Legal and Ethical Challenges from Copyright Perspective of Implementing Artificial Intelligence in Education

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Abstract

In the information society of today, all sectors are exploring the possibilities to implement technological innovations to improve their processes. Education is no exception. The present paper aims to analyze, from a copyright perspective, the legal and ethical challenges when implementing artificial intelligence (AI) – one of the most trending technologies – into education. Among the problems that shall be explored in the analysis are whether any authorship could arise over content generated by AI in the light of the modern European copyright laws. This is especially relevant, considering the fact that most of the legal systems require as a prerequisite for copyright protection the presence of originality, understood as a creative activity result of free and creative choices of the author to produce a work that reflects their personality which is inherent to humans only. Further, it should be explored whether it is possible to name AI as co-author or quote it as a scientific source. The paper also examines how certain anti-plagiarism systems applied in Bulgaria detect also potential texts generated by AI and what guidance the Bulgarian Ministry of Education has issued for usage of AI in the educational system. Finally, the present analysis clarifies under what circumstances research organizations and cultural heritage institutions may rely on the text and data mining exception under the EUCD Directive (Article 3) – to train AI for the purposes of scientific research, as text and data mining is an important tool for the development of AI applications. Although focusing on part of the said issues from Bulgarian perspective, the paper may have practical implications and serve as a basis for future research in all EU countries, as some of the problems are based on the common EU legal framework.

Keywords: *AI, education, law, ethics, challenges*

1. Introduction

We live in an information society – a society where collection, storage, exchange and other forms of processing information are the key driving factors. To that end, it comes as a no surprise that our society is looking for new technological solutions to enhance the said factors. All sectors are exploring the possibilities to implement technological innovations to improve their information management processes. Education is no exception. One of these innovations is artificial intelligence (AI). There is no unified legal definition for AI. Exemplary definitions were proposed by the European Commission in its Communication COM(2018) 237 [1] and by the High-Level Expert Group on Artificial Intelligence [2]. A definition for "AI system" is about to be introduced in the EU AI Act (once the latter is finally adopted) reading as follows: *"a machine-based system designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments"* [3]. In any case, important characteristics of this technology are the abilities to act autonomously and to adapt by processing information, thus influencing our world – both physical and/or digital. The present paper is aimed at examining the correlation between AI and copyright in the context of education by exploring topics such as authorship, plagiarism, possible benefits and text and data mining exceptions. This discourse is relevant because some authors rightly declare that *"[i]ntellectual property is of key importance for the development of the modern economic processes"* [4].

2. AI and Authorship

A starting point for the present analysis is to explore whether AI can be considered an author of the output it generates. This is especially relevant in the context of deployment of the so-called generative AI. The latter is described by the Bulgarian Ministry of Education in its Guidance for Usage of Artificial

Intelligence in the Educational System as *"involv*[*ing*] *training machines to generate new and original data such as images, music, text or even videos. Unlike traditional AI, which works with pre-existing datasets to recognize patterns and makes predictions, generative AI can produce entirely new content, by learning from existing datasets and generating something new based on that information"* [5]. Examples of such solutions are Open AI's ChatGPT, Google's Gemini, Meta's Llama, Bing's AI-powered chat, Microsoft's Copilot and others (all of them being large language models). In plain words, it is possible to ask such AI technology to create content as per your request – an essay, a scientific analysis, a research paper, etc. From copyright perspective, the question arises can the technology itself be recognized as an author of the generated content?

The answer is "no", at least in the light of the modern European copyright laws, and possibly in most (if not in all) of the jurisdictions worldwide. The reason is that most of the legal *s*ystems require, as a prerequisite for copyright protection, the presence of originality*,* understood as a creative activity result of *"free and creative choices"* of the author *"to produce a work that reflects ...* [*their*] *personality*" [6] which is inherent to humans only. The copyright aims to protect the authors, to ensure fair remuneration for any forms of usage of the protectable works created by them. A technology such as AI, albeit capable of processing (and generating) large amounts of information, probably much faster and more efficient than humans, does not possess individuality. It does not possess the emotions, consciousness and the creative impulse of human beings. It is also not considered a legal subject in terms of the law, so it cannot have rights and obligations and cannot bear legal liability for its actions. Ultimately, such a technology cannot be considered an author in copyright context.

It should be noted that some attempts have been made to publish AI-generated content and to list the respective AI solution as a co-author next to the human author. An interesting case in that direction happened in January 2023 when the Elsevier journal "Nurse Education in Practice" accepted a paper where Open AI's ChatGPT was listed as a co-author and subsequently removed it, leaving the respective human as the sole author [7]. Due to the above considerations, since AI cannot be considered an author of a given work for copyright purposes, there is no reason why it could be qualified as a *co*-author among one or more humans. Even if a human uses AI technology to generate content and subsequently uses this content to create a new piece of work, a co-authorship would not (and could not) arise, because co-authorship can arise between one or more *authors,* i.e. human beings. That is why some researchers correctly point out that *"while AI like ChatGPT can augment human creativity and productivity, the humans behind the AI are responsible for the final interpretation of the work*" [7].

3. AI and Plagiarism

As explained in detail above, AI cannot be an author and it cannot be named as co-author of a given paper. The next point for consideration in the present analysis then is whether using any AI-generated content could trigger some consequences related to plagiarism. Plagiarism is generally defined as using somebody else's work (or parts thereof) without proper reference or citation.

This is reaffirmed, for example. by the definition of "plagiarism" provided by the Development of the Academic Staff in the Republic of Bulgaria Act, namely *"the presentation as one's own of works that are wholly or partially written or created by another, or the use of scientific results published by another, without reference or citation in the procedures for acquiring scientific degrees or for occupying academic positions*" (Paragraph 1, item 7 of the Additional Provisions) [8]. Further to that, Bulgarian Criminal Code incriminates certain forms of plagiarism, in particular the publishing or usage under someone own's name or under a pseudonym another's work of science, literature or art or a significant part of such a work, including more severe penalties in cases where the act is committed on the Internet or significant harmful consequences are caused (Article 173) [9].

Evident from the above provisions, a prerequisite for plagiarism is the presence of copyrightable content and/or scientific results created by *another human.* At this stage, both acts are silent on the matter regarding the usage of AI-generated content. It should be noted that we are not discussing a situation where the AI uses somebody else's copyrightable content/scientific results to generate certain output and such output is used by an AI user for creating a new work. In this specific scenario the responsibility for plagiarism and/or other intellectual property infringements most likely should be borne by the user as the one overseeing the results from the usage of the technology and deciding to use them for creating new works. The absence of any provisions on AI content in Bulgarian law is logical, as both acts seem to protect authors and scientists from unauthorized usage of the results of their intellectual activity. To that end, the usage of content originally generated by AI without appropriate reference or citation does not meet the traditional requirements for plagiarism.

Despite this, the verbatim reproduction of content generated by AI raises certain ethical questions. In particular, while this is not a form of plagiarism (yet), it can be debated whether such practices are compliant with the academic ethics. Especially considering that the user of AI does not have the same level of contribution to the generated content (even if making the prompts, i.e. requests/commands to the AI that shape the generated results). Given the lack of clear legal regulation on the matter, it seems that it is left to the discretion of each and every educational institution to decide via its internal rules whether and to what extent to tolerate the usage of AI.

In this regard, it should be noted that certain anti-plagiarism software systems detect suspicious texts that may be generated by AI. An example is the system StrikePlagiarism [10] – one of the most popular tools for combating plagiarism and ensuring academic integrity, at least in Bulgaria (as per data of the company's website, the system is used in more than 1500 universities, colleges, schools and publishing houses around the world, in more than 35 countries [11]). StrikePlagiarism introduced the so-called AI Content Probability Coefficient – *"a prediction of the likelihood of whether text was generated by AI or written by a human. The coefficient is not a measure of the ratio of AI-generated text to the original content of the document."* [12]. The company running the StrikePlagiarism system explains it as follows: *"Our company decided to create a module that would meet the needs of educational institutions, organizations and publishing houses. An educational institution, having an effective tool to counteract abuses that may arise when using ChatGPT, Bard and other AI tools, will be able to better protect students from violating the principles of academic integrity and protect the quality standards of education."* [12]. Obviously, there is a tendency in the educational system to increasingly utilise the generative capabilities of AI. However, the correct approach should be not should not be over-reliance on technology and uncritical copy-paste, but using AI as an assistant which can help us in performing our research tasks, but which we should critically check and where necessary – correct, adapt and modify.

With respect to the above, it is worth recalling that human oversight is one of the key principles related to high-risk AI envisaged by the European Commission in its White Paper on Artificial Intelligence – A European Approach to Excellence and Trust [13] and the EU AI Act [3].

4. AI and Educational System

The deployment of AI in the educational system was also addressed by the Bulgarian Ministry of Education which (as mentioned above) issued Guidance for Usage of Artificial Intelligence in the Educational System. The document is not legally binding and does not constitute a normative act. Still, its adoption is quite significant. It is a positive step on the part of the Bulgarian authorities, as it aims to address some of the most topical issues in the technological environment and their implication for the educational sector. The document aims to provide useful information and guidance and could be helpful for various stakeholders in the area of education – teachers, students, university professors, academic researchers, etc. Particularly relevant for the present analysis seem the following sections:

First, seven key principles are formulated that should guide the usage of AI in schools:

- Educational convergence via AI;
- Legal compliance and AI in schools;
- Enhancing digital literacy;
- Balanced integration of AI;
- Academic integrity with AI;
- Human factor and critical thinking with AI;
- Regular assessment of AI in education [5].

Second, the ethical usage of AI is proposed as an additional possible method for students' evaluation, including the consideration of issues such as authorship, plagiarism and data reliability. Cases involving copyright and AI, such as the use of AI to create music and works of art, are considered as an example along these lines. [5]

Third, using the AI as a co-author for a certain part of their assignment and then critically assessing its contribution is proposed as one of the possible specific pedagogical approaches to students [5]. Of course, in the light of the above clarifications, it is not possible to literally define the AI-solution as a co-author. AI does not possess qualities inherent to humans only and therefore cannot be holder of authorship over works in the legal sense of the word. Rather, the said proposal should be correctively read and interpreted, namely in the sense that the teachers could assign students the task to generate content as an exercise and then to critically revise it. The Guidance should in no way be interpreted as tolerating copy-paste of AI generated content and presenting this output on behalf of the student directly as their own work.

5. Text and Data Mining Exception for Research Purposes

The final aspect that should be analysed is the so called "text and data mining exception for research purposes" introduced by the Directive (EU) 2019/790 (EUCD Directive) [14]. Text and data mining is defined by the EUCD Directive as *"any automated analytical technique aimed at analysing text and data in digital form in order to generate information which includes but is not limited to patterns, trends and correlations"* (Article 2(2)). This analytical technique could be quite beneficial for training AI-based technologies for the purposes of scientific research, as text and data mining according to some scholars *"has become an important tool for the development of artificial intelligence (AI) applications"* [15] in general. In the literature, the text and data mining are simplified to the following three steps: *"Access to content (Step 1); Extraction and/or copying of content (Step 2); Mining of text and/or data and knowledge discovery (Step 3)"* [16].

When the text and data that are about to be processed via the said technique constitute or are part of copyright protectable works, then there is an obvious collision between the rights of the copyright holders to receive fair remuneration for any forms of use of their works and the interest of third parties and the society in general to use these works for research and development, including for training of AI. In particular, as correctly pointed out in the legal doctrine, text and data mining *"may clash with the IP rights if a work or a database qualify for protection under Directive 2001/29/EC ("InfoSoc Directive"), Directive 2009/24/EC ("Software Directive") or Directive 96/9/EC ("Database Directive"), respectively. Depending on the technique used, TDM may involve acts that can be prohibited by those protections: (1) the reproduction of copyright content; (2) the extraction of a substantial part of the database; (3) the reproduction and adaptation of a computer program"* [15].

In an attempt to balance between these two contradictory groups of interests, the EU has introduced two provisions in the EUCD Directive (Article 3 and Article 4) which in certain cases limit (derogate) part of the rights of the rightholders, thus permitting the lawful usage of content protectable under copyright/related rights for the purposes of text and data mining. In the light of the main topic of the present analysis – AI in education – the focus below shall be solely on the exception related to text and data mining for *research purposes*, namely Article 3 of the EUCD Directive. The other (more general) exception under Article 4 of the EUCD Directive could be subject of future researches and is outside the scope of present paper.

Article 3 of the EUCD provides for exceptions to the following rights of the rightholders (of copyright and related rights):

- The rights of reproduction under Article 5(a) of Directive 96/9/EC – the Database Directive [17] and under Article 2 of Directive 2001/29/EC – the InfoSoc Directive [18];
- The press publisher's right under Article 15 of the EUCD Directive;
- The database (sui generis) right in the Database Directive – all the above explained in detail by some scholars [16].

The above exceptions are provided to enable reproductions and extractions in relation to the said protected objects (databases, copyright works, press publications). Beneficiaries from these exceptions are only two types of subjects:

- research organisations (defined as *"a university, including its libraries, a research institute or any other entity, the primary goal of which is to conduct scientific research or to carry out educational activities involving also the conduct of scientific research: (a) on a not-for-profit basis or by reinvesting all the profits in its scientific research; or (b) pursuant to a public interest mission recognised by a Member State; in such a way that the access to the results generated by such scientific research cannot be enjoyed on a preferential basis by an undertaking that exercises a decisive influence upon such organisation"* – Article 2(1) of the EUCD Directive); and
- cultural heritage institutions (defined as *"a publicly accessible library or museum, an archive or a film or audio heritage institution"* – Article 2(3) of the EUCD Directive).

The permitted use is *only* to conduct text and data mining of works or other subject matter to which the said beneficiaries have lawful access for the purposes of scientific research.

An additional safeguard introduced by the EUCD Directive is the requirement the copies of works or other subject matter made in compliance with the said exceptions to be stored with an adequate level of security. These may be retained for the purposes of scientific research, including for the verification of research results (Article 2(2)). At the same time, the EUCD Directive allows rightholders to apply measures to ensure the security and integrity of the networks and databases where the works or other subject matter are hosted, provided that such measures do not go beyond what is necessary to

achieve the specified objective (Article 2(3)). Finally, the EUCD Directive envisages that Member States shall encourage all the stakeholders, namely rightholders, research organisations and cultural heritage institutions to define commonly agreed best practices concerning the application of the obligation and of the measures referred to above (Article 2(4)).
The above derogations are important legal guarantees that ensure the possibility of the scientific research sector to utilise the benefits of the new technologies such as text and data mining techniques in the area of AI study and development.

6. Conclusion

In conclusion, AI seems to be one of the most cutting-edge technologies of our time. Its implementation in such a sensitive area of human life as education requires careful assessment of various factors. The present paper aims to shed some light on part of the legal and ethical challenges that arise from copyright perspective when deploying AI and to provoke further research on the different issues related to the AI. At the same time, we should not be hiding from the changes. AI tools are a fact, and we should adapt and learn how to integrate them in our daily lives in a beneficial manner. Almost all technologies are neutral in a sense that they are not initially good or bad. It depends on how these technologies are being implemented by the humanity. If AI is used in a constructive and creative way, it could turn out to be helpful ally of the schools and universities in their efforts to educate the next generation of young people who need to preserve humanism in an increasingly automated and artificial world.

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