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Short bio:

Currently, Gvantsa Dzidziguri is working at National Center for Educational Quality Enhancement. She is chief specialist at Higher Education Quality Assurance Department. She has studied History as a bachelor at the Ivane Javakhishvili Tbilisi State University and also Public Policy and Public Administration for a master's degree at the same university. Now she is PhD student at Grigol Robakidze University in the field of Public Administration. Through the research, she plans to assess the readiness for decentralization, which is the main precondition for coordinating different actors in a self-organized way. More specifically, she intends to explore the effectiveness of network governance integration in relation to gender equality policy.

Paper

Title: The role of quality assurance agencies in regulating the use of generative artificial intelligence in the higher education system

Abstract

Quality assurance agencies play a crucial role in regulating the use of artificial intelligence (AI) in the higher education system. Their responsibilities include establishing standards, ensuring ethical practices, evaluating the effectiveness of AI applications and promoting continuous improvement.

In Georgia, there is no normative definition of artificial intelligence and special legislation related to it, which also makes it problematic to regulate the use of generative artificial intelligence in the higher education system.

Although the use of generative artificial intelligence has the potential to enhance the teaching-learning experience, its unregulated use raises ethical and other risks. Regulation of the use of generative artificial intelligence should focus on promoting fairness, protecting student privacy, ensuring transparency and promoting responsible use of artificial intelligence.

The quality agencies and international organizations of a number of countries regulate the issue of using generative artificial intelligence in the higher education system with specific standards and recommendations, analysis of which is the best opportunity to put it into practice at the national level.

In the research process, the methodology of desk research is used, which allows to present a conclusion based on the summary and comparative analysis of the existing sources related to the mentioned issue.

The paper structurally includes the following topics:

First chapter: Forms of regulation of the use of artificial intelligence at the state level.

Second chapter: Threats associated with the use of generative artificial intelligence in the higher education.

Third chapter: Artificial intelligence in the teaching-learning process of the higher education system and the international practice of regulating their use by quality agencies.

Introduction

The world is developing/changing at a rapid pace due to technological advancements, globalization, demographic changes, etc. Artificial intelligence technologies are also developing rapidly, with new applications and capabilities emerging regularly. As AI becomes more integrated into the higher education system, there is an increasing need to establish guidelines and standards to ensure its responsible and ethical use.

Through artificial intelligence systems, it is possible to collect and analyze student data, which, without proper regulation, creates the risk of data security breaches, personal information being used for personal purposes, and students' privacy rights being violated.

The COVID-19 pandemic has accelerated the adoption of technology in education, such as artificial intelligence tools for distance learning and digital classrooms. As universities continue to navigate the challenges of remote and hybrid learning environments, there is a need to regulate the use of AI in education to ensure equitable access, quality, and effectiveness.

Given the global nature of AI technologies and higher education, there is a need for international cooperation and the establishment of common standards and best practices for regulating AI in education.

Regulation of the use of artificial intelligence in higher education is necessary to maintain ethical standards, protect student privacy, maintain the quality of education, transparency and accountability, promoting responsible innovation and impacting the wider community. It is a topic that concerns students, educators, policy makers and society as a whole as it shapes the future of education and the role of technology in it.

Forms of regulation of the use of artificial intelligence at the state level

A number of states regulate the use of artificial intelligence at the state level with legislative acts and some states with mandatory guidelines. In April 2021 (Entered into force on 1 August 2024), the European Commission presented the first EU regulatory framework for artificial intelligence, which regulates the use of artificial intelligence systems in various applications. These applications should be analyzed and classified according to the risk they pose to users. There is an EU AI Act Compliance Checker through which organizations can classify the risk level of their AI system and to understand what they will need to do under the EU AI Act (European Union, 2024).

The AI Act takes a risk-based approach, categorizing AI systems into four risk levels:

Unacceptable risk: Prohibited uses of AI, such as social scoring by governments or systems that manipulate human behavior.

High risk: AI systems in critical sectors (e.g., healthcare, law enforcement, recruitment) must meet strict legal and technical requirements, including transparency, accountability, and data governance.

Limited risk: AI systems that interact with humans must adhere to transparency obligations, such as informing users they are interacting with AI.

Minimal risk: Most AI systems, like chatbots, fall under this category and face minimal regulatory restrictions (European Union, 2024).

From 2022 in the United States, Blueprint for an AI Bill of Rights was released by the White House, which is non-binding and does not constitute U.S. government policy. It does not supersede, modify, or direct an interpretation of any existing statute, regulation, policy, or international instrument (White House, 2022).

China's AI governance framework uniquely establishes algorithmic management as a distinct regulatory component, which requires organizations to ensure the security, ethics and clarity of the algorithms they design and manufacture (Gong, Qu, & Dorwart, 2024).

The British government published a white paper titled "A pro-innovation approach to AI regulation" ("White Paper"). The mentioned framework balances regulation by encouraging responsible AI innovation (Stephenson Harwood, 2023).

The Algorithmic Impact Assessment (AIA) operates in Canada (For departments and agencies), which is a mandatory risk assessment tool. The tool is a questionnaire that determines the level of influence of an automated decision system. This assessment is organized around Government of Canada policy, ethical and administrative law considerations that apply in the context of automated decision making (Government of Canada, 2024).

In 2021, the Institute for Development of Freedom of Information (IDFI) published a policy document regarding the use of artificial intelligence systems in Georgia (The research target group was the public sector). According to the document, Georgian legislation does not define the concept of artificial intelligence. Meanwhile, there is not always a clear line between artificial intelligence and other types of functional algorithms. In Georgia, there is no special legislation regulating software services containing artificial intelligence by public institutions, although the Constitution of Georgia, as well as other legislative acts, establishes a number of normative requirements, that will apply to the use of artificial intelligence by public institutions (Eristavi & Davituri, 2021).

The Georgian Association of Artificial Intelligence (GAIA) has been operating in Georgia since 2023, where representatives of the academic space unite with representatives of other sectors. The following higher educational institutions are members of the association: ISET (International School of Economics at TSU), Ivane Javakishvili Tbilisi State University and Georgian National University. GAIA works in three directions - knowledge sharing, awareness raising and advocacy. In all three directions, GAIA cooperates with association members and partners from private and public sector, academia, civil society and media (საქართველოს ხელოვნური ინტელექტის ასოციაცია (GAIA), 2024).

In conclusion, the global landscape of artificial intelligence (AI) regulation shows diverse approaches across countries, highlighting the need for ethical and transparent AI practices. The EU AI Act adopts a risk-based framework that categorizes AI applications into four levels of risk. Countries such as the United States, China and the United Kingdom have introduced their own frameworks, with varying degrees of enforcement and focus. Canada's mandatory algorithmic impact assessment serves as a risk assessment tool for government AI systems.

Georgia, on the other hand, lags behind in AI-specific regulation, as its legislation lacks a defined framework for AI, but organizations such as the Georgian Association of Artificial Intelligence (GAIA) promote knowledge sharing and advocacy. As AI continues to evolve, state-level regulations and collaboration between the public and private sectors remain critical to ensuring the safe, ethical and transparent use of artificial intelligence.

Threats associated with the use of generative artificial intelligence in the higher education

In 2019, UNESCO published six challenges to achieve sustainable development of artificial intelligence in education (AIED): Comprehensive public policy, inclusion and equity in AIED, teacher training for AI-enabled education, training artificial intelligence to understand education, development of quality and inclusive data systems, importance of AIED research, ensuring the ethics and transparency of data collection, use and dissemination (UNESCO, 2019).

The large amount of data required for artificial intelligence algorithms to effectively personalize learning raises questions about student privacy and data security. The "black box" nature of certain AI algorithms may make it difficult for knowledge providers to understand or trust educational recommendations (Jian, 2023).

The issue of security of data collected for educational purposes is presented according to the stages: 1. Data creation and collection stage: before using artificial intelligence applications, users are often asked to agree to a contract that gives the application access to personal information or to check a box related to privacy. These procedures allow developers to receive and collect data. 2. Data exploitation and commercialization stage: Typically, developers collect data under the guise of providing more customized services to users and make relevant inferences based on users' individual interests and behaviors. At this stage, users are studied and controlled as objects. The developer will then "provide" relevant content to users based on the evaluation results, or directly "sell" user data to relevant firms (Bu, 2022).

AI applications rely on smart machines that are typically only available to the privileged few. Inequality in access to the latest technology will lead to a new form of educational inequality. In addition, some

high-quality online educational materials require large sums of money, making paid education a trend (Bu, 2022).

An ethical threat is the provision of discriminatory data by artificial intelligence applications. For example, a test conducted in the United States in 2016 using graphic recognition software found that kitchens are associated with women, while keyboards are associated with men. Discriminating information is added to databases and then delivered to students through AI-based learning models (Bu, 2022).

Principles of using artificial intelligence in the education system (Nguyen, Ngo, Hong, Dang, & Nguyen, 2023):

1. Principle of governance and stewardship: Interdisciplinary and multidisciplinary perspectives should be considered, as well as all ethical considerations from relevant fields, including (but not limited to) data and learning analytics ethics, computational ethics, human rights and inclusivity (Nguyen, Ngo, Hong, Dang, & Nguyen, 2023).

2. The principle of transparency of data and algorithms: The process of data collection, analysis and reporting should be transparent with informed consent and clarity of data ownership, access and purpose of data use. AI algorithms should be explained and justified for specific educational purposes (Nguyen, Ngo, Hong, Dang, & Nguyen, 2023).

The principle of accountability: AIED regulation should clearly address recognition and responsibility for the actions of each stakeholder involved in the design and use of AIED, including auditing, minimization and reporting of adverse side effects, compensation (Nguyen, Ngo, Hong, Dang, & Nguyen, 2023).

3. Principle of sustainability and proportionality: AIED must be designed, developed and used in a justified way so as not to disrupt the environment, world economy and society, such as the labor market, culture and politics (Nguyen, Ngo, Hong, Dang, & Nguyen, 2023).

4. Privacy Policy: AIED must ensure informed consent from users and maintain the privacy of users' information both when providing information and when the system collects information about them (Nguyen, Ngo, Hong, Dang, & Nguyen, 2023).

5. Safety principle: AIED should be designed and implemented to ensure effective data protection against cybercrimes, data breaches and corruption threats, ensuring privacy and security of sensitive information (Nguyen, Ngo, Hong, Dang, & Nguyen, 2023).

6. The principle of inclusiveness in accessibility: The design, development, and deployment of AIED must consider infrastructure, equipment, skills, and community acceptance to accommodate a wide range of individuals in the intended region, ensuring equitable access and use of AIED (Nguyen, Ngo, Hong, Dang, & Nguyen, 2023).

Principle of inclusiveness in data and algorithms: AIED design, development and implementation process should use non-discriminatory and unbiased data and algorithms to ensure fairness and equity among different groups of beneficiaries (Nguyen, Ngo, Hong, Dang, & Nguyen, 2023).

7. Human-centered AIED principle: The goal of AIED should be to complement and enhance human cognitive, social and cultural capabilities, while maintaining significant opportunities for freedom of choice and ensuring human control over AI-based work processes (Nguyen, Ngo, Hong, Dang, & Nguyen, 2023).

In conclusion, the use of generative artificial intelligence in higher education presents several challenges and risks that need to be addressed. Issues such as student privacy, data security, and educational inequity arise from the vast amounts of data needed for AI algorithms and unequal access to advanced technologies. The “black box” nature of AI systems further complicates transparency and trust in AI-driven educational recommendations. Ethical concerns, including the potential for artificial intelligence to perpetuate discriminatory biases, also pose significant threats to an equitable learning environment.

Implementing principles such as transparency, accountability, inclusiveness, and human-centered approaches in AI systems is critical to mitigating these risks. Ethical guidelines, along with privacy policies and security measures, should be integrated into the development and use of AI in higher education.

Artificial intelligence in the teaching-learning process of the higher education system and the international practice of regulating their use by quality agencies

Personalized Learning: Artificial Intelligence (AI) has emerged as a driving force for personalizing the learning experience, changing the paradigm in traditional learning methods. Personalized learning involves customizing the educational experience to meet individual learning needs, learning styles, and pace.

Adaptive learning platforms based on artificial intelligence:

Smart Sparrow - Creates an adaptive learning platform that enables academic staff to create interactive and personalized learning experiences. It uses artificial intelligence algorithms to analyze how students interact with course content and adapt the learning process based on individual needs (<https://www.smartsparrow.com>, n.d.).

Knewton - The adaptive learning platform provides a personalized learning experience for students by continuously analyzing their performance level and tailoring course materials accordingly. It provides instructors with adaptive assessments, interactive content, and data-driven insights to optimize instructional strategies (<https://www.wiley.com/en-us/education/alta>, n.d.).

Cerego - This adaptive learning platform uses artificial intelligence to optimize the learning process by determining the most effective way for students to learn and retain information. (<https://www.cerego.com/>, n.d.).

Intelligent Tutoring Systems (ITS): Uses artificial intelligence algorithms to mimic human tutors, providing real-time feedback, explanations to students, and guidance. These systems can help students grasp complex concepts, solve problems, and track progress.

Cognitive Tutor: Focused in mathematics to provide students with personalized instruction, guidance, and feedback while working on domain-specific problems (Ritter, Anderson, Koedinger, & Corbett, 2007).

ALEKS (Assessment and Learning in Knowledge Spaces) - Learning platform for mathematics and chemistry.

Waymaker - Provides personalized learning plans and data-driven instructional design.

Chatbots and Virtual Assistants: The main function is defined as informing students and academic and other staff about various issues. They are available 24/7 and can handle multiple requests simultaneously, increasing availability and efficiency (Essel, Vlachopoulos, Tachie-Menson, Johnson, & Baah, 2022).

Automated Grading and Feedback: Automating the assessment process (exams, assignments).

Predictive Analytics for Student Success: Analyzes large amounts of student data to identify at-risk students and intervene early to prevent suspension or other threats to student status. These systems identify factors that influence student performance, such as attendance, engagement and course progress, allowing proactive support mechanisms to be identified.

Content Creation and Curation: Enables academic staff to create educational content. Natural language processing (NLP) algorithms can summarize academic texts, extract key concepts, and generate quiz questions to supplement course materials.

Virtual Reality (VR) and Augmented Reality (AR): Allows students to conduct virtual experiments and simulate real-world scenarios. These technologies enhance experiential learning and encourage student engagement in disciplines such as science, engineering, and medicine.

The form of regulation of the use of artificial intelligence in the system of higher education by quality agencies for this period is interesting:

- Council for Higher Education Accreditation (CHEA)(United States)

CHEA does not regulate AI directly but is exploring how accreditation standards might evolve to account for AI's impact on teaching, learning, and institutional processes.

- Tertiary Education Quality and Standards Agency (TEQSA) (Australia)

TEQSA has developed resources to assist higher education providers and their staff to meet new challenges and benefit from opportunities afforded by advances in generative artificial intelligence (AI) (Tertiary Education Quality and Standards Agency, 2024):

- AI: a regulatory perspective;
- Artificial intelligence: advice for students;
- Assessment reform for the age of artificial intelligence;
- Get to know genAI: Conversation starters;
- The evolving risk to academic integrity posed by generative artificial intelligence: Options for immediate action;
- Using generative AI in research - 10 tips.

➤ Quality Assurance Agency for Higher Education (QAA) (United Kingdom)

QAA has produced a number of resources dealing with generative AI and ways to use it as a positive tool, while maintaining academic standards (The Quality Assurance Agency for Higher Education, n.d.).

In conclusion, the integration of artificial intelligence (AI) in higher education is revolutionizing teaching-learning process through personalized and adaptive learning experiences. AI-powered platforms like Smart Sparrow, Knewton, and Cerego tailor educational content to individual needs, while intelligent tutoring systems and predictive analytics enhance student success by providing real-time feedback and identifying at-risk learners. Additionally, AI's role in automating grading, creating content, and supporting virtual and augmented reality for experiential learning is becoming indispensable.

Quality agencies like the CHEA, TEQSA and QAA are acknowledging AI's influence by developing guidelines and resources to support its responsible use while safeguarding academic integrity. As AI continues to shape higher education, quality agencies play a critical role in ensuring that institutions adapt to technological advancements while maintaining educational quality and standards.

Conclusion

In conclusion, the regulation and use of artificial intelligence (AI) varies across countries, reflecting the global complexity of managing its integration across sectors, including the education system. The EU AI Act stands out as a comprehensive regulatory framework that uses a risk-based approach, categorizing AI systems into different levels based on the potential risks they pose. The United States, China and the United Kingdom have introduced their frameworks with varying levels of enforcement and focus, while Canada has a mandatory Algorithmic Impact Assessment (AIA) for government AI systems.

Although there are no specific AI regulations in Georgia, efforts from organizations such as the Georgian Association of Artificial Intelligence (GAIA) should be noted, which involves promoting knowledge sharing and collaboration in academia and the public sector. Despite the absence of legislation on the specialization of artificial intelligence in Georgia, the constitution and other normative acts provide basis for regulating the use of artificial intelligence in the public sector.

Generative AI in higher education presents both opportunities and challenges. It enhances personalized learning and improves student outcomes, but raises significant concerns about data privacy, security, and fairness. Ethical issues such as algorithmic bias and transparency also remain critical. Therefore, adherence to principles such as accountability, inclusiveness and sustainability are vital to mitigating risks.

As artificial intelligence advances, collaboration between governments, educational institutions and regulatory bodies is essential to ensure that artificial intelligence is used ethically and responsibly. Continued development of ethical guidelines, privacy policies, and security measures will be key to shaping the future of artificial intelligence in a safe and profitable way.

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