Generative Artificial Intelligence in Education and its Governance: Perspective of Copyright Law

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Abstract *As a domain of science and technology, Artificial Intelligence (AI) opened new horizons for education. Technologies change the ways we teach and learn. While Generative AI tools create new prospects for learning, several concerns also arise. Educators are worried that they cannot differentiate between the output of students' work and the output from AI and this will impact the discipline, originality, integrity, and ethics in such cases. In addition, the problem also potentially arises in the matter of the authorship of the works regarding Copyright Law. This paper examines several legal issues of the utilization of Generative AI through the perspective of Copyright Law. This paper concludes several important points; **First,** although the framework of Indonesia's copyright law is based on the principle of human authorship, the rapid development of Generative AI must be balanced with an accommodative legal framework, **Second,** it is particularly important to formulate a special provisions to guide the implementation concerning the utilization of copyrighted works as the input material for generative AI so that it will not harm the "legitimate interest of the author" in the limit of "normal exploitation of the work" and classified as fair use, **Third,** academics and administrators need to gain a better understanding of the promise and perils of generative AI, how it will likely impact education, and how it might best govern by encourage the school and universities to develop institutional policies and/or formal guidance concerning the use of digital technology and Generative AI for the future of education.*

1

INTRODUCTION

The world has come to a digital transformation, which has brought major changes in activities, lifestyles, and even educational processes. (Mayana, Win, et al., 2022) In line with technological developments that have occurred, the development and advancement of Artificial Intelligence (AI) is also arising. AI is a field of computer science devoted to the study of the automation of intelligent behaviour or a subfield of computer science devoted to the creation of software and hardware that can fully replicate some of the functions of the human brain(Amrizal & Aini, 2013). AI is categorized as weak if it simply performs programmed functions through simulation and AI is categorized as strong if it goes beyond these functions by thinking and creating autonomously into a certain level. (López de Mántaras, 2018).

In line with technological developments, many advanced AIs are now capable of producing literary and artistic works autonomously imitating human intelligence (Free, 2018). AI programming focuses on cognitive skills that include the following:

1 **Learning.** This aspect of AI programming focuses on acquiring data and creating rules for how to turn it into actionable information. The rules, which are called *algorithms*, provide computing devices with step-by-step instructions for how to complete a specific task.

2 **Reasoning.** This aspect of AI programming focuses on choosing the right algorithm to reach a desired outcome.

3 **Self-correction.** This aspect of AI programming is designed to ensure the algorithms provide the most accurate results possible.

4 **Creativity.** This aspect of AI uses neural networks, rules-based systems, statistical methods and other AI techniques to generate new images, new text, new music and new ideas.

With those functions, the utilization of AI in education cannot be avoided, Ryan Abbot argues that to increase the well-being of society, the law must make the distinction between human activities and that of AI when both perform the same function and task in creating the works (Abbot, 2020). However, AI systems (however advanced they might be) do not possess any

legal personality of civil law nor have a special legal position in most national legal systems (Filipova & Koroteev, 2023), including Indonesia. Moreover, the "source" of AI creativity still requires inputs in many forms, for example, data or literary and artistic works that are classified as copyrighted objects. This creates several concerns concerning the *fair use* of copyrighted works related to artificial intelligence & digital technology in education.

In relation to educational purposes, since the early development of copyright, the concept of *fair dealing* or *fair use* as the permit to use copyrighted materials for educational and research purposes has been acknowledged around the world. (Davis, 1998). The fair use principle is also acknowledged and incorporated in Indonesian copyright law. However, the limit of such use and the implementation measures are not clearly defined. (Mayana, Santika, et al., 2022).

To remain confident about the originality and the integrity of the literary works, it is of paramount importance for academics to have a better understanding of how the Generative AI tools work and is utilized in education, how they impact education itself, and how they should be governed, thus this research particularly aims to analyze the copyright issues on the utilization of Generative AI in education in relation to educational purposes and how to manage the disruption of Generative AI in higher education to ensure the balance of educational purpose, educational ethic and the protection of economic and moral rights of copyright holder within the legally determined reasonable limit.

METHOD

The study used a juridical normative approach focused on analyzing artificial intelligence in education and its governance from the perspective of the Law of Republic Indonesia Number 28 year 2014 on Copyright (Copyright Law). In addition, this paper also analyzes the utilization of copyrighted works in digital education based on the principles and theoretical concepts of copyright protection. This research mainly uses the analytical approach of Copyright law supported by secondary data obtained from books, articles, and journals related to the topic.

RESULT & DISCUSSION

A. Copyright Issues on the Utilization of Generative AI in Education

Indonesia regulates Copyright based on Law No. 28 / 2014 on Copyright (Copyright Law). *"Work"* or *"Creation"* in the provision of the Indonesian Copyright Law is defined as the work in the fields of art, science, and literature; produced based on ability, inspiration, thought, imagination, creativity, or expertise and must be fixated in tangible form. (Mahardita & Roisah, 2018)

The copyright-ability of Works based on Indonesian copyright law relies on several factors, especially the criteria of originality and the involvement of human creativity in work creation. However, digital transformation fosters the massive utilization of artificial intelligence (AI) in creating literary, artistic, and musical works worldwide, including in Indonesia. The autonomous functioning of AI challenges the essential presumption that technology is merely a device in the hands of humans in the creation process of Works.

With the rapid technological advancement, AI has also experienced very significant developments where the Generative AI system is not used only as a tool for humans to facilitate their work but also capable of producing artistic works independently, imitating human intelligence. The term "Generative AI" refers to computational techniques that are capable of generating seemingly new, meaningful content such as text, images, or audio from training data. Based on this term, generative AI possesses the potential to transform the process that is related to innovation, creativity, and knowledge processing (Feuerriegel et al., 2023). For example in creating literary art or music Computer programs currently have algorithm engines that enable AI to analyze the input data and create derivative works both under supervision or independently to a certain level raising several questions on authorship as well as copyright ownership. (Free, 2018) (Christiani et al., 2022)

According to Indonesia Copyright Law, the registration of copyright has substantive requirements, namely originality, creativity, and fixation. Work can be said to have an element of originality and is a form of creativity if it is the result of one's creation, even though it may be inspired by the work of other people. The fixation element implies that a work is entitled to a copyright if it has been stated in concrete form, not in the form of an

idea.(Djumhana & Djubaedillah, 2012).

The originality in Indonesia Copyright Law is interpreted as the author's intellectual creation, in other words, the originality and personality of the creation arise from the relationship between the act of creating copyrightable work and the person acting as the creator. As a consequence, when there is no natural (legal) person behind a work, there is no originality, and copyright cannot exist. (Maggiore, 2018)

Article 1.1. Copyright means an exclusive right of the author, further Article 1.2. Indonesian Copyright Law defines the creator as a person or group of people who individually or jointly produce a work that has unique and personal characteristics. However today, a new generation of AI applications is casting doubt on how the Copyright Law defines the subject since AI is being used in applications across sectors; AI is creating literary, artistic, and musical work. (Marr, 2023). This raised a question since Article 1.2 and Article 1.4 Indonesian Copyright Law restrict the scope of author/creator/copyright holder to a person (legal person – covers both human and legal entity). Further, article 1.27 of Indonesian Copyright Law explains that "person" includes individuals (human) or legal entities who are eligible to be the holders of rights and obligations in their capacity as legal subjects.

Article 31 of Indonesian Copyright Law regulates that unless proven otherwise, the one to be considered as the creator is the individual whose name is expressed or recorded in the general register of Copyright registration document as the Creator / the author. According to Article 37, unless proven otherwise, in the occasion a legal entity makes publication, circulation, or correspondence of works originating from the legal entity without citing any individual as the creator, the one who will be regarded as the author is the legal entity. In addition, Article 39 states that if the author of Works is unknown and the Works have not been distributed or published, the copyright of the Works will be held by the State to serve the Author.

Copyright subjects consist of creators, copyright holders, and related rights holders in general. In the Indonesian Civil Code, legal subjects are acknowledged as servants/supporters of rights and obligations including human and legal entities. (Yunus et al., 2022) Provisions regarding the authorship, ownership, rights, and obligations concerning copyrights in

Indonesian Copyright Law are entitled to legal persons. In other words, Indonesian Copyright Law is human-centric. There is no justification and legal formulation based on Indonesian Copyright Law that can be the basis for granting legal rights including economic rights and moral rights to non-legal persons and further, only legal persons have legal standing in the court. The aforementioned provisions pictured the strict limitation of Indonesian Copyright Law legal subject to a legal person.

Further, since Indonesian Copyright Law the term "Author" is defined as the person who authors/creates the work, and then AI cannot be an author because the Indonesian Copyright adopted a "human authorship requirement". Moreover, AI cannot be considered as an "author" due to the inexistence of legal standing. As a legal subject, especially in the context of copyright, AI is deemed not to have creativity and personality as humans do, so in the copyright framework, when AI makes a work it is not considered a result of creativity and cannot be protected by copyright because it was not made/produced by legal subject. In this manner, AI with regards to copyright is seen as a specialized device that helps people during the time spent making works. In the event that a copyrighted work is created by a human using AI as a technical tool, the result can be protected as copyright. (Ramli et al., 2023)

B. **Copyright Issues on the Utilization of Generative AI in Education**

In 1709, the Statute of Anne introduced the basis of copyright protection, in a relatively short time, the need for *"fair abridgment"* as the limitation of copyright as private and exclusive rights concerning public needs arose (Leval, 1990). Berne Convention, as the earliest and most widely accepted international convention on copyright governed Certain Free Uses of Works in accordance with fair practices, (WIPO, 1886) this provision permits the use of any artistic and literary work as an illustration for teaching.(Billah & Albarashdi, 2018).

The Berne Convention turned into a reference to succeeding regulations like the *Agreement on Trade-Related Aspect of Intellectual Property Rights (TRIPs Agreement)* and the *World Intellectual Property Organization Copyright Treaty 1996 (WIPO Copyright Treaty).* These regulations became the reference for copyright regulations of the signatory countries/member states of the *TRIPs*

Agreement and WIPO. Therefore, copyright regulations around the world - including Indonesia - generally incorporate the principle of fair use / fair dealing concerning the utilization of copyrighted works for educational purposes. (Mayana, Santika, et al., 2022)

Article 1 point 1 of Copyright Law defines Copyright as:

"An exclusive right of the creator granted automatically based on declaratory principle after the Works are manifested in a tangible form without reducing the restrictions and limitations in accordance with the provision of laws and regulations"

Although copyright is classified as an exclusive right, several things are regulated as not violating copyright and classified as fair use in Article 43 to Article 51 of Indonesia Copyright Law. Regarding the educational purposes, Article 44 verse (1) point (a) and point (c) regulates:

"Use, retrieval, reproduction, and/or change of Works and/or Related Rights products in whole or substantial part are not regarded as a Copyright infringement if the source is mentioned or cited in full for education, research, scientific writing, report writing, writing of critique or review of a problem without prejudicing the reasonable interests of the Author or the Copyright Holder and for the talks that are only intended for the purpose of education and science"

Further, for public educational purposes, Article 47 authorizes the reproduction of 1 (one) duplicate of the Works or part of the Works without authorization from the Creator or the Copyright Holder that may be utilized for educational, instructive, or research purposes or for the safeguarding, substitution of copy if the copy is lost, harmed or annihilated from the permanent collection. Copyright Law also regulates the compulsory license for educational purposes in Article 64 and Article 65 as authorization to do translation, interpretation, and/or proliferation of logical and abstract Works which are conceded under the decision of a Minister upon demand from each individual for the reasons for teaching, education, and science and/or as development activities.

Although Indonesian Copyright Law has provided important exceptions of copyright protection for non-commercial, educational, and scientific purposes as long as they do not harm the reasonable interests of the creator/copyright holders, the implementing regulations and codes of conduct

are not clearly defined due to the relativity and broad possibility of educational purposes implementation in practices. For example, it's not easy to define or draw a precise limit of "certain special cases", "normal exploitation of work" and "legitimate interest of the author" without any relevant and comprehensive implementing regulations, codes of conduct, or practical rules in terms of technical and ethical aspects.

Concerning the "normal exploitation of the work" and "legitimate interest of the author" in term of fair use, the utilization of AI to process the data, knowledge, and information also raise several concerns. Numerous creators use generative AI to supplement or even replace several steps of their works (US Copyright Office, 2023). In education, for example, the students use AI to process in abstract the main ideas of the articles and then use the result to formulate their literary tasks or even to do the literary task based on the inputs. The utilization of Generative AI can result in the work as the output that is potentially generated with insignificant human control, contribution, and creativity and the AI system had autonomously created the work, in this case, the work is ineligible for copyright protection. On the other hand, the creators may have complex interactions with Generative AI to create the fixation of ideas and incorporate the result into advanced works where a wide variety of creativities combine human and generative AI to create the fixation of a creative vision, then authorship is possible (Englund et al., 2023).

Even though AI has entered into a sophisticated category, basically AI is still a human-made system that does not have natural thinking power like humans in the sense of carrying out a function or producing output, AI depends on a set of algorithms and input from programmers, where from these algorithms and inputs of previous (copyrighted) works, AI will carry out the functions ordered to it, for example, screening, data processing and producing certain outputs.

If literary works (for example textbooks) are widely utilized as the input for generative AI and the abstraction of ideas from that textbooks can be easily (and freely) attained through generative AI, then there will be no need to buy the textbook and therefore this potentially harms the *"legitimate interest of the author"* and questionable to be qualified as the *"normal exploitation of the work"*. Therefore it's of particular importance to formulate special provisions and implementing regulations to guide the implementation of fair use principles in teaching, research, and other educational purposes concerning

the utilization of copyrighted works as the input material for generative AI in the term of creating educational works.

C. Managing Disruption of Generative Artificial Intelligence in Education

The use of AI in higher education is not a new phenomenon. Generative AI has rapidly expanded its footprint of use in educational institutions. Chat-GPT an educational chatbot, for example, has caused a surge of interest in the use of Generative AI in higher education since its release in November 2022. (Chan & Hu, 2023). Several studies have found that educational chatbots motivate students, keep them engaged, and grant them immediate assistance, particularly online. (Okonkwo & Ade-Ibijola, 2021) Additionally, Wollny et.al argued that educational chat-bots make education more available and easily accessible. (Wollny et al., 2021)

Generative AI opens new horizons for education and poses manifold challenges, for the most part, educational institutions are ill-prepared to best utilize the opportunities, navigate the disruptions, and mitigate risks. While AI tools create new prospects for learning, their likely disruptions and risks where numerous educators are worried that the development of AI will impact the "originality" and "accuracy" concerning the achievement of student learning outcomes, disciplinary norms, copyright concerns, the metrics of effective assessment, and academic integrity.

The fast pace of acceptance of Generative AI seems to point to a phenomenon not likely to disappear. Thus, in managing the disruption of Generative AI in education, early attempts to limit or even ban its use would seem counterproductive.

However, if Generative AI is to be incorporated into facets of future work, academia must address the issue and take a leadership role in defining the scope and boundaries of its use. All ethical concerns must be weighed in light of the potential of Generative AI as a productivity tool and an efficiency multiplier. (Yeralan & Lee, 2023) Nevertheless, this is a complex task and requires much research, discussion, collaboration, and technical assistance, and not every school has sufficient tools, technologies, and supporting elements. In May 2023, a UNESCO global survey of over 450 schools and universities found that fewer than 10 % had developed institutional policies

and/or formal guidance concerning the use of generative AI applications. (O'Hagan, 2023).

It is of paramount importance for academics and administrators to gain a better understanding of the promise and perils of Generative AI, how it will likely impact education, and how it might best governed. UNESCO has formulated the first global normative framework for the ethics of AI, unanimously adopted by its 193 Member States in November 2021. *(UNESCO's Input in Reply to the OHCHR Report on the Human Rights Council Resolution 47/23 Entitled "New and Emerging Digital Technologies and Human Rights,"* 2021) This normative framework can be used as the foundation for educational institutions in creating institutional policies and/or formal guidance concerning the use of generative AI applications that encourage prioritizing the principles of inclusion, equity, quality, and most vitally, safety. The formulation of procedural conducts and implementing regulations of these principles in governing the use of AI in education require further dialogue and research within and across institutions of education and at the level of national governments and international governance.

CONCLUSION

Concerning the utilization of AI in resulting creative works, the Indonesian Copyright adopted a "human authorship requirement", therefore, AI cannot be considered an "author" due to the inexistence of legal standing. AI with regards to copyright is seen as a specialized device that helps people during the time spent making works. However, the rapid development and advancement of AI in the form of Generative AI must be balanced with an accommodative legal framework.

The important point is that even though AI has entered into a sophisticated category, basically AI is still a human-made system that depends on a set of algorithms and input from programmers, where from these algorithms and inputs of previous (copyrighted) works, AI will carry out the functions ordered to it, for example, screening, data processing and producing certain outputs. Therefore it's of particular importance to formulate special provisions and implement regulations to guide the implementation concerning the utilization of copyrighted works as the input material for generative AI in terms of creating educational works so that it will not harm

the "legitimate interest of the author" in the limit of "normal exploitation of the work".

Further, in managing the disruption of Generative AI in education, it is of paramount importance for academics and administrators to gain a better understanding of the promise and perils of generative AI, how it will likely impact education, and how it might best govern. Lastly, it's important to encourage schools and universities to develop institutional policies and/or formal guidance concerning the use of Generative AI in education by prioritizing the principles of inclusion, equity, quality, and safety.

DECLARATION OF CONFLICTING INTERESTS

The authors state that there is no conflict of interest in the publication of this article.

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