university or universities, and these imply more actions for academic management and administration (11, 12).

In relation to the target group **Policy Makers**, the AI policies selected for analysis can be divided into the following four categories:

1. Some are not relevant to the policy maker target group (1, 4, 9, 11, 13, 14, 15).
2. The majority of the relevant policies are addressed primarily to teachers and students, but describe some actions or processes which involve policy makers (3, 8, 12).
3. A smaller number address the systemic issues faced by the government, and these have a greater emphasis on policy makers (2, 5, 7, 10).
4. No AI policy is combining directions for the AI use in combination with a long-term AI vision and declaration that is also relevant for policy makers.

Overall, the majority of the AI policies are focusing mainly the target groups Teachers (9 x relevant, 1 x some relevance) and Students (6 x relevant, 2 x some relevance) while the target groups Policy Makers (4 x relevant, 3 x some relevance) and Education Managers (0 x relevant, 8 x some relevance) are less addressed.

B. Analysis of the AI Policies According the Issuer Groups

There is a distinction to be drawn concerning the level at which the policies were created. On the one hand are individual universities (1, 4, 6, 9, 13, 14, 15), which have responsibility for their own processes. On the other hand, there are consortia of universities (3, 11, 12) and government agencies (2, 5, 7, 8, 10), which are responsible for creating the policy or legal framework within which universities determine their processes.

1. AI Policies From Individual Universities

There is a group of AI policies which provide advice or guidance for teachers and students that has implications for the challenges facing the institution, and for the education managers and administrators who work in it, but without identifying specific challenges or responsibilities. Nevertheless, the fact of creating guidelines is in itself an intervention by management, intended to regulate the use of AI in the delivery of education in the institution.

The clearest case is perhaps **Carlos III University of Madrid** (13), which provides a set of guidelines at the University level, but the guidelines themselves delegate responsibility to those teachers and students, stating that “Any strategy based on limiting, preventing or sanctioning the use of these tools is destined to fail”, thereby excluding any direct management of the use of AI. Consequently, the guidelines which it provides are exclusively at the level of individual practice, providing insight which can support teachers and students in the “ethical, correct and effective application” of AI.

Similarly, the **Humboldt University** AI policy (4) focuses exclusively on “the use of generative AI processes that are able to use prompts to generate content that is relevant for answers to exam tasks (e.g., ChatGPT), in exams and in the context of coursework (special work)”. The document states that “the use of AI in examinations and coursework should not be generally banned” but it can be restricted or banned for specific purposes. In line with the structure of the University, the detail of such restrictions is delegated to the “faculties and their examination committees to make subject-specific and binding decisions in the knowledge of these recommendations”. The policy allows examiners to use AI in the creation of examination documents, but requires them to “observe data protection and copyright regulations in connection with examinations”. No guidance

is offered on how this could be achieved, and this is perhaps also delegated to the faculties.

Some other institutions appear to adopt a similar delegation, without being as explicit. For example, the **University of Vienna** AI policy (1) contains a section where high level ethical concerns are outlined, but this is not related to specific challenges for management or administration, and the same is true for legal issues. Similarly, **The Department of Education for England** policy paper on GenAI in education (10) observes that technology has the potential to “reduce workload across the education sector”, leaving open the possibility of application to management and administration tasks without any elaboration. It also stresses the existing duty of care of education institutions to avoid access to harmful internet content, and extends this to GenAI without exploring the issues.

There is another subgroup of policies which take a similar approach of delegation to teachers and students, but which do identify some interventions which need to be made by institutional managers and administrators. The provision of training is mentioned by the **Autonomous University of Madrid** (14) and the **University of Siena** (6). The University of Siena also states that sanctions should be applied for the misuse of chatbots by students, and that reflection is required on restructuring and diversifying teaching and assessment. These aspects imply actions by managers and administrators, but the actions are not specified. Intellectual property is discussed, stating that ideas generated by AI cannot be patented, that use of AI must be indicated in papers and student assignments, and that care must be taken “that the use of AI to process personal data does not expose the data subject to any risk or damage.” No guidance is provided on how these requirements are to be carried out.

The University of Granada (15) provides guidelines created by the Resource Production Center for the Digital University (CEPRUD). In addition to guidance for teachers and students, these provide three recommendations which articulate the use of AI for the entire university community. Interestingly, two of them relate to the overall university policy on data security, requiring staff to (1) avoid entering sensitive data into a publicly accessible GenAI system, and (2) to use the GenAI tools provided by the University, which protect the privacy of the data that is entered and is not used in the training of the model or transferred to third parties.

2. AI Policies From Consortia of Universities

Three policies are from a consortium of universities (3, 11, 12). The AI policy “What is Artificial Intelligence (AI)? How can I use AI ethically at university?” (3) from the **German Network “Ethical use of AI”** was developed by researchers and teachers from the network that includes more than 40 higher education institutions from Germany, Austria and the Switzerland. Thus, it is unique as it provides the first German guidance for university teachers from themselves. The majority of the network members are responsible for the university-wide further education and training and shared the same demand for a short and easy AI introduction leading to this guidance. Accordingly, it combines a definition of AI in ten statements and a FAQ list with answers and specific practical recommendations how to introduce AI in higher education. It includes requirements for careful reflection and specific regulations to ensure equity as well as the human rights. The main target group are the university teachers but also education managers and policy makers can gain insights concerning issues to be addressed and resolved when considering the use of AI in higher education.

The other two AI policies specifically address some of the systemic issues raised by GenAI. Both of these policies were produced by supra-university bodies, specifically a group of elite universities in the UK (11), and a company which runs multiple universities (12). Thus, the

immediate audience for these documents consists of the managers and administrators the universities which they address, rather than the teachers and learners to who are the principal audience for the individual university policies which we have examined. It is therefore unsurprising that these two AI policies imply more actions to be taken by education managers and administrators. However, in neither of them there is mention of the use of GenAI in the execution of university administration or management. **The Russell Group** (11) of elite UK universities has published principles on the use of GenAI tools, affirming their members' intentions. These imply some actions for managers and administrators, for example the application of institution-wide policies, and the need to consider university-wide subscription to GenAI services, and the provision of training. **The Universidad Internacional de La Rioja (UNIR)** (12) belongs to the holding company Proeduca Education Group which includes nine universities (with 130,000 students) and a VET institution worldwide. Like the Russell Group, the UNIR declaration of principles for the use of GenAI has implications for management and administration, including the need for training, but in this case with a strong focus on responsible use of AI, including ethical procedures, data privacy, human control of AI, transparency and traceability. Uniquely among the documents we have surveyed, the principles include an internal audit and monitoring system, which would require action by management and administration. The principles have been applied in a Guide for the Responsible Use of Generative AI in Research Tasks [53], and may be applied to other areas of university activity as and when UNIR identifies a need.

3. AI Policies From Government Agencies

The remaining AI policies are developed by a government agency (2, 5, 7, 8, 10).

The "Artificial Intelligence Strategy of the **German Federal Government**" (2) provides political guidelines for all sectors in general but not specifically for the educational sector while education is mainly addressed as (vocational) education and training for other sectors.

In addition, the "National Strategic Programme on Artificial Intelligence" (5) by the **Italian government** focuses on all sectors while AIED is mainly seen as task for higher education. In addition, it asks for AI education at all levels but without precise tasks and realizations.

The "Digital Transformation Guide 2020-2025" (7) by the **Greek government** with its 422 pages is the longest policy, but only a specific section concerns education. This section discusses potential challenges and covers mainly managerial aspects for future changes.

"Albania's Digital Agenda and its action plan for 2022-2026" by the **Council of Ministers from Albania** (8) also focuses more on other sectors than education and mainly on technological issues. AI is explicitly mentioned but the implementation and risks of AI are only discussed related cloud computing, cybersecurity and managerial issues.

The policy paper "Generative artificial intelligence (AI) in education" (10) by the **UK government** only addresses school and college education and consequently its relevance for our research focus on higher education is limited.

V. DISCUSSION

In this section, we reflect on the results from our country descriptions and the analysis of the AI policies related to the four target groups.

First of all, an important main finding is that we could not easily identify AI policies in education and not many universities have developed and published their own guidelines. The adoption of

national, European and international AI policies remains fragmented, with only a few universities having adopted them and the targets set by these policies not always being consistent. It is evident that government policies on AI in the educational sector are not always present, and there is a need for greater awareness of the governance of AI tools. The concern is that, as during the COVID-19 pandemic [54] [55], we move in an unstructured manner and without a common and shared vision, compromising the quality and inclusiveness of formal education in the face of these global changes, and risking the generation of inequalities, a lack of equity in access and injustice. Therefore, we hope that future harmonisation of AI policies at the regional (European) level will ensure equal opportunities for future European citizens.

The second key finding is that the role of students varies greatly in these AI policies for higher education, particularly in relation to GenAI tools. A critical distinction emerges: some AI policies position students as relatively *passive* recipients of instruction, while others promote a more *proactive* role. The former view students as beneficiaries of the actions of higher education institutions and their teachers, while the latter considers student agency in the use of AI.

Certain AI policies appear to adopt a **passive student role**. These assume that students' engagement with AI depends on the actions of external actors, universities and educators or should be guided by them. The focus therefore lies on empowering and supporting students through initiatives directed towards universities and teachers, namely actions aimed at communicating limitations and ethical considerations surrounding AI use, particularly generative AI (GenAI), namely improving critical reasoning skills, and training students on safe and responsible use of GenAI tools. At the same time AI use is regarded as the means for: (a) enhancing teaching practices and student learning experiences; and (b) promoting the development of future-focused skills in students.

Table IV features indicative statements extracted from guidance documents that frame student engagement with GenAI as contingent upon actions taken by external actors (universities and educators). This guidance is directed towards teachers and higher education institutions.

Conversely, other guidance documents, particularly those stemming from Spanish universities, promote a **proactive student model**. These documents present GenAI as a "learning partner" and "writing partner" for students, encouraging responsible and ethically aware utilization. This approach is evident in statements such as:

- "...teach students how to use emerging technologies, such as generative AI, safely and appropriately..."
- "...support students, particularly young pupils, to identify and use appropriate resources..."

This framing emphasizes student agency and initiative in harnessing GenAI for their educational benefit.

Overall, the passive model positions students as beneficiaries of actions undertaken by teachers and institutions, while the proactive model empowers students to utilize GenAI as an active learning tool.

Some of the policies examined also include specific recommendations for teachers. These emphasise the need to obtain consensus for the use of AI systems, develop university-wide ethical guidelines, and cooperate with other institutions to improve practices in the use of AI.

The implementation of AI in higher education offers a promising avenue for enhancing the academic management and delivery of education. Nevertheless, it is of the utmost importance to address ethical challenges and ensure that the use of these technologies is accountable, transparent and respects the rights of individuals, namely students and teachers. The application of AI in the field of academic

TABLE IV. STATEMENT EXAMPLES FRAMING PASSIVE STUDENT ROLE

Statement (no. of AI policy)	AI for T/L	AI for Skills	Safe AI
<i>Lecturers should communicate to students early on whether and, if so, within what limits, the use of AI is permitted in their examinations and coursework (4)</i>			X
<i>The education sector needs to: ... teach students how to use emerging technologies, such as generative AI, safely and appropriately (10)</i>			X
<i>The education system should: support students, particularly young pupils, to identify and use appropriate resources to support their ongoing education; encourage effective use of age-appropriate resources (which, in some instances, may include generative AI); prevent over-reliance on a limited number of tools or resources (10)</i>			X
<i>Our universities wish to ensure that generative AI tools can be used to ... enhance teaching practices and student learning experiences, ensure students develop skills for the future within an ethical framework (11)</i>	X	X	
<i>Staff should be equipped to support students to use generative AI tools effectively and appropriately in their learning experience (11)</i>			X
<i>Improve critical reasoning skills and prepare students for the real-world applications of the generative AI technologies they will encounter (11)</i>		X	
<i>Employees, students, teachers and other professionals will be trained to follow responsible practices in the use, distribution, dissemination and production of AI-based technologies and services, consistent with the group's ethical standards (12)</i>			X

Legend: T/L = Teaching & Learning

administration is regarded as a potential means of enhancing the management and delivery of education, to support students and teachers. The various AI policies analysed provide guidance on the selection of the most appropriate AI tools and the effective and safe use of these tools. On the other hand, the development of ethically sound systems is mostly concerned and addressed with data collection for setting up and improving models rather than what the models do. Nevertheless, several ethical challenges associated with the use of AI are highlighted, including the necessity to maintain human accountability in decisions made with the aid of AI, to ensure the accessibility and reliability of tools for all users, to guarantee that decisions are transparent and fair, and to protect the privacy and security of data processed by AI systems.

Only a few AI policies call for the combination of AI use in education (AIED) and education about AI (AI literacy), namely the AI policies by the German and Greek governments (2, 7) and the guidance by the German Network “Ethical Use of AI” (3).

While it could be expected that the majority of AI policies would mainly target university teachers and managers, it is surprising that they do not contain many recommendations and requests directed to policy makers.

Through the analysis and comparison of regional AI policies, we investigated whether or not universities in the selected countries had adopted university-level policies and identified which aspects were essential to consider when comparing the selected AI policies. The objective is to provide an analysis and reflection exercise that might inform and facilitate the development of contextualised frameworks for the ethical and responsible adoption of AI technologies.

Thus, this comparative study and its results represent only a preliminary investigation for further research. To gain a more profound comprehension and a comprehensive global and analytical perspective, it is imperative to conduct more extensive and longitudinal research to collect, compare and evaluate all policies.

One approach could be the development and continuous evaluation and improvement of an index for the AI readiness, use and impact in regions and countries regarding higher education. For the generic field of AI, such a matrix is proposed by the annual Government AI Readiness Index released from Oxford Insights [36]. Although its foundations are not transparent and thus, it could be critiqued, also for potential biases, this Index is a measure for assessing how ready governments are to adopt and manage AI technologies. It consists

of three Pillars: Technology Sector (focusing supply, innovation and human capital), Data & Infrastructure (focusing on their availability and high quality) and Government that is most important for our analysis. Aspects of relevance to education that are part of the Government Pillar include governments’ strategic vision for AI development and governance, supporting regulation for governance and ethics, and development of internal digital capacity in terms of skills and practices for adapting to change. In particular, the Governance and Ethics Dimension of the Government Pillar examines aspects such as Data protection and privacy legislation, Cybersecurity Regulatory Quality and Accountability, while the Vision Dimension investigates national AI strategies [56]. Currently, the Government AI Readiness Index is often used as basis for research even though it does not cover all the specifics of education and lacks an evidence-based research approach [57]. Thus, it cannot be easily applied to identify the potential and practical impact of AI in (higher) education. Developing a dedicated AI Readiness Index for education can help shed light on how AI adoption is currently progressing in (higher) education and contribute to the goal of a future where AI is applied responsibly and effectively to enhance research, teaching, and learning.

Finally, we emphasise that there is an urgent need to combine AI use in (higher) education with education about AI, often referred to as AI literacy. This is necessary to ensure that all educational stakeholders and target groups (students, teachers, education managers and policy makers) can understand and reflect AI and are aware of the potential opportunities and risks of AI use in (higher) education.

VI. CONCLUSION

We have argued that AI, unlike traditional information and communication technologies (ICT), presents unique ethical and social challenges, including data security, algorithm transparency, social impact and educational quality, and ethical responsibility. There is no consensus on the ethical aspects of AI as a technological practice, and therefore, the AI development is guided solely by the principles of those who create and deploy it. Consequently, the ethical aspects of policies and declarations are dealing with personal and individual positions put forward not only, but in particular to the people involved. The situation is made more complex by the connection between regulatory adaptations and the rapid development of AI. Regulatory frameworks that apply at all levels in higher education, both nationally and internationally, as well as institutional guidelines,

are therefore necessary to guarantee that AI in higher education is implemented ethically, transparently, and with respect for human rights. An overarching framework can provide a theoretical approach to the topic, while practical guidelines can offer contextualized answers to questions clustered by topic, sector, target group, etc.

The development of regulations and ethical frameworks for the responsible utilization of AI in universities is presently at a nascent stage. While governments across Europe are taking significant steps to establish regulatory standards for AI use in public sectors, comprehensive national policies for the responsible and ethical use of AI in Education are not available. Presently only sporadic, mostly bottom-up initiatives exist to develop regulations and ethical frameworks for the responsible and ethical use of AI in higher education. Most universities and academic institutions are in the early stages of implementing their own structured approaches to AI ethics and governance. Regulations are always one step behind practice, and so it is inevitable, and perhaps desirable, that the institutions push forward in their policies on and practice with AI, and so ensure that regulations are designed in relation to the real impact of the technology.

The present research provides the basis for developing comprehensive and relevant guidelines for the ethical use of AI in higher education to ensure that all stakeholders are able to deal responsibly with the complexities of AI. From this perspective, we have highlighted several critical aspects for creating effective guidelines on the ethical and responsible use of AI in higher education. These guidelines should address different target groups, define roles in AI interaction, cover diverse application areas, and provide a clear scope for their guidance.

Our findings call for further and in particular evidence-based research to identify the potential and practical impact of AI in higher education. There is an urgent need to always combine AI use in (higher) education with education about AI, often called AI literacy, to ensure that all stakeholders and target groups (students, teachers, education managers and policy makers) are aware of the potential opportunities and risks of AI use in (higher) education. In the final analysis, AI is not ethical nor moral; people are. AI policies in education should aspire to supporting organizations and citizens in fulfilling this responsibility.

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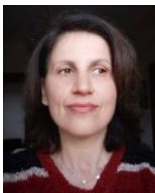
Christian M. Stracke

Dr. Christian M. Stracke developed interdisciplinary expertise in research, education and management while leading international large-scale projects (budgets over 50 million euros and up to 200+ researchers). As globally recognized expert, innovator and appointed ICDE Chair in OER, he published 200+ scientific publications on his research fields: Open Education, Artificial Intelligence, Technology-Enhanced Learning, Competence Building, Impact Assessment and Educational Policies (<https://orcid.org/0000-0001-9656-8298>). He consults many educational institutions, international ministries and global organisations including UNESCO, Council of Europe, European Commission and European Parliament. As a member of the AI&ED Expert Group appointed by the Council of Europe, he works on the international law for regulating AI use in education and on the AI literacy recommendation. Christian is coordinator for the cloud strategy at the German University of Bonn and establishing the research lab at the scientific University IT and Data Center Bonn. He co-founded the UNESCO Unitwin Network on Open Education (UNOE) and holds a PhD in Economics and Informatics (University of Duisburg-Essen, 2014) and a Magister Artium (M.A.) in Educational Sciences (University of Bonn, 2000) as well as professorships at the East China Normal University in Shanghai and the Korean National Open University in Seoul. He serves as editor of peer-reviewed indexed journals and as chair of international conferences. He facilitated and developed global learning standards as elected Chair of ISO, IEC and CEN committees and provided more than 100 keynotes worldwide. And he is Founder and Director of eLC, the European Institute for Learning, Innovation and Cooperation. His website: <http://www.opening-up.education>.



Dai Griffiths

In 2009 Dai was appointed Professor of Educational Cybernetics at the University of Bolton. In 2015 Dai became a professor in the Department of Education at the University of Bolton, where he has taken on the task of coordinating the PhD and Doctor of Education programmes, as well as supervising PhD candidates, as well as lecturing on research methodologies and global trends in education. Today, he is Professor and Senior researcher at the Research Institute for Innovation & Technology in Education of the Universidad Internacional de La Rioja in Spain.



Dimitra Pappa

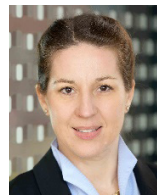
Dr. Dimitra Pappa possesses a degree in Electrical Engineering, with a specialization in Telecommunications, from the National Technical University of Athens (NTUA). Additionally, she holds an MBA from the Hellenic Open University and a PhD from the University of Surrey in the United Kingdom. Dr. Pappa has been actively involved in numerous European and national research and development initiatives in the fields of Information Systems for Technology Enhanced Learning (TEL), eLearning, and Knowledge Management. Her contributions to these projects have included serving as project coordinator, research supervisor, project leader, and team member. Her notable project involvements include, but are not limited to, Positive Learn, Health Cascade, Phaetons, Advance, Cloudledge, CRe-AM, OEI2, OpenScout, PROLIX, PROLEARN, and COCAL. Furthermore, she has authored several articles that have been published in peer-reviewed international scientific journals and conferences, demonstrating her commitment to advancing knowledge in her field.



Senad Bećirović

Dr. Senad Bećirović is a passionate and respected full professor at the University College of Teacher Education Lower Austria. With over 20 years of dedicated teaching experience across a wide range of educational settings, he has earned a reputation as a trusted and inspiring academic leader. Professor Bećirović is the author of four influential books and 65 insightful scientific articles. His work has been recognized by renowned publishers such as Springer, Sage, Wiley, and Taylor & Francis, and is widely referenced in respected databases like WoS, Scopus, Q1, and Q2. His research has made a lasting impact on the fields of

artificial intelligence in education, digital technologies in teaching and learning, and intercultural education. Beyond his writing, Dr. Bećirović is a sought-after speaker who has shared his expertise at international conferences, both as a keynote and regular speaker. His groundbreaking research continues to inspire and shape educational practices around the world, leaving a profound mark on the future of education.



Edda Polz

Edda Polz has been Vice Rector for Research and University Development at the University College of Teacher Education Lower Austria since 2022. Prior to this, she had been a lecturer in English, school law and educational science since 2014 and was Chair of the University College prior to becoming Vice Rector. She holds a bachelor's degree in primary school teaching (BEEd), a master's degree (Mag. iur.) in law, a doctorate in education and communication (PhD) as well as a master's degree (MEd) and a doctoral degree (Dr.) in educational science. Her research interests include teaching English as a foreign language, competency-based education, inquiry-based learning, giftedness, lifelong learning and AI. She regularly publishes articles on these topics in influential books and internationally recognised journals.



Loredana Perla

Loredana Perla is Dean of the Department of Education, Psychology and Communication Sciences and Full Professor of Didactics and Special Education at the University of Bari. She is the scientific coordinator of the Ministerial Commission responsible for defining of guidelines for the new curricula in primary and secondary schools. She is the Italian representative of ISATT (International Study Association on Teaching and Teachers) and of Reseau Ideki (Information - Innovation - Didactics - Documentation - Education - Knowledge - Engineering). She is the director of the "e-learning and health promotion" research unit at CITEL (Telemedicine Centre) of University of Bari. Together with Ettore Felisatti, she coordinated the Anvur working group on "Recognition and enhancement of teaching skills in university teaching", which led to the drafting of the relevant guidelines in 2023. She is the coordinator of Uniba's TLC for Faculty Development and, as the Rector's delegate for teacher training, she is the scientific director of DIDASCO, a service centre for the teaching and professional development of teachers. She founded the Lediel (Leadership, Empowerment and Digital Innovation in Education) Associate Doctorate at Uniba for the training of academic leaders. She also chairs the Scientific Ethics Committee of the research project "Guidelines Verse-Uniba for the use of AI in teaching", for the drafting of guidelines for the co-design and use of AI tools. She is the director of the "Didattizzazione" series published by FrancoAngeli. She is the national coordinator of the SIRD Teacher Training Observatory and the author of over 400 publications.



Annamaria Di Grassi

Annamaria Di Grassi is a PhD student in Learning Sciences and Digital Technologies at the University of Foggia, Italy, with a research base at the Department of Educational Sciences, Psychology, Communication at the University of Bari. She is a member of the Educational Experimentation Laboratory and the DiDasco research group, directed by Prof. Perla, at the same department. Annamaria was a part of the Scientific Ethics Committee for the research project "Guidelines Verse-Uniba for the use of AI in Education", for the drafting of guidelines for the co-design and use of AI tools. She is also a teacher of law and economics in secondary schools and is involved in citizenship and media education. Annamaria has been the coordinator of digital innovation and prevention of bullying and cyberbullying in her school. Her research focuses on the ethical dimensions of transparency and accountability of artificial intelligence, with particular attention to the concept of explainability. She investigates how the integration of AI into academic curricula can foster the development of critical thinking and responsibility, promoting a conscious and ethical use of technologies to empower new generations to face the challenges of the future.



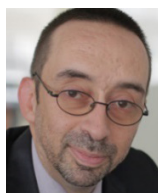
Stefania Massaro

Stefania Massaro is an Associate Professor of Didactics and Special Pedagogy at the Department of Education, Psychology, and Communication Sciences at the University of Bari in Italy. She teaches Special Pedagogy and School-Based Play Methodology in undergraduate and postgraduate programs. She is a founding member of the CITEL University Research Centre in Telemedicine, specifically within the E-Health Education and Wellbeing research unit. Additionally, she is member of ISATT (International Study Association on Teaching and Teachers) and ASDUNI (Italian Association for the Promotion and Development of Didactics, Learning, and Teaching in Universities). Her research involvement includes participation in national projects such as AmICA (Intelligent Holistic Care for Active Ageing in Indoor and Outdoor Ecosystems) and SISTER (Social Robots to Support the Biopsychosocial Frailty of Seniors at Home for the Promotion of Active Ageing). She collaborates with U'REKA European University Alliance for the SHIFT project activities. She is the author of *Metamorphosis of Democracy: Principles and Methodologies*.



Marjana Prifti Skënduli

Marjana Prifti Skënduli received her Ph.D. in Computer Science from the University of New York Tirana and is currently a Postdoctoral Researcher in Quantum Machine Learning at the Università degli studi di Bari Aldo Moro, Italy. She holds the position of Assistant Professor and Director of Graduate Programs at the University of New York Tirana (currently on sabbatical leave). Dr. Skënduli is a member of the Council of Europe Expert Group on Artificial Intelligence and Education, and serves as a Red Team Network Member and Policy Researcher for large language model provider companies. Her research spans Artificial Intelligence, Machine Learning, Quantum Machine Learning, Data Mining, and Natural Language Processing, alongside a strong interest in AI applications in Education. In 2023, she founded AI Albania, a non-profit organization dedicated to fostering AI research, ethical AI development, and the cultivation of a sustainable AI ecosystem in Albania. Additionally, Dr. Skënduli serves as the Scholarships Committee Chair for ACM-W Global, where she advocates for the advancement and representation of women in computing.



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Daniel Burgos is a full professor of Technology for education and communication and vice-rector for international research at the Universidad Internacional de La Rioja (UNIR). He holds a UNESCO Chair on eLearning. He is the Director of the Research Institute for Innovation and Technology in Education (UNIR iTED, <http://ited.unir.net>). Also, he is the President of MIU City University Miami, USA. He has implemented more than 80 European and worldwide R&D projects and published more than 270 scientific papers, 60 books and special issues, and 12 patents. He is a full professor at An-Najah National University (Palestine), an adjunct professor at Universidad Nacional de Colombia (UNAL, Colombia), an extraordinary professor at North-West University (South Africa), a visiting professor at the China National Engineering Research Center for Cyberlearning Intelligent Technology (CIT Research Center, China); and a research fellow at INTI International University (Malaysia). He works as a consultant for the United Nations (UNECE), the United Nations University (UNU-FLORES), ICESCO, the European Commission and Parliament, and the Russian Academy of Science. He holds 13 PhD degrees and doctorates, including Computer Science and Education. ORCID: 0000-0003-0498-1101.



Veronica Punzo

Veronica Punzo is attorney at the Macerata Bar and a certified economics and law teacher as well as a secondary school specialised teacher for special educational needs in secondary school. In collaboration with the National PhD Course in "Artificial Intelligence for Society" at the University of Pisa, Veronica Punzo is member of the LIDER-Lab at Sant'Anna School of Advanced Studies, Pisa, and teaching fellows in Special Pedagogy at the University of Macerata (IT). Dealing with the governance and regulation of personal and non-personal data and ethical-legal consulting, her research area focuses on the domain of the

implementability of AI-based educational resources and regulatory compliance with a focus on generative AI impact on dignity, equality and the enhancement and protection of fundamental rights.



Denise Amram

Denise Amram (PhD in Law) is a Senior Assistant Professor of Comparative Private Law at LIDER Lab - DIRPOLIS Institute and affiliate at the L'EMbeDS Department of Excellence at Scuola Superiore Sant'Anna (Pisa, Italy). She obtained the National qualification as an Associate Professor in 2020. Coordinator of the Permanent Observatory on Personal Injury Damages, of the research lines ETHOS (ETHics and law with and for reSearch) and Family Law within the LIDER Lab, she participates, also with leading roles, to several research projects and infrastructures funded under national and EU programs, either dealing with personal and non-personal data governance and regulation or serving as a legal-ethical advisor. Denise has been recently appointed within a pool of experts providing consultancy services for the Council of Europe on Children's Rights and Artificial Intelligence and Education domains and as an evaluator of projects proposals for the EU Commission. Denise enriched her experience undertaking teaching / research activities both in Italy and abroad, including Université Panthéon-Assas and Université Panthéon-Sorbonne, Utrecht University, University College Dublin, University of Malta, Columbia Law School. Denise is attorney at the State Bar of Pisa, enrolled in the special list of professors and researchers, mediator in civil and commercial matters, and ISO certified UNI 11697:2017 as Data Protection Officer. Steering committee member for top ranked law journals (eg *Opinio Juris* in Comparison, and *GenIUS*), she authored / co-authored ~130 publications, including a monograph book. Her research interests include dignity and fundamental rights enhancement and protection-especially in the digital dimension.



Xenia Ziouvelou

Xenia Ziouvelou holds a PhD in Internet Economics and Strategy (scholarship awarded) from Lancaster University, UK. She is currently a Research Associate at the Institute of Informatics and Telecommunications (IIT) at NCSR "Demokritos" and leads the AI Politeia Lab, an interdisciplinary research group exploring the ethical, socio-technical, and policy implications of AI-driven innovation; aiming to ensure responsible, trustworthy, and democratized AI for all and for good. Dr. Ziouvelou is also an external innovation expert for the European Commission and a member of the Expert Group on AI and Education at the Council of Europe. Xenia also serves on the Scientific Committee of AI4People, Europe's first global forum on AI's social impact. Additionally, she represents Greece as a national delegate to the EU AI Board's Steering Group on General Purpose AI and co-chairs the AI Focus Group of the European DIGITAL SME Alliance, the largest network of ICT SMEs in Europe. Xenia's research lies at the intersection of AI, innovation, strategy, policy, and ethics, focusing on responsible AI-driven innovation across domains including education. Passionate about democratizing AI sustainably, she advocates for a human- and value-centric approach to AI-driven innovation, that promotes social progress, economic growth, and environmental sustainability.



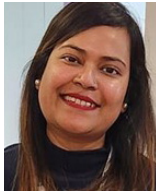
Dora Katsamori

Dora Katsamori is an Associate Post-doctoral Researcher in the field of citizenship education and inclusion of the Institute of Informatics and Telecommunications (II&T) at the National Centre for Scientific Research 'Demokritos' (NCSR 'D', Greece). She holds a BA in Political Science and Public Administration from the University of Athens, where she was specialized in the field of International and European Studies, a Master degree in Social Discrimination, Migration and Citizenship and a PhD in the field of citizenship and social disadvantaged groups from the University of the Peloponnese. She is also a certified adult educator of non-formal education. Lately, her field of research concerns AI & Education as well as explainable AI systems as a member of European working groups. She has a long experience as project coordinator and researcher in European and national funded research projects and as educator in the field of civic and political education. She teaches courses in the field of sociology of education at the University of Patras and she is involved in the field of refugee and prison education in Greece.



Sonja Gabriel

Dr. Sonja Gabriel teaches and conducts research as a university professor of media education and media didactics at Private University College of Teacher Education of Christian Churches Austria. After studying German and English studies at the University of Vienna, she completed two master programs (Educational Media, Applied Game Science) and wrote her dissertation in the field of educational science at PH Weingarten. Her current work and research focus on the use of generative AI in education with special focus on learning with large language models and ethical challenges, digital game-based learning, and teaching and learning in the digital age. In her lectures and publications, she particularly emphasizes the ethical use of digital media in educational contexts.



Nurun Nahar

Nurun Nahar is an Assistant Teaching Professor based at the Greater Manchester Business School, University of Greater Manchester. Nurun's responsibilities include overseeing and advising on technology enhanced learning initiatives to enhance pedagogical practices within her department. Nurun is a published scholar and has presented her research work widely at several international conferences alongside invited guest talks on the topics of digital literacy, pedagogical partnerships, use of generative AI and technology enhanced learning in Higher Education.



Johannes Schleiss

Johannes Schleiss is a researcher at the Artificial Intelligence Lab of the Otto-von-Guericke University Magdeburg, Germany. His work focuses on developing innovative and applied educational concepts for Artificial Intelligence (AI) and integrating AI technologies into education. In addition to his research role, he is an associated research fellow at the AI Campus, a leading learning platform for AI, and future scout for generative AI in higher education, funded by the Reinhard Frank Foundation and the Stifterverband. He has also collaborated with the student Think&Do-Tank of the Higher Education Forum on Digitalisation in Germany, where he has contributed to vision building and strengthened student voices in AI. He holds a Master of Science in Digital Engineering from Otto-von-Guericke University Magdeburg (2020) and a Bachelor of Engineering from the Nuremberg Institute of Technology, Germany (2017).



Paul Hollins

Paul is a professor of cultural research and Knowledge Exchange at the University of Bolton in the UK and is a Fellow of the Cybernetic Society. His PhD was focused on exploring the efficacy of immersive environments in formal educational settings, awarded by the University of Bolton in the UK. He also has postgraduate degrees in Education, a Master of Science in learning and teaching with Information & communication Technologies awarded by Leeds Beckett University in the UK and a Master of Business Administration awarded by Leeds Business School. His first degree was in Management studies. Paul's research interests are varied but lie in the intersection of technology, learning and digital Games. He has also published extensively in Music. He has directed and participated in several research projects in these spaces over the last three decades including the EU framework funded Learning Interoperability Framework Europe (LIFE), Ten Competence and Realising Applied Games Ecosystem (RAGE) and is currently leading the University of Bolton's participation in the EU Horizon funded Games Realising Effective & Affective Transformation (GREAT) research and innovation project. Paul has published over one hundred and thirty academic outputs and has acted as external examiner for several institutions.