



# Analysis of the Impact of Artificial Intelligence Technology on Art Elements and Originality Aspects of Graphic Design State Polytechnic of Creative Media

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## Abstract

*In the use of Artificial Intelligence in Graphic Design which has a positive and negative impact on designers. Some of the benefits felt by graphic designers who use Artificial Intelligence are in the efficiency and speed of the design process, as well as AI can provide advice and assistance in enhancing design creativity, and can also assist in adjusting the Ai user reference itself through analyzing the data provided by the designer. AI can also have a negative impact, which can provide concern where AI can replace the role of the designer himself. In addition, it has an impact on the quality of design which can potentially reduce the value of design services. The use of AI can increase the risk of plagiarism in the work produced. In the art element, the use of AI is often considered less original because it only relies on modifying existing images. It is not a more in-depth creative process. Therefore, designers need to balance the use of AI technology, to maintain creativity in their work. The purpose of this research as a graphic designer is to analyze how the impact of graphic design production if it uses Artificial Intelligence which is very rapidly developing today.*

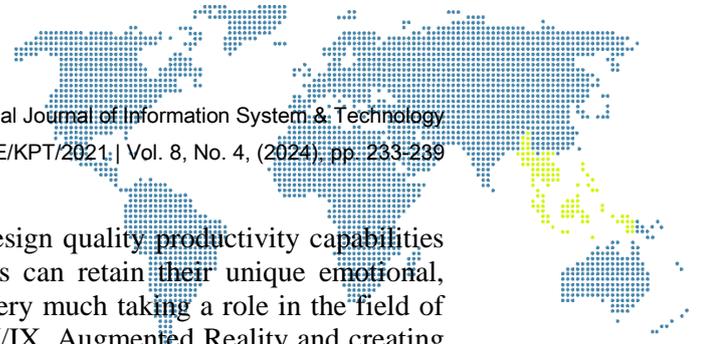
**Keywords:** Artificial Intelligence (AI), AI Technology Utilization, Work Productivity, Art elements and design originality

## 1. Introduction

Today, almost all of human life is increasingly connected AI. Technology has brought significant changes to all aspects of human life, including the creative industry, which has brought automation to most areas of creative work. AI or Artificial Intelligence is a technology that can think like humans but this technology is run by robots not naturally from humans themselves. In the opinion of Schildt (1987), Artificial Intelligence (AI) can show its ability like humans to help solve problems faced by humans [1]. The use of AI in graphic design has also opened up opportunities for collaboration between humans and machines, where designers can expand the horizons of creation by providing various tools that support design exploration on elemental art.

Today, human interaction with artificial intelligence (AI) computers has undergone a significant evolution with its application in the creative industry. Artificial intelligence, as a digital tool that supports human creativity and more creative participation, has become one of the means to fulfill the need for original creativity [2]. Although AI can learn from data and can produce works that fulfill art elements, there are still aspects of creativity and innovation as well as the human ability to think out-of-the- box that AI technology itself cannot have. The advantage of designers being the main thing in the creation of works is the understanding of the original human context, emotions, and culture that AI cannot understand.

Human designers also have the intuition and experience that can solve complex design problems that AI certainly cannot replace. In collaboration with AI, designers can take



advantage of the effectiveness, data analysis and design quality productivity capabilities provided by AI technology while human designers can retain their unique emotional, creative and contextual touch in their work. AI is very much taking a role in the field of design including: automatic image manipulation, UI/IX, Augmented Reality and creating typography and color palette selection in art works. In each of these fields, AI can help with things like exploring the process of animating ideas into interactive art installations (e.g., generative adversarial network GAN)), and generating preliminary sketches of works of art, giving a more tangible visual impression and influencing the emotions and thoughts of art lovers, thus helping art to be explored and studied. AI facilitates a graphic designer in analyzing design style trends, assessing market preferences and gaining an in-depth understanding of the graphic designer's audience. Keep in mind that design encompasses various fields of work, such as communication, media design, and branding, so the value of good design must be effectively applied to the purpose of the work (Dziobczenski et al., 2018). As Thomas J. Watson Jr. said, "good design is good business" means that the right design can achieve the purpose of the work (McCollam, 2014) [7].

However, the influence given by AI in the creative industry also raises various concerns for graphic designers, especially illustrators. According to Dr. Ranti Rachmawanti, (2023) AI has revolutionized art and raised new philosophical questions and challenges about the meaning of art for creative exploration. Ethical issues and the authenticity of the artwork produced in implementing AI in art elements and originality in design work often have an impact on the loss of human touch and originality [8].

## 2. Research Methodology

The method used in this research is a quantitative method by collecting data to understand and analyze the influence of the impact of Artificial Intelligence technology on art elements and aspects of graphic design originality. Completing a survey of respondents with the target selection of respondents, namely active graphic design students in semester 3, and 5. At this stage the researcher will select research subjects that reflect the views of the respondents. Data collection was carried out by utilizing sources from various previous research journals related to the topic of discussion, as well as involving sources from other articles on the internet. The literature sources used include journal articles, books, and scientific writings that are relevant to the topic discussed.

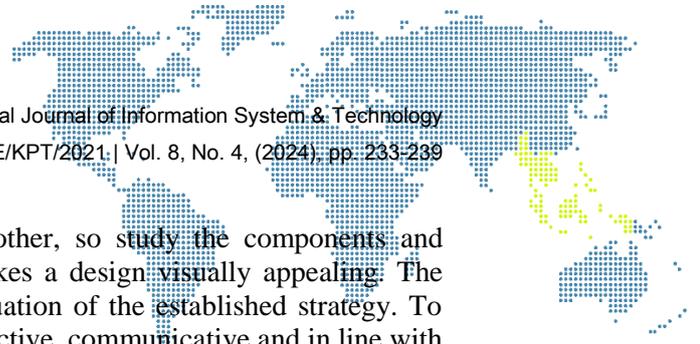
## 3. Results and Discussion

This section explains the discussion on the Impact of Artificial Intelligence Technology on Art Elements and Aspects of Graphic Design Originality.

### 3.1. Art Elements in Graphic Design

Graphic design is also commonly referred to as visual communication design because graphic design is essentially communication design where messages are conveyed visually (images, typography, or design art). In , research has shown that visual communication methods are more effective than other communication methods that rely solely on text. According to Danton Sihombing, graphic design is assigned from various components such as markings, symbols, and verbal descriptions depicted through typography and images using illustration and photography techniques. These elements serve as visual and communication devices.

Graphic Design is defined as "the application of art and communication skills to business and industrial needs", said Muhammad Suyanto (in the book *Graphic Design Applications for Advertising*, M. Suyanto, 2004). These applications include advertising and sales of goods, creation of visual identities for institutions, goods, and companies, design of graphic environments, and visual enhancement of messages in publications [3].



All elements of a design are related to each other, so study the components and principles of design to know more about what makes a design visually appealing. The choice of color can be based on the idea and evaluation of the established strategy. To create a design composition that is harmonious, attractive, communicative and in line with the desired concept, one must understand the six components of design. The six design elements are line, shape or plane, color, value, texture, and size. As a graphic designer, you also need a deep understanding of the foundation of design principles in creating or creating a communicative design, : unity, balance, rhythm, emphasis, harmony and proportion.

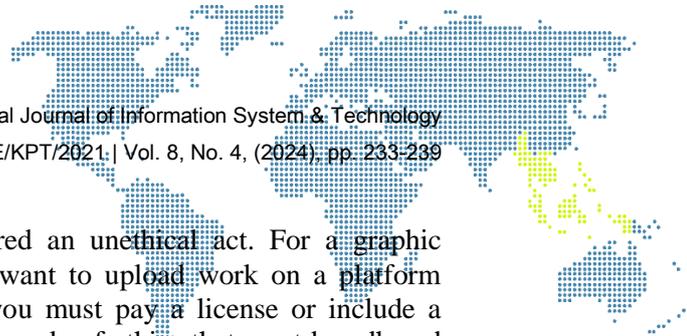
### **3.2. Utilization of AI for a graphic designer in the creative idea process**

AI exhibits diverse roles, acting as a guiding force that influences almost every stage of the design process. Through it, AI can accelerate inspiration, allowing designers to explore different creative paths and speed up the process, sometimes providing truly extraordinary ideas. AI provides insights based on user behavior, market trends, and competitor strategies, guiding designers in creating designs that connect and engage with their audience. AI enhances designers' intuition by acting as a repository of knowledge, directing instinct and creativity with recommendations based on what's cool and effective. Thus, having a creative collaborative with standout ideas that can improve the quality of designs and become more fantastic. AI makes it easy to quickly provide hints and recommendations to fix anything that seems off in the work. AI as a complement to synergize with creativity. Thus, designers can incorporate fresh thinking and create unique styles and designs.

Design that leads to visuals involves a feeling of the necessity of media i.e. computers or technology. Technology is essential to design, but the expressive value actually involves a sense rather than a talent spontaneously generated by hand. For example, when designers start to create visual communication designs, but they already have facilities in applications that are considered to fulfill various forms, effects that can all be applied anywhere. The process of creating designs will be easier for the designers as they can add, remove, move, even crop images as wish. On the other hand, designers should pay attention to the digital monitor medium as they think about their design work. It's like having an audience that sees the process of creating the work. In the process of designing a design, the sense is emphasized on lines, colors, layout, determination of objects (images/illustrations), and typography. And when designing visual communication, designers usually When processing lines and images, you often zoom in and out. This process is used to produce a form that is suitable for design appreciation, which means there is a sense of design. The sense of design is the result of appreciation that shows the activity of the creative process. In addition, Damajanti states that there are two important things in the creation process: 1) hard work must be accompanied by inspiration to produce work; and 2) hard work can produce inspiration (Damajanti, 2006: 68). Damayanti's statement about inspiration and hard work helps us understand activities such as appreciation and inventiveness. However, designing is a deep way of thinking that requires feeling [4].

### **3.3. Impact of AI on originality of design work**

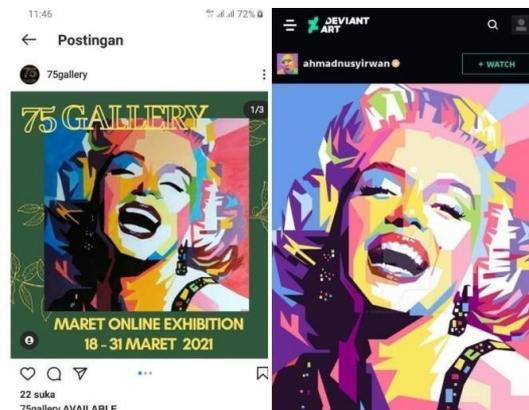
Plagiarism is an act of misuse, theft or appropriation, and claiming an idea, thought, work, or creation that is actually owned by someone else but is considered by others as personal property. Plagiarism is commonly practiced by the general public such as students, writers and even graphic designers also commit acts of plagiarism as stated by Ridhatillah (2003) [5]. If it leads to the creative world as a graphic designer plagiarism leads to stealing someone's copyrighted work and taking it as personal property without respecting and honoring the original creator. So in the current era, graphic designers are



also prone to plagiarism. Plagiarism is considered an unethical act. For a graphic designer, especially in the illustrator field, if you want to upload work on a platform where work is inspired by someone else's work, you must pay a license or include a reference when the work is published because it is a code of ethics that must be adhered to.

Plagiarism or inaccurate representation can result in lawsuits, especially if it harms other parties or violates copyright and Financial Loss: Violations of the code of ethics can cause financial loss to the client or agency involved, either through legal fees, decreased sales, or loss of reputation [7].

In this case, dishonesty in representation is representing the design result in a dishonest or misleading way, such as using special effects or digital adjustments that change important aspects of the work without providing clear information to the client. In the world of graphic design, certain things can cause designers to fail, such as lazy search for new ideas, deadlines from clients, and unfair attitudes towards the law. Case Studies of graphic design works that are allegedly plagiarized from other people's works:



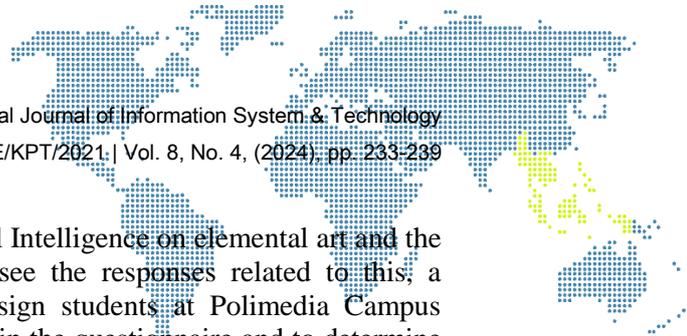
**Figure 1.** Ahmad Nusyirwan's Artwork Repainted and Sold on Social Media  
Source: <https://hai.grid.id>,2021

The figure above is a viral case in 2021 that is suspected of plagiarizing work. A digital designer, Ahmad Nusyirwan, who showed his art on the internet. However, irresponsible parties steal, repaint, and even sell for millions.



**Figure 2.** Geprek Bensus Brand Case  
Source: <https://icaontheway.com>,2020

The figure above is the same trademark case in 2018, namely GEPREK BENSU by 2 different entrepreneurs named Benny Sujono and Ruben Onsu. The two entrepreneurs sued each other and claimed their respective trademark rights. The similarity of the logo starting from the color and even the use of the Chicken logogram as the identity of Geprek Bensus is almost very similar.



From the discussion about the impact of Artificial Intelligence on elemental art and the impact on the originality of design work. So to see the responses related to this, a questionnaire has been distributed to Graphic Design students at Polimedia Campus Medan. The results obtained from the data obtained in the questionnaire and to determine the validity and reliability values are processed using the SPSS application. The following is a display of the results of data input;

[DataSet0]

		Correlations						
		Soal_1	Soal_2	Soal_3	Soal_4	Soal_5	Soal_6	Total
Soal_1	Pearson Correlation	1	,218	-,098	,516**	,530**	-,112	,551**
	Sig. (2-tailed)		,176	,547	<,001	<,001	,492	<,001
	N	40	40	40	40	40	40	40
Soal_2	Pearson Correlation	,218	1	,195	,436**	,537**	,025	,709**
	Sig. (2-tailed)	,176		,227	,005	<,001	,879	<,001
	N	40	40	40	40	40	40	40
Soal_3	Pearson Correlation	-,098	,195	1	-,092	,126	,074	,317*
	Sig. (2-tailed)	,547	,227		,572	,438	,648	,046
	N	40	40	40	40	40	40	40
Soal_4	Pearson Correlation	,516**	,436**	-,092	1	,446**	,113	,689**
	Sig. (2-tailed)	<,001	,005	,572		,004	,486	<,001
	N	40	40	40	40	40	40	40
Soal_5	Pearson Correlation	,530**	,537**	,126	,446**	1	-,011	,752**
	Sig. (2-tailed)	<,001	<,001	,438	,004		,947	<,001
	N	40	40	40	40	40	40	40
Soal_6	Pearson Correlation	-,112	,025	,074	,113	-,011	1	,399*
	Sig. (2-tailed)	,492	,879	,648	,486	,947		,011
	N	40	40	40	40	40	40	40
Total	Pearson Correlation	,551**	,709**	,317*	,689**	,752**	,399*	1
	Sig. (2-tailed)	<,001	<,001	,046	<,001	<,001	,011	
	N	40	40	40	40	40	40	40

\*\* . Correlation is significant at the 0.01 level (2-tailed).  
 \* . Correlation is significant at the 0.05 level (2-tailed).

Figure 3. Correlation Data

SOAL	PERSON CORRELATION	SIGNIFICANT	VALID/TIDAK VALID	NILAI
Soal_1	1	0	Valid	Sangat Tinggi
Soal_2	0,218	0,176	Valid	Rendah
Soal_3	-0,098	0,547	Tidak Valid	-
Soal_4	0,516**	<,001	Valid	Cukup
Soal_5	0,530**	<,001	Valid	Cukup
Soal_6	-0,112	0,492	Tidak Valid	-

Figure 4. Data Validation Results

Reliability

Scale: ALL VARIABLES

Case Processing Summary

Cases	Valid	N	%
Valid	40	40	100,0
Excluded <sup>a</sup>	0	0	,0
Total	40	40	100,0

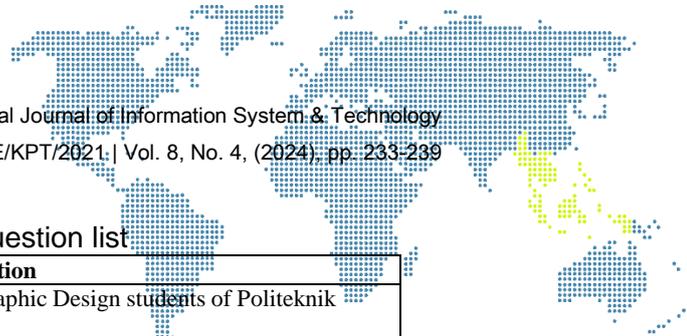
a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,722	7

Figure 5. Reliability Test Data

Based on Figure 5 in the Case Processing Summary table, it can be seen that the Valid Cases line states that the number of respondents is 40 and the percentage shows 100%, this indicates that the 40 respondents are valid. The results of the Cronbach's Alpha method reliability test calculation, which is 0.722 with N of Items, show that the number of items or the number of questions inputted on the variable is 7. So it can be said that the Cronbach's Alpha results for 7 data from items or 7 questions, namely 0.722.



**Table 1.** Questionnaire question list

Soal	Question
Problem_1	The identity of the respondents, namely Graphic Design students of Politeknik Negeri Media Kreatif.
Problem_2	How much do you use Artificial Intelligence / AI in creating graphic design works?
Problem_3	How influential the use of AI on the quality of Art elements you design?
Problem_4	How important is it for a work to have originality in this era of AI usage?
Problem_5	How effective is the use of AI in designing a graphic design work?
Problem_6	How satisfied are you with the work designed with the help of AI?
Problem_7	How impactful is the threat of AI to a graphic designer?

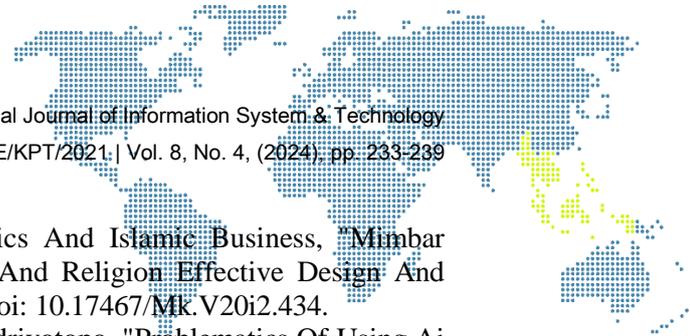
From the survey given by researchers From the results of the analysis obtained that in Question\_1 which contains questions about how often respondents who are active students of the Graphic Design study program in semesters 3-5 use Artificial Intelligence in making design work and get very high scores. The use of Artificial Intelligence Technology greatly impacts the effectiveness in designing a graphic design work. So that Respondents give sufficient satisfaction value to the work designed with the help of AI technology. However, from the data results, the use of AI has little impact on the quality of the elemental art designed. So that it has an impact on the originality of the work designed using AI technology.

#### 4. Conclusions

Based on the results of a survey of 3-5 Semester Graphic Design Student respondents Polimedia Medan. The use of AI technology has a huge impact on the design process, from collecting creative ideas to producing work. As well as simplifying the work process and increasing effectiveness in making work. However, the use of AI technology must still pay attention to the challenges and risks of the quality of the results and the risk of plagiarism that affects the Art Element and the originality of the work. So that the use of AI technology does not become a threat to Graphic Designers in the creative industry. But it can be a useful tool and help in overcoming the challenges that arise in graphic design without limiting the creative and innovative process of a designer. The impact of using AI leads to plagiarism or representation, so inaccuracies in including references to other people's work can result in lawsuits, especially if they harm others or violate copyright and Financial Loss: Violations of the code of conduct can cause financial loss to client or organization involved, whether through legal fees, decreased sales, or loss of reputation. Along with the rapid development of technology and the acceleration of the world, visual communication designers must be able to survive and compete with other visual communication designers, because a graphic designer must have a sense of making and living his design work, like an audience who observes the process of realizing a work.

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