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An Analysis of Artificial Intelligence Integration Among Students: Usage, Impacts, and Educational Implications

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ABSTRACT

Artificial intelligence (AI) is significantly transforming various aspects of human life, particularly education, by offering diverse features applicable to the learning process. This research aimed to clarify students' AI utilization in learning, explore its impacts and implications, and assess student perspectives on educator preventative strategies against negative effects. Employing a quantitative survey methodology with a cross-sectional design, the study meticulously examined AI integration among students. Data collection involved a six-month preliminary observational phase and the structured online questionnaire. The number of the respondents are 64 of Visual Communication Design students at Universitas Negeri Makassar, with subsequent data analyzed using quantitative descriptive techniques. The findings indicate that most students have adopted AI in their learning. 54% reported rare use, 40% frequent use, and only 3% never used AI. The study identified several negative impacts; 22% of students noted decreased social interaction, 14% observed increased intellectual laziness and reduced creativity, and 13% cited a heightened risk of plagiarism. Additionally, 8% found AI dependence hindered innovative thinking skills, and 6% reported a decline in analytical and critical problem-solving abilities. It is necessary to adjust educational methodologies and curricula to adapt to the diverse implications of AI within the realm of education.

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1. INTRODUCTION

Since the past, many scientists and experts were convinced that, in the future, the technology would be possibe to help, facilitate human activities and working life. Like nowadays, Artificial Intelligence (AI) is rapidly transforming numerous aspects of daily life and professional practice around the world. But, how prepared are the Indonesian people and education ecosystem to face the onslaught of technological sophistication that always has two sides? Especially, in education environment. Education, particularly in higher education, stands as a critical sector experiencing the profound influence of AI (Crompton & Burke, 2023; Helmiatin, Hidayat, & Kahar, 2024). AI in Education (AIEd), as a field with a history spanning roughly 60 years, is currently considered an emerging area in educational technology, presenting both opportunities and challenges to build meaningful integration into teaching and learning process.

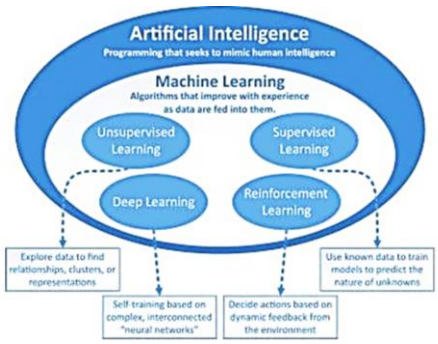

Figure 1. Artificial Intelligence-Machine Learning Connections

Professor John McCarthy is known as the figure who introduced the concept of AI in 1956. AI refers to a machine-based system, based on a series of human-determined goals, can make predictions, recommendations, or decisions that affect the real or virtual environment (Holmes & Tuomi, 2022). AI refers to the development of systems and machines that simulate intelligent human behavior, such as learning, reasoning, and problem solving (Mureșan, 2023), or refers to computer programs designed to imitate human intelligence, including decision-making abilities, logic, and other intelligence characteristics. All of the data collected by machine laearning being database for the AI to mimic human intelligence as Figure 1 show the connections between Artificial Intelligence and Machine Learning (Rios-Campos et al., 2023; Robinson & Akins, 2021).

Landscape of AI Applications in Indonesian Education

Artificial Intelligence (AI) has emerged as a transformative global force, revolutionizing various sectors, including the field of education. The rapid development of AI, especially post-2019 (Akhmadieva & Spichak., 2024), has spurred increased research interest and adoption internationally (Kalniņa, Nīmante, & Baranova, 2024). Indonesia is actively participating in AI trend, increasingly adopting technological advancements to improve services across various sectors, notably education. This adoption also developed rapidly during the fourth industrial revolution and to realize the industrial society 5.0., which necessitate leveraging technology for developing countries.

The potential of AI to enhance educational quality and accessibility is recognized, with applications being explored to support personalize student experiences, adaptive learning, and to improve administrative efficiency. However, the integration process in Indonesia is also marked by challenges, including the limitations of infrastructure and varying levels of technological literacy (Fauziddin, Adha, Arifiyanti, Indriyani, & Rizki, 2025). The integration of AI into societal functions, including education, has prompted the development of national AI policies in many countries, driven by the belief in AI's importance for economic growth and strategic competitiveness (UNESCO, 2025). Indonesia, responding to these global dynamics, is actively developing AI-related strategies and

policies, as reflected in the National Artificial Intelligence Strategy 2020-2045 by BPPT (Agency for the Assessment and Application of Technology) (Grace, benardi, Permana, & Wijayanti, 2023) and various initiatives from relevant ministries such as the Ministry of Communication and Informatics (Kominfo) and the Ministry of Education, Culture, Research, and Technology (Kemdikbudristek) (MENKOMINFO, 2023). However, the narrative surrounding AI in Indonesian education has been marked by dualism from the outset: on one hand, the promise of revolutionary potential to enhance the quality and accessibility of education, and on the other, significant concerns regarding ethical and practical challenges. This initial discourse, emphasizing the importance of understanding and mitigating risks (Grace et al., 2023), indicates a cautious and balanced approach towards the AI wave, forming the basis for an in-depth analysis of the implementation, benefits, and challenges of AI within the Indonesian educational context. Researched entitle *The Promise and Challenges of Generative AI in Education* brings up a similar key concept called glocalization for generative AI in education. This means that while GenAI is being used globally, it needs to be adapted to fit local contexts, like specific countries or regions (Giannakos et al., 2025).

The application of AI in Indonesian education system shows significant diversity, including various educational levels (AI has been explored from Early Childhood Education (PAUD) to Higher Education) and types of applications, even its implementation appears uneven systemically. At the PAUD level, for instance in Kutai Kartanegara, AI is utilized through adaptive learning platforms like Khan Academy Kids and ABC Mouse, virtual assistants such as Google Assistant and Alexa for learning interactions, Augmented Reality (AR) applications like Quiver, and tools for analyzing child development data (Riana, Amalia, & Annisa, 2025). At the primary and secondary education levels, AI has the potential to be used for personalizing informatics learning through chatbots and adaptive platforms (Verawati, Firdaus, Rangga, & Herpratiwi, 2024), as well as serving as virtual mentors, smart content providers, presentation translators, and even educational robots like ABII or Duolingo ABC in some schools such as SMA Nurul Iman Palembang (Nafisah, Maria, Amanatullah, & Tata, 2024). In Higher Education, AI implementation is even more varied, encompassing personalized learning systems, the use of chatbots for administrative services and virtual assistance in online learning, automated evaluation systems, more efficient management of student and learning data (indicating use in Learning Management Systems), improving the quality of e-learning, and plagiarism detection tools (Rifky, 2024). Furthermore, AI is also used to support specific tasks such as assisting lecturers in enhancing their scientific article writing skills using tools like Quillbot (Supiarmo et al., 2024) or for data analysis in research, for example, sentiment analysis or decision support systems. The use of easily accessible global AI tools like Google Assistant, Duolingo, and Quillbot seems to go hand-in-hand with efforts to develop or adapt AI for local needs, such as studies on plagiarism detection or sentiment analysis on national issues. This diversity indicates fairly broad exploration and experimentation with AI, but its uneven distribution suggests that AI adoption might still be fragmented or in experimental stages in many institutions, not yet deeply integrated into the core infrastructure of national education.

The presence of various AI-based services has brought signnificant changes to human life, including in educational system and learning system (Aldosari, 2020; González & Bonilla, 2022; Ruiz-Rojas, Acosta-Vargas, De-Moreta-Llovet, & Gonzalez-Rodriguez, 2023). In 2024, Generative AI (Gen AI) become a favorite for the civitas academica in each level of educational institutions. Gen AI is a technology that can create/make text, videos, images, and other original content. Smart technology such as AI potentially to revolutionize the workplace in the future (Zhai, 2022). Researcher from the United States Department of Education in their report Artificial Intelligence and the Future of Teaching and Learning revealed that educators are currently trying to improve teaching and learning by prioritizing to finding services that make it easier, and ultimately focusing on the use of AI-based technology (Cardona, Roberto J. Rodríguez, & Ishmael, 2023). The roles of AI are increasingly in human life and has a significant impact in various fields, including education (Pila & Syaikhon, 2025). Education nowadays is experiencing a series of changes in the influence of the use of AI which provides opportunities for transformation, both in terms of process and direction (Mureșan, 2023). Amidst the

euphoria about the many conveniences offered by AI in the field of education, many parties are starting to worry about AI's impact. The use of AI in education is considered to contribute the negative impacts, one of that students have difficulty to solving the complex problems because they rely too much on answers from AI, so they lose their ability to think creatively and critically.

Another concern was stated in the study The Advantages and Disadvantages of Using Artificial Intelligence in Education. The conclusion of this study revealed that although students have a positive perspective on the advantages of using AI in education, there are also concerns about its negative impact (Al-Tkhayneh, Alghazo, & Tahat, 2023). The accuracy of AI recommendations, the possibility of losing human interaction in the classroom, and the possibility of legal and ethical issues, including privacy and data security are some of them. Welding highlighted the use of AI-based ChatGPT software and emphasized the importance of adhering to ethical principles when using AI for educational purposes (Welding, 2023). In other research concluded that the most sophisticated AI does not necessarily have an impact on becoming a good habit in its use, so the direct education and control are still needed to guide students (Mulianingsih, Anwar, Shintasiwi, & Rahma, 2020). The widespread use of AI requires universities to develop and implement related policies, both as a tool for teaching and learning, even also for administrative purposes (Jurado, 2023). Some researchers and educators find that the majority students in Indonesia still lacking for high-level thinking skills. This statement proven by several evidence and findings in the field, for example there are still many students who are unable to solve problemsthat require high level thinking skills. This situation encourages stakeholders and researchers to design curricula and learning processes that encourage students' higher-order thinking abilities (Wahyudin & Darmawan, 2024). What kind of education that appropriate as the be best answer to the future challenges? This question should be a serious concern to stakeholders both in government and schools themselves (Culver, Braxton, & Pascarella, 2019). The curriculum design must be able to equip students to face the future challenges with many probabilities. There are several abilities that students need to face the 21st century, consist of critical thinking and problem solving, communication skills, collaboration skills, computing and information technology skills, career planning, cross-cultural, also creative and innovative skills (Eisman, Kilbourne, Greene, Walton, & Cunningham, 2020).

A significant gap in the current literature lies in its often generalized approach. While much research on AI in education provides broad insights, there remains a notable scarcity of empirical studies that delve into specialized creative disciplines within developing nation contexts. Our study critically fills this void by focusing specifically on the perceptions and experiences of Visual Communication Design students in Indonesia. This demographic is uniquely positioned, as AI tools-particularly those related to image generation, content synthesis, and the ethical implications of creative work-present distinct challenges and opportunities that are not adequately explored in broader educational research. The six-month preliminary observational phase conducted prior to data collection, which identified specific issues such as prevalent "copy-paste actions" in creative assignments, further underscores our deep, localized understanding and how it critically informed the design and focus of our research instrument. This contextual and disciplinary specificity provides a granular perspective often missing from more generalized investigations.

This study offers a comprehensive dual perspective derived exclusively from the student viewpoint, a less common approach in the existing body of work. While individual studies often explore either student usage and impacts or educator strategies in isolation, this research uniquely integrates both dimensions. This integrated analytical framework is crucial, as it reveals the intricate interplay between student adoption behaviors and institutional pedagogical responses. This holistic approach provides a more complete and practically relevant understanding of AI integration within a specific academic environment. In line with the review of Petros Lameras and Sylvester Arnab research also highlights the multifaceted nature of Artificial Intelligence in Education (AIED). The research emphasizes that AIED's core purpose is to provide adaptive and personalized learning experiences. It does this by leveraging AI systems to analyze data from learning models—including pedagogy, subject content, and student learning behaviors—to deliver tailored activities and support. The research

addresses the challenges of integrating AIED, noting the need for conceptual clarity for teachers through tools like an ontology to distinguish between traditional and innovative uses of AI. Furthermore, it stresses the critical importance of ethics and digital competencies for both teachers and students. The ultimate goal is to enable a human-centered approach where AI serves to enhance the teacher's role, foster student creativity and empathy, and empower students to take ownership of their learning (Lameras & Arnab, 2022).

This research is highly relevant and compelling given the rapid global development and accessibility of AI, which is inevitably entering the realm of education and being utilized directly by students worldwide, including in Indonesia. Amidst this technological disruption, there is a crucial need for an empirical understanding of how students are genuinely integrating AI into their learning processes (usage), what the resulting positive and negative consequences are for learning, skills, and ethics (impacts), and how these findings should subsequently shape future teaching strategies, curriculum, assessment, and educational policies (educational implications). As Indonesia is actively promoting digital transformation in its education sector and preparing its youth for an AI-dominated future, this study will provide invaluable specific data and insights for Indonesian stakeholders to formulate adaptive and proactive measures, leveraging AI's potential while mitigating its risks, thereby ensuring the Indonesian education system remains relevant and capable of equipping students with the necessary competencies in the AI era.

This study offers several distinct contributions that set it apart from existing literature:
First, a key differentiating factor is the highly specific contextual focus: Visual Communication Design students in Indonesia. While AI in education is globally researched, studies specifically examining the perceptions and experiences of students within specialized creative disciplines, particularly within the Indonesian educational landscape, remain scarce. This demographic is uniquely impacted by AI tools for image generation, content synthesis, and ethical considerations in creative work. This research fills this critical gap by providing nuanced, localized, and discipline-specific insights often overlooked in broader analyses. The six-month preliminary observational phase further strengthened this contextual understanding, allowing to tailor other instrument to address specific challenges, such as "copy-paste actions," prevalent in creative assignments. Second, this study provides a comprehensive dual perspective on AI's impacts and educators' responses, exclusively from the students' viewpoint. This integrated analysis is crucial. This study explored a range of student-perceived negative impacts, including concerns about decreased social interaction, reduced creativity, and heightened plagiarism risk. Simultaneously, this study documented student perspectives on how educators are addressing these issues, such as emphasizing academic ethics and implementing AI detection systems. This unique combination of student experiences and their observations of institutional or educator interventions offers a more holistic and practically relevant understanding of AI integration than studies that focus solely on usage or broad impacts.

Finally, this study emphasizes the practical and ethical implications for specific creative disciplines. The identified student concerns, like the potential for plagiarism and diminished critical thinking within Visual Communication Design, directly underscore the urgent need for tailored ethical guidelines and pedagogical adjustments in these fields. The detailed findings on these negative impacts and the varied responses from lecturers provide actionable insights for curriculum developers and educators in similar disciplines, both within Indonesia and internationally. This helps balance AI's benefits with the essential need to maintain academic integrity and foster vital creative and critical skills. So, by specifically focusing on Visual Communication Design students in Indonesia and thoroughly exploring both perceived AI impacts and detailed educator responses from the student perspective, our study provides novel and essential insights. This specificity is crucial for developing context-aware, discipline-specific AI integration strategies in higher education.

2. METHODS

This study employed a quantitative survey approach to thoroughly investigate students' usage, impacts, and educational implications of Artificial Intelligence (AI) integration in their learning processes. Analysis and identification of key trends and relationships pertinent to AI adoption within an educational context. The cross-sectional design allowed for data collection at a single point in time, providing a snapshot of current AI engagement among students.

Data Collection Procedures

The data collection process was systematically structured, integrating both preliminary observations and a primary survey phase to ensure a comprehensive understanding of the phenomenon.

1. Preliminary Observation: Prior to the formal data collection, the researchers conducted a six-month observational period involving the prospective research respondents. This preliminary phase was crucial for gaining an intimate understanding of students' existing behaviors and challenges related to academic integrity and the use of external resources. During this period, direct evidence emerged revealing instances where respondents engaged in "copy-paste actions" for various course assignments. These observations were vital, not only in contextualizing the research problem but also in informing the specific design and focus. This preliminary insight helped to ensure the relevance and validity of the survey questions by aligning them with observed student practices.
2. Survey Data Collection: Following the observational phase, the main data was collected through the distribution of a structured online questionnaire. This instrument, primarily featuring open-answer questions, was specifically designed to elicit detailed insights into students' AI usage patterns, their perceived positive and negative consequences, their perspectives on educator awareness, and the strategies employed by educators to manage AI's impact. The questionnaire was distributed to the identified research respondents, targeting students from the Visual Communication Design major at the Faculty of Art and Design, Universitas Negeri Makassar. This specific choice of demographic was strategically made due to the direct relevance and potential widespread use of AI tools within their field of study.

Data Processing and Analysis

Upon collection, all submitted data underwent a rigorous process of critical evaluation to ensure accuracy, completeness, and suitability for analysis. The raw data from the online questionnaires were systematically processed and prepared. Subsequently, the collected data were subjected to quantitative descriptive techniques. This analytical approach allowed for the presentation of key finding. The quantitative descriptive analysis provided a clear summary of the sample's characteristics and their responses concerning AI integration in their learning process.

3. FINDINGS AND DISCUSSION

The results were obtained through an online questionnare of Visual Communication Design students. As a result, sixtyfour respondents was share responded to the online questionnaire that was distributed. In general, the impacts that allowed of using Artificial Intelligence (AI) are divided to positive and negative impacts experienced by the respondents. However, the negative impacts related to the indolence of thinking due to relying too much and very dependent on AI, increased potential for plagiarism, also regarding to the reduction in analytical and critical skills in solving problems are the most findings that really need preventions and solutions for the better world of education to achieve 2045 Golden Indonesia.

These percentages demonstrate students' perspectives on the use of AI in the learning process encompass the extent of AI usage, the types of AI tools utilized, the reasons to used, the potential impacts effects encountered, and their opinions on how concerned lecturers are, as well as the actions

taken by lecturers to mitigate negative impacts or educate the use of AI in educational process. The responses or answers are presented as follows:

Table 1. Levels of Use and Types of AI Used by Students in Learning Process

Levels of Use	Percentages	Types of AI Used	Percentages
Never using AI	3%	AI text-based	68%
Rarely using AI	54%	AI image-based	5%
Often using AI	40%	AI voice-based	1%
Always using AI	3%	A combination of text and image-based	9%
		A combination of text, image, and voice-based	5%
		A combination of text and voice-based	8%
		AI only for specific tasks related to voice and text	2%
		Never use AI	2%

Table 1 shows student level of use of artificial intelligence (AI) technology in learning process. Of the 64 respondents, 3% answered never, 54% answered rarely, 40% answered often, and 3% answered always using AI. In addition, the table also shows that 68% respondents use text-based AI, 5% image-based, 1% voice-based, 9% use a combination of text and image-based, 5% text, image, and voice-based, 8% text and voice-based, 2% use AI only for specific tasks related to voice and text, and 2% stated that never use AI.

Table 2. Motivation and Positive Impact of Using AI in Learning Process

Various Motivation and Positive Impact of Using AI	Percentages
AI can help summarize various sources such as websites, journals, and videos into a single piece of information that is easier to understand	22%
AI helps save time in completing tasks	19%
AI facilitates the ease of creativity as desired	14%
AI provides solutions to tasks that are difficult to do manually	8%
AI helps overcome idea deadlocks when working on tasks	6%
AI features help complete tasks without complex thinking, task management efficiency, and AI's ability to provide facilities that are relevant to user needs	2-3%

Table 2 shows the percentage of answers from 64 respondents on various motivation and positive impacts reach of using AI in learning process, 22% of respondents stated that they use AI because it can summarize various sources such as websites, journals, and videos into a single piece of information that is easier to understand, 19% of respondents stated that AI helps save time in completing tasks, 14% of respondents use AI because it facilitates the ease of creativity as desired, 8% of respondents stated that AI provides solutions to tasks that are difficult to do manually, 6% of respondents admitted that AI helps overcome idea deadlocks when working on tasks, also 2% - 3% stated that AI features help complete tasks without the need for complex thinking, task management efficiency, and AI's ability to provide facilities that are relevant to user needs.

Table 3. Negative Impacts Experienced of Using AI in Learning Process

Various Negative Impact Experienced of Using AI	Percentages
Social interaction tends to decrease	22%
AI users tend to be lazy in thinking and less creative because many tasks can be completed quickly using AI	14%
Dependence on AI can increase the risk of plagiarism	13%
AI users tend to be very dependent on this technology to complete tasks	11%
Indolence in thinking and lack of creativity due to dependence on AI can hinder the development of innovative thinking skills	8%
AI can cause a reduction in analytical and critical skills in solving problems	6%
A few of individuals are still minimal in use of AI because still lagging behind in technological literacy	2-3%

Table 3 shows that out of 64 respondents, 22% stated that social interaction tends to decrease. 14% highlighted that AI users tend to be lazy in thinking and less creative because many tasks can be completed quickly using AI. As many as 13% stated that dependence on AI can increase the risk of plagiarism. In addition, 11% of students highlighted that AI users tend to be very dependent on this technology to complete tasks. Respondents also mentioned the combined impact of decreased social interaction, increased risk of plagiarism, and reduced creativity and independence in thinking. This reflects the multidimensional risks of uncontrolled use of AI. Meanwhile, 8% of students stated that indolence in thinking and lack of creativity due to dependence on AI can hinder the development of innovative thinking skills. 6% stated that AI can cause a reduction in analytical and critical skills in solving problems. A small percentage of respondents with a percentage of 2% to 3%, highlighted other specific impacts such as the use of AI by some individuals who are still minimal because still lagging behind in technological literacy.

Table 4. Students' Views about The Level of Lecturers' Concern for the Use of AI in Learning Process

Students' Views about The Level of Lecturers' Concern	Percentages
Only a small number of lecturers care about the negative impacts that may arise from the use of AI in learning	54%
Most lecturers are care about the negatives of using AI	30%
All lecturers care about the negative impacts of AI	10%
No lecturers care about this issue	6%
Lecturers' concern is seen in almost all courses on the major	30%
Lecturers' concern is most visible in theoretical and analytical courses	13%
In courses such as Digital Design, Imaginative Illustration, Aesthetics, and Typography, lecturers show significant concern by emphasizing the importance of originality and creativity in design assignments, and often set clear boundaries about the extent to which AI can be used in the creative process	11%
Lecturers not only provide ethical guidance but also use tools such as plagiarism detection systems to monitor the use of AI in student assignments	8%
Lecturers still ensure that the end of the result reflects the skills and creativity of students for some courses that the use of AI is often integrated as a legitimate tool	5%
In certain courses lecturers explicitly prohibit the use of AI. Usually for assignments that require original thinking, personal reflection, or work that must represent the student's individual understanding	3%
There were some lecturers who provided specific guidance related to AI, usually focusing on technical and practical skills	2%
Some lecturers did not provide clear or specific guidance regarding the use of AI in learning process	2%

Based on Table 4 above shows that out of 64 respondents, 54% stated that only a small number of lecturers care about the negative impacts that may arise from the use of AI in learning. 30% of respondents stated that most lecturers care, and only 10% of respondents stated that all lecturers care about the negative impacts of AI. However, there are still 6% of respondents stating that no lecturers care about this issue.

Other percentages based on the table are; (1) 30% of respondents stated that lecturers' concern is seen in almost all courses. In courses such as Research Methodology, Design Methodology, Digital Design, and Communication Studies, lecturers tend to provide clear guidance on how AI should be used and when its use is considered unethical. Lecturers are also said to often hold discussions to discuss the positive and negative impacts of AI in an academic context; (2) 13% of respondents stated that lecturers' concern is most visible in theoretical and analytical courses, such as Advertising Theory, Communication Studies, and Anthropology and Sociology of Design. Lecturers in these courses often emphasize the importance of critical and reflective thinking skills and reduce reliance on AI to complete tasks that require deep understanding; (3) 11% of respondents stated that in courses such as Digital Design, Imaginative Illustration, Aesthetics, and Typography, lecturers show significant concern by emphasizing the importance of originality and creativity in design assignments, and often set clear boundaries about the extent to which AI can be used in the creative process; (4) 8% of respondents stated that lecturers not only provide ethical guidance but also use tools such as plagiarism detection systems to monitor the use of AI in student assignments; (5) 5% of respondents stated that in courses such as Motion Graphics, Interactive Media Design, and Digital Photography, the use of AI is often integrated as a legitimate tool. However, lecturers still ensure that the end of result reflects the skills and creativity of students; (6) 3% of respondents stated that in certain courses lecturers explicitly prohibit the use of AI. Usually for assignments that require original thinking, personal reflection, or work that must represent the student's individual understanding; (7) 2% of respondents stated that there were some lecturers who provided specific guidance related to AI, usually focusing on technical and practical skills; (8) As many as 2% of respondents stated that some lecturers did not provide clear or specific guidance regarding the use of AI in learning process.

Table 5. Lecturers' Efforts in Preventing Negative Impacts and Responding to the Use of AI by Students in Learning Process

Students' Views about Lecturers' Efforts in Preventing Negative Impacts and Responding to the Use of AI in Learning Process	**Percentages**
Lecturers tend to appeal not to violate academic ethics in using AI	44%
Lecturers have created a detection system for the use of AI that violates academic ethics	14%
Lecturers appeal not to violate academic ethics, and in some cases, lecturers also prohibit the use of AI for certain tasks	11%
Lecturers advise students to use their own voices in making videos or assignment content that involves audio	11%
There are still lecturers didn’t make any efforts related to supervising or controlling the use of AI	5%
Some lecturers strictly prohibit the use of AI for certain tasks	5%
Some lecturers create detection systems and simultaneously prohibit the use of AI for certain tasks	3%
Lecturers use special plagiarism detection tools to detect excessive use of AI	2%
There is a combination of more complex approaches, including education, strict supervision, and the implementation of sophisticated detection systems to ensure the use of AI is in accordance with academic ethics	2%

Lecturers give subtle warnings to students regarding the use of AI that is not in accordance with academic ethics	51%
Lecturers choose to give stern warnings to students who are known to misuse AI	13%
Lecturers not only give subtle warnings but are followed by stern warnings if violations continue	11%
Lecturers provide a combination of actions in the form of subtle warnings, stern warnings, and sanctions according to the level of violation	8%
Lecturers immediately give sanctions according to the level of violation committed by students	3%
Lecturers not only impose sanctions according to the level of violation, but also reject assignments that violate the rules regarding the use of AI	3%
Lecturers did not react at all to the misuse of AI by students	2%

Table 5 above relates to students' views on efforts made by lecturers to prevent or minimize the negative impacts of using artificial intelligence (AI) technology in the learning process. 44% of respondents stated that lecturers tend to appeal not to violate academic ethics in using AI, 14% of respondents said that lecturers have created a detection system for the use of AI that violates academic ethics. As many as 11% of respondents stated that lecturers appeal not to violate academic ethics, and in some cases, lecturers also prohibit the use of AI for certain tasks. In addition, 11% of respondents stated that lecturers advise students to use their own voices in making videos or assignment content that involves audio. However, 5% of respondents stated that there are still lecturers who do not make any efforts related to supervising or controlling the use of AI. As many as 5% of respondents stated that some lecturers strictly prohibit the use of AI for certain tasks, 3% of respondents stated that some lecturers create detection systems and simultaneously prohibit the use of AI for certain tasks, 2% stated that lecturers use special plagiarism detection tools to detect excessive use of AI, 2% stated that there is a combination of more complex approaches, including education, strict supervision, and the implementation of sophisticated detection systems to ensure the use of AI is in accordance with academic ethics. The table above also shows the various efforts made by lecturers in responding to the use of AI in learning. Based on the data displayed, a total of 51% of respondents stated that lecturers give subtle warnings to students regarding the use of AI that is not in accordance with academic ethics, 13% said that lecturers choose to give stern warnings to students who are known to misuse AI, 11% stated that lecturers not only give subtle warnings but are followed by stern warnings if violations continue. Another 8% of respondents stated that lecturers provide a combination of actions in the form of subtle warnings, stern warnings, and sanctions according to the level of violation. Meanwhile, 3% of respondents stated that lecturers immediately give sanctions according to the level of violation committed by students. As many as 3% of respondents also revealed that lecturers not only impose sanctions according to the level of violation, but also reject assignments that violate the rules regarding the use of AI, 2% stated that lecturers did not react at all to the misuse of AI by students. The findings of this study offer empirical insights into how AI is integrated into the learning processes of Visual Communication Design students in Indonesia, highlighting both the perceived benefits and challenges, along with students' perspectives on educators' responses. These results resonate with and extend existing theoretical frameworks concerning technology adoption in education and the evolving roles of learners and instructors in an AI-infused environment.

AI Adoption and Its Efficiency-Driven Integration were found on tables 1 & 2: the observed prevalence of "rarely" (54%) and "often" (40%) AI usage, coupled with the overwhelming preference for text-based AI (68%), suggests that while AI has permeated the academic landscape, its full integration as a routine, indispensable tool is still in progress for many students. This aligns with Diffusion of Innovations Theory from Rogers, where AI's adoption is likely influenced by its perceived relative advantages in terms of efficiency and utility. The leading motivations for AI use—summarizing diverse sources (22%) and saving time in task completion (19%) —directly support this interpretation. Students

appear to leverage AI as a productivity tool, streamlining information synthesis and task management. This selective application of AI for efficiency, particularly through text-based tools, can be further understood through the lens of cognitive load theory by Sweller (1988), where students strategically offload extrinsic cognitive load associated with information gathering and basic content generation, potentially freeing up mental resources for more complex tasks, provided its use is guided effectively.

Challenges to Core Skills and Academic Integrity: despite the perceived benefits, the widespread adoption of AI is accompanied by significant concerns regarding its negative impacts on core educational objectives. The most frequently cited negative impact is a perceived decrease in social interaction (22%), which is particularly critical in collaborative learning environments common in design education. This finding resonates with broader criticisms concerning the potential for technology to diminish human interaction (Al-Tkhayneh et al., 2023). Furthermore, a significant proportion of students highlighted tendencies towards intellectual laziness and reduced creativity (14%), as well as an increased risk of plagiarism (13%) and over-dependence on AI for task completion (11%). These observations underscore fundamental challenges to the development of 21st-century skills such as critical thinking, creativity, and independent problem-solving (Eisman et al., 2020), which are paramount for Visual Communication Design students. The perceived "indolence in thinking" (8%) and "reduction in analytical and critical skills" (6%) directly contradict the cultivation of higher-order thinking abilities, a recognized area for improvement in Indonesian education (Wahyudin & Darmawan, 2024). The heightened risk of plagiarism, also noted in the preliminary observation phase, highlights the pressing need for re-evaluating academic ethics and authentic assessment strategies in an AI-driven educational landscape (Welding, 2023).

Educator Engagement, Perceptions Versus Efforts: the analysis of students' perceptions regarding lecturers' concern and their observed efforts reveals a heterogeneous and at times inconsistent response from the institution. A significant majority of students (54%) perceived that only a small number of lecturers care about the negative impacts of AI, suggesting a notable gap in perceived faculty engagement. Conversely, 30% believed most lecturers care, and 10% stated that all lecturers were concerned. This mixed perception indicates that while some educators are proactive, a consistent, institution-wide approach may be lacking.

Despite the perceived general lack of concern from a majority, students did observe various efforts from lecturers. The most common effort involved lecturers appealing to students not to violate academic ethics (44%). This primary reliance on ethical persuasion is supplemented by lecturers implementing AI detection systems (14%) and, in some cases, outright prohibiting AI for certain tasks (11%). Specific efforts in various courses also demonstrate a localized response: for instance, lecturers in theoretical courses emphasized critical thinking (13%), while those in creative courses stressed originality and set boundaries for AI use (11%). Alarmingly, a small percentage of students (5%) reported that some lecturers made no efforts to supervise or control AI use, and (2%) reported lecturers did not react at all to misuse. This highlights a critical need for more unified institutional strategies. The varied nature of responses from educators, ranging from subtle warnings (51%) to stern warnings (13%) and sanctions (8% for combination warnings+sanctions, 3% for immediate sanctions), indicates a decentralized and evolving approach to managing AI in the classroom. This situation underscores the challenge for higher education institutions in adapting swiftly to technological disruptions (Mureșan, 2023) and the imperative to develop clear, comprehensive AI policies for both teaching and administrative purposes (Jurado, 2023).

Potential for Deeper Analytical Exploration: to further deepen the insights derived from these findings, future research could benefit significantly from advanced statistical analyses. For example, correlation analysis could be employed to explore the direct relationships between the frequency and type of AI usage and the severity of perceived negative impacts, such as correlating "always using text-based AI" with a "reduction in analytical and critical skills." Similarly, cross-tabulations could reveal whether students who rely heavily on AI for task completion are also more likely to report a decreased social interaction. Further cross-tabulations between perceived lecturer concern and students'

observations of specific lecturer efforts could shed light on whether students' perception of a lecturer's general concern aligns with their reported actions in class. Such analyses would provide a more robust understanding of causal or correlational links within the complex AI integration landscape.

Discussion

Since the 21st century, Indonesian children grow up with the technologies. These technologies will help them develop into informed citizens and better understand the world around them (Sanusi, Olaleye, Agbo, & Chiu, 2022). This condition applies if the use of the technology is dominated by positive uses balanced with ethics (Kwon, 2023). The ethical challenges of AI in education is one of important aspect that must be identified and introduced to teachers and students (Akgun & Greenhow, 2022). The family environment and school-university environment have an important role in optimizing the positive impact and minimizing the negative impact of technology on students.

Artificial intelligence then having a greater impact on education (Klopov et al., 2023; Ouyang & Jiao, 2021). An important example today is ChatGPT, Deepseek, and Gemini AI, which shows us the benefits and challenges of AI in education. It is important that governments can invest more economic resources in education and in strengthening the domain of ICT by teachers and students (Rios-Campos et al., 2023). The results and analysis of Celik, et al (2022) research showed that AI offers teachers several opportunities for improved planning (e.g., by defining students' needs and familiarizing teachers with such needs), implementation, and assessment of their teaching. The research also found that teachers have various roles in the development of AI technology (Celik, Dindar, Muukkonen, & Järvelä, 2022). Enhanced human oversight and control over the various gaps in the application of artificial intelligence in education can initiate a virtuous cycle that promotes diversity, equity, and inclusion. Conversely, without sustained and reflective action from students, educators, educational leaders, designers, academics, and policymakers, these collective gaps in AI usage could inadvertently create a negative feedback loop, thereby perpetuating structural biases within teaching and learning (Dieterle, Dede, & Walker, 2024).

In today's rapidly evolving educational landscape and the rapid development of technologies such as AI, it is crucial to embrace innovative methodologies that enhance teaching and learning outcomes (Moses Adeleke Adeoye, et al., 2024). Because education is not just about output but also have to think along the outcomes. The observed predominance of "rarely" and "often" AI usage, alongside the overwhelming preference for text-based AI, aligns with Diffusion of Innovations Theory (Mulyati, Mansyuruddin, Adrianus, Bahari, & Warneri, 2023). This suggests that while AI has permeated the academic landscape, its full integration as a routine, indispensable tool is still in progress for many students, likely influenced by factors such as perceived relative advantage, compatibility with existing practices, and complexity. The high reliance on text-based AI can be understood through the lens of cognitive load theory (Baxter, Sachdeva, & Baker, 2025), where students leverage AI to summarize information and save time, effectively offloading extrinsic cognitive load associated with information synthesis and basic task completion. This allows for potentially more focus on higher-order thinking, provided its use is guided effectively. The motivation to use AI for overcoming "idea deadlocks" and facilitating creativity further supports the idea of AI as a cognitive tool or "thinking partner," as described in educational technology literature.

However, the reported negative impacts—such as decreased social interaction, intellectual laziness, reduced creativity, and increased plagiarism risk—directly challenge the potential for positive learning outcomes. The concern about reduced social interaction is particularly salient for Visual Communication Design students, whose collaborative learning and feedback processes are crucial. These findings resonate with criticisms concerning the potential for technology to diminish human interaction (Al-Tkhayneh et al., 2023) and foster over-reliance (Mulianingsih et al., 2020), potentially hindering the development of essential 21st-century skills like critical thinking, problem-solving, and collaboration (Eisman et al., 2020). The observed "indolence in thinking" and "reduction in analytical skills" directly counter the objectives of fostering higher-order thinking abilities, a recognized challenge in Indonesian education (Wahyudin & Darmawan, 2024). The heightened risk of plagiarism, as seen in

the preliminary observation phase, underscores the ethical dilemmas AI presents, echoing warnings about academic integrity (Welding, 2023).

The varied levels of lecturer concern and efforts, as perceived by students, highlight the heterogeneous response within the institution. While a notable proportion of students indicated that lecturers are indeed addressing AI's negative impacts through ethical appeals, detection systems, or task restrictions, a substantial number still perceive a lack of consistent engagement. This mirrors the broader challenge in higher education of adapting rapidly to technological disruption (Mureșan, 2023) and the imperative for universities to develop clear AI policies (Jurado, 2023). The data suggest a need for more standardized and comprehensive institutional approaches to AI integration, moving beyond individual lecturer initiatives to a more cohesive educational strategy. Therefore, a holistic approach is needed in dealing with this challenge, such as developing responsible AI use policies and increasing student awareness of potential risks.

The negative impacts above are also challenges for the presence and use of AI in the learning process. The trend of using AI in the learning process has implications for the world of higher education. Universities can consider providing special training in the use of AI technology so that students can more optimally utilize this technology in completing academic assignments without being excessive and without violating academic ethics. Understanding the pattern of AI technology usage allows educational institutions to design a more effective approach to integrating AI into learning activities. This effort is expected to encourage innovation in future learning methods without eliminating the human side. One important factor in mitigating the negative impacts of AI is the role of lecturers as supervisors, educators, and directors in its use. The data presented in the graph shows variations in the level of lecturer concern about the negative impacts of AI use based on the views of students. Adaptive, automated, and data-driven education systems are increasingly being implemented in universities, schools, and corporate training worldwide, but the ethical consequences of engaging with these technologies remain unexplored (Holmes & Porayska-Pomsta, 2022).

Based on the findings, some lecturers have been active in providing education to students on how to use AI wisely and responsibly, and have given sanctions according to the level of ethical or academic violations of students found to have committed plagiarism. This is one strategy by lecturers within the UNM Visual Communication Design Study Program to address various challenges in utilizing AI in education, as studies shows that university lecturers generally support the use of AI in education (AIED). However, lecturers and institutions are required to address the practical and ethical challenges of implementing these tools (McGrath, Cerratto Pargman, Juth, & Palmgren, 2023).

Cooperation between all lecturers is also expected to be built to be more concerned about this issue considering and seeing the many positive and negative potentials of the trend of using AI in the learning process in higher education.

4. CONCLUSION

Based on the results of a survey of 64 respondents, the majority of students have known and utilized AI in learning. The level of utilization varies, but is dominated by students who rarely or often use AI in learning (54% rarely and 40% often), although there are still 3% of students who admit to never using AI for learning. The use of features and their impacts also vary.

Students' views regarding the level of concern and efforts of educators to minimize the negative impacts of using AI in learning also vary. There are a small number of students who stated that no lecturers care about this issue (6%), while a fairly large number, namely 30% of students, stated that most lecturers care about this issue, and 10% stated that all lecturers care. However, there is still a dominant figure, namely 54% of students, who think that only a small number of lecturers care about the negative impacts of using AI in learning. Likewise, regarding the efforts of educators/lecturers to minimize its negative impacts in learning. 44% of students stated that lecturers urge that AI be used in accordance with academic ethics, 14% stated that lecturers have implemented an AI detection system to prevent academic violations, 11% stated that lecturers urge not to violate ethics and in some cases

prohibit the use of AI in certain tasks, although 5% of students stated that they still find lecturers who do not make any efforts regarding the regulation of AI use or its impact on the student learning process.

AI changing some of learning process both for students even the educators. Based on the survey findings of the students above, several recommendations can be given to ensure the ethical and effective use of AI for learning, namely increasing digital literacy (educational institutions are deemed necessary to provide training on the responsible use of AI for students), implementing AI policies in the academic process (including limiting the use of AI so that students do not rely predominantly on AI), as well as the active role of educators/lecturers to provide guidance, direction, and education for students so that they do not lose their ability to think creatively, critically, and analytically according to their developmental stage in the educational stage.

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