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ARTIFICIAL INTELLIGENCE IN AESTHETIC SITUATION MANAGEMENT: NEW SOLUTIONS SUPPORTING OR SUBSTITUTING AN ART CREATOR

Michał SZOSTAK [1]✉, Artur MODLIŃSKI [2]

[1]*Institute for Management Research, Civitas University, Plac Defilad 1, 00–901 Warszawa, Poland*
[2]*Department of Management, Centre for Artificial Intelligence and Cybercommunication Research, Faculty of Management, University of Łódź, Matejki 22/26, 90–237 Łódź, Poland*

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Abstract. The article aims to define and describe potential areas of an aesthetic situation in which artificial intelligence may be applied in supporting or substituting roles. Analysing relations between artist, artwork, art recipient, the world of values, and the real world – based on the components of the aesthetic situation theory by Maria Gołaszewska in the *Outline of Aesthetics* (orig. *Zarys estetyki*, first published in 1984) and its development by applying the managerial lens by Michał Szostak in the *Art of Management – Management of Art* (orig. *Sztuka zarządzania – zarządzanie sztuką*, first published in 2023), allows to define particular universal areas of an aesthetic situation where artificial intelligence may be applied. The central methodological approach is a literature review on an aesthetic situation, aesthetic situation management, and artificial intelligence and its use in aesthetic situation management. The analysis results define two groups of artificial intelligence roles within an aesthetic situation: supporting and substituting. Both roles are described in detail based on aesthetic situation components and their management by an artist who is considered a manager of the aesthetic situation. Limitations of the considerations and directions of future research are defined.

Keywords: aesthetic situation, aesthetic situation management, art management, artificial intelligence, creative process.

✉Corresponding author. E-mail: ***michal.szostak@civitas.edu.pl***

1. Introduction

Art is one of the fields that humans have developed since the beginning of conscious activity. Besides fulfilling fundamental biological needs, humans want to share their visions and emotions and influence their surroundings by all accessible means. Art allows us to do it efficiently and effectively. Although the spine of every art discipline is very stable – *i.e.*, music deals with sound, visual arts with colours and shapes, theatre with word and movement – the forms and tools used in the creative process constantly evolve according to the development of technology and changes in perception. Currently, we observe an increased interest in using artificial intelligence in almost every field of our life, including the arts. Individuals are worried about the possibility of replacing them with artificial intelligence, analogically to many previously invented achievements.

This article aims to describe the potential areas of using artificial intelligence in art from the art creator's point of view. Based on the theory of the aesthetic situation (Gołaszewska, 1984, pp. 27–30) that describes the essential components of every relation between an art creator, artwork, art recipient, the real world and the world of values, applying the managerial

lens to this theory (Szostak, 2023b, pp. 109–110), we can analyse this problem from a universal point of view. Because artificial intelligence evolves dynamically, we will not describe particular artificial intelligence types/solutions that an art creator can use. We want to show the particular places of the aesthetic situation where an art creator can use artificial intelligence to complement or substitute for his activities to manage an aesthetic situation more efficiently.

2. Methodology

The methodology applied in this article is based on a critical review of the literature on basic concepts of creative process management in arts and artificial intelligence solutions classifications. Existing research results on creative process management were first investigated based on essential English and Polish monographs from aesthetics and arts from the 20th and 21st centuries, supported by a limited selection of scientific articles (search query for articles: *creative process* + *artistic creativity*, excluding *process management*). Existing research results on artificial intelligence solutions in aesthetics and arts were searched based on articles and proceedings published after 2010 (search queries: *artificial intelligence* + *creative process*; *artificial intelligence* + *aesthetics*; *artificial intelligence* + *creativity*). In the next step, all query results were screened by titles and abstracts. Those papers that did not address the purpose of the investigation were dropped out of the final analysis. The scientific databases in both cases were *EBSCO*, *Google Scholar*, *Mendeley*, *Scopus*, and *Web of Science*.

3. Literature review

The literature review was divided into the following main streams: aesthetic situation, aesthetic situation management, and artificial intelligence.

3.1. Aesthetic situation

Gołaszewska, based on the achievements of Ingarden's (1970, 1981) phenomenology, translated the axiological situation theory (Gołaszewska, 1986, pp. 23–38) into aesthetics, calling it the aesthetic situation (Gołaszewska, 1984, pp. 27–30). The main components of the aesthetic situation are a creator, an artwork, a recipient, the natural world, and the world of values. The fundamental relationships between these components can be described in the following: a creator in a creative process makes an artwork; a recipient receives the artwork in a reception process; all these components connect and interact with the world of values, but they happen in the real world.

The model proposed by Gołaszewska is fundamental, universal, and systemic. Its fundamentality manifests itself in considering all the problems and phenomena of aesthetics. Literature in the field of aesthetics abounds in theories addressing the essence of individual aesthetic problems, like creation, creativity, imagination, and perception; however, there is a lack of metatheories that would cover all these problems and carry their multitude and diversity. The universality of Gołaszewska's theory consists in its adequacy for considering problems concerning aesthetics as a whole (metatheories) and detailed problems (mezzo- and microtheories). Its systemic nature draws attention to the interconnections between

components and the consequences of modifying one component affecting the remaining components (Ostrowicki, 1997).

One of the closest metamodels to Gołaszewska's theory was proposed by Linstead and Höpfl (2000) in the disorganised aesthetics theory. That disorganisation of aesthetics should occur through a totalitarian implosion or a trivialised explosion of components like authors, technicians, audiences, and critics. In the centre of the model is an artwork, which is the result (implosion) or effect (explosion) of the creative process that takes place between the authors of the work (*e.g.*, composer) and the technicians performing the author's records (*e.g.*, musicians-performers), and the process of interpretation that takes place between the audience that receives the performances of the technicians and the critics, who are a specialised audience explaining a less understandable artwork in a more accessible way.

3.2. Aesthetic situation management

While analysing aesthetic situation management from the creator's perspective, the awareness of the aesthetic situation components, and their relationships described above is crucial. In short, it can be said that an artwork is the key component of the aesthetic situation, but it needs an artist who includes universal values in the work in the form of elements of the real world, as well as a recipient who will read universal values in the elements of the real world through the process of receiving the work.

In this context, an artist plays the role of a manager of an aesthetic situation because the content of the message (selection of values and their placement in elements of the real world) and its form (schemes, styles, or formal solutions) depend on him. For this purpose, the creator has three levels of influence: virtuosity, artistry, and creativity (Szostak, 2022b). A conscious creator manages these levels in a controlled manner – both at the stage of building their competencies in this area and, above all, at the stage of using them in the creative process. Not every artwork requires highly virtuosic solutions: artists often refer to brutalist solutions (*e.g.*, rough sculptural material) to draw the recipient's attention to specific issues. On the other hand, not every work requires many sophisticated references to the world of values – often, the simplicity of the message is a key to winning the interest. In the same way, creativity does not have to be characteristic of every work – an innovative form will not always be more understandable.

An artist, as the manager of the aesthetic situation – by designing the work – also determines the process of its reception. In each art discipline, a creator has a different influence on the process of reception: authors of plays or opera composers strongly define the requirements for the process of creating their work; however, performance directors (responsible for executing artwork in particular conditions) also have plenty to say in the process of producing it. The performance director is also a creator who manages his own creative process and reception process; in many cases, the director will significantly impact the final shape of the work more than the play author or the opera composer. On the other hand, after making a work, the visual arts creator (painter, graphic artist) separates himself from it and cannot influence the reception process: the recipient can shape the circumstances of contemplation (time, exposure length, contexts) at his discretion. The creator does not have a total influence

on the reception process because that process depends on many factors independent of the creator, *e.g.*, the recipient's activity level.

Aesthetic situation management also depends on the types of creative personalities. After analysing conceptual, experimental, implementation, and post-implementation phases in artists' creative process, it is possible to describe the following typology of creative personalities (Gołaszewska, 1984, pp. 176–189):

1. Creative personality of the intuitive type – a close entanglement of the phases of experience and realisation, the participation of pre-reflective awareness; the executing process is quick and with a sense of well-made decisions; the essential creative moments are realised based on acts of intuition without discursive motivation, without the participation of full consciousness – see musical improvisers (Szostak, 2019, 2022a);
2. Creative personality of the reflective type – a clear separation of phases, where the experience phase precedes the implementation phase; full awareness is involved here; has a complicated structure, hesitation in choosing the concept and means of expression; the creative process is long, the artist controls his intentions, creates a concept, and implements it consistently; the reflexivity of the creative process is unique because it is not only an intellectual reflection but also emotional, it concerns personal matters and revolves around experience;
3. Creative personality of the behavioural type – a separation of the phases of the creative process, with the exception that the phase of implementation to some extent precedes the phase of experience; it includes pre-reflective and reflective types of consciousness; it is somehow a trial and error method: the artist does not know what the final work should look like and does not feel the need to take this or that step.

It should be noted that the above creative personality types do not appear in pure forms but as a mix in various proportions (Gołaszewska, 1984, pp. 176–189). Based on the above-described typology of creative personalities, it must be underlined that aesthetic situation management within the creative process may differ according to the type or mix of creative personalities an artist represents. In the era of the dynamic development of new technologies, the aesthetic situation may be co-produced by non-human agents. The field is particularly influenced by artificial agents that operate thanks to artificial intelligence. Understanding its functioning becomes crucial in determining the role and scope of managing an aesthetic situation.

3.3. Artificial intelligence

Artificial intelligence refers to imitating human intelligence in machines programmed to think and learn similarly to humans. It involves the development of models that enable computers to perform tasks that require intelligence. These tasks include problem-solving, learning, reasoning, perception, speech recognition, language translation, and decision-making (Akerkar, 2019). There are two terms in common use: *weak artificial intelligence* and *strong artificial intelligence*. Weak artificial intelligence is the artificial intelligence system designed and trained for a particular task or a narrow range of tasks. These systems are specialised in performing the functions they are programmed for but lack the broad cognitive abilities associated with

human intelligence (Flowers, 2019). Strong artificial intelligence is an artificial intelligence system that can understand, learn, and apply knowledge through a wide range of tasks at a level comparable to human intelligence (Flowers, 2019). Unlike weak artificial intelligence, which is specialised for specific tasks, strong artificial intelligence may possess a cognitive capacity similar to that of a human, allowing the artificial system to perform any intellectual task that a human can. It is worth mentioning that there is no evidence that strong artificial intelligence currently exists or any indication that the technological system will be able to reach this level in the near future.

Contrary to popular opinions, it is worth emphasising that artificial intelligence used in creative industries does not belong to the strong artificial intelligence category. It is based on data provided to it and can only create within the framework specified by its creators (Cetinic & She, 2022). In other words, an algorithm designed for painting is only capable of painting – it cannot create sculpture or music.

Artificial intelligence is making notable contributions to the arts field, both in creative expression and in enhancing artistic processes. First, artificial intelligence is employed to compose music by analysing patterns and structures from large datasets of musical compositions (Lopez de Mantaras & Arcos, 2002). Second, artificial intelligence models are already capable of generating poetry and novels (Köbis & Mossink, 2021). Third, artists create interactive installations with artificial intelligence that respond to the audience's movements, emotions, or environmental changes (Chen & Ibrahim, 2023). In consequence, the audience may be more engaged and learn faster. Moreover, artificial intelligence algorithms may be employed in augmented reality and virtual reality applications to create immersive artistic experiences. Such applications are already visible in virtual art galleries (Kwon & Morrill, 2022).

With the development of generative artificial intelligence, research on consumers' perception of the effects of artificial systems' work is also developing. In 2024, there are such commonly available applications that generate pictures (*e.g.*, *Midjourney*, *DeepDream*, *Runway M*), text (*e.g.*, *ChatGPT*, *Google Bard*), music (*e.g.*, *Aveva*, *Jukedeck*), and use various modalities to interact with humans (*e.g.*, *Gemini* (chatbot)).

Fortuna and Modliński (2021) show that images created by artificial intelligence are perceived as less valuable than those created by humans. Fortuna, Modliński, and Monika McNeill (2022) further demonstrate that images created by humanoid robots are rated less valuable than those created by humans. At the same time, cyborgs – human artists who expand their artistic possibilities with technology – are treated more favourably than humanoid robots. An example of a cyborg artist is Harbisson (2019), who has implants that allow him to hear colours. On the other hand, there are art experiments provided by artist and playwriter Rik Lander with echoborgs – people who say and do things based on the instructions or influence of artificial intelligence (I Am Echoborg, 2024).

People are sceptical about the adoption of artificial intelligence in various areas related to art. Adopting a robot as a museum guide evokes negative cognitive, emotional, and behavioural reactions among visitors (Modliński et al., 2023). Similar resistance also occurs among employees of these institutions (Modliński et al., 2024). Current research indicates that artificial intelligence is adopted in creative sectors in two forms: substitutive and complementary. Complementary artificial intelligence complements human capabilities, enabling

more effective realisation of one's vision and communication of ideas. Substitutive artificial intelligence, conversely, replaces humans in creating images or generating music without human involvement (Modliński & Moreira Pinto, 2020).

4. Results and discussion

The results and discussion are presented in the following way: 1) application of artificial intelligence within aesthetic situation management; 2) challenges associated with artificial intelligence's integration: bias in algorithms; 3) challenges associated with artificial intelligence's integration: ethical concerns.

4.1. Application of artificial intelligence within aesthetic situation management

By crossing the analyses of the aesthetic situation management and artificial intelligence fields, a matrix indicating areas of the application of artificial intelligence roles and tasks within components of an aesthetic situation was created (Table 1).

Current solutions based on artificial intelligence allow for its adoption in every component of an aesthetic situation – both in a complementary and substitutive form. Within creative processes, complementary artificial intelligence can provide support in inspiring, conceptualising, and implementing the creative process. Tools based on generative artificial intelligence can offer suggestions about other works and artists or display the artist's work in various filters representing the styles of earlier creators. At the same time, substitutive artificial intelligence enables the creation of artwork based on the creator's thoughts. The latest versions of *Midjourney* applications allow for executing prompts in the form of descriptions and creating images based on them. Artists Manas Bhatia and Georgia Perry use generative artificial intelligence as creative partners who create images for their ideas. The role of human creators is to find new perspectives and inspiration for their own visions in these generated pictures (Worklife Editorial, 2023).

Artificial intelligence can also serve as a complementary tool in the artwork component. Generative artificial intelligence is already capable of suggesting areas within artwork where it can be applied as an executor (*e.g.*, as a creator of parts of an image) or as a co-creator (*e.g.*, responsible for visual effects during a performance). The current application of artificial intelligence in a substitutive role in the artwork component is significantly less prominent. For some years, the concept of echoborgs has been developed, involving human artists connected to a computer through headphones, uttering dialogues generated by artificial intelligence (I Am Echoborg, 2024). The example may be *Echoborg Program* – lan interactive performance in which actress Marie-Hélène Boyd interacts with the audience while being controlled by a hidden artificial intelligence system. The script for the play was created by artist and playwrighter Lander, who used the echoborg concept developed by social psychologists Kevin Corti and Alex Gillespie. Echoborg's goal is to collectively think about the impact of automation on humans, with artificial intelligence learning from the audience and having its own goals. Each performance is different – it depends on the conversation

Table 1. Role of artificial intelligence in aesthetic situation management (source: created by authors)

Artificial intelligence role and tasks AESTHETIC SITUATION COMPONENT		Complementary artificial intelligence	Substitutive artificial intelligence
CREATIVE PROCESS	Inspirations for the creative process	Artificial intelligence analyses the mood of an artist and suggests a selection of sources to inspire an artist; Artificial intelligence shows what other artists thought about some process.	Artificial intelligence selects sources and presents them to inspire an artist
	Conceptualisation phase of the creative process	Artificial intelligence suggests options for artwork concepts for an artist; an artist decides which artificial intelligence options to implement	Artificial intelligence decides about the whole concept of an artwork
	Realisation phase of the creative process	Artificial intelligence suggests realisation options for an artist; an artist decides which options suggested by artificial intelligence to implement	Artificial intelligence undertakes or manages the whole realisation phase; an artist is (eventually) an executor of tasks ordered by artificial intelligence
ARTWORK	Artificial intelligence as a performer	Artificial intelligence suggests areas where artificial intelligence could be used as a performer; an artist decides where artificial intelligence is used as a performer	Artificial intelligence undertakes or manages the whole performance of an artwork; an artist is (eventually) a performer of selected tasks ordered by artificial intelligence
	Support of a human performer	Artificial intelligence suggests areas where artificial intelligence could be used as a support of a human performer; an artist decides where artificial intelligence is used as a support of a human performer	Artificial intelligence decides about the scope of the support of a human performer
NATURAL WORLD	Selection of the creative substance (e.g., the best substance according to the artwork idea)	Artificial intelligence suggests a selection of the creative substance; an artist decides on the final use of the creative substance	Artificial intelligence selects the creative substance
WORLD OF VALUES	Selection of values to be implemented in the artwork	Artificial intelligence suggests a selection of values to be implemented in an artwork; an artist decides about the values implemented in an artwork	Artificial intelligence selects values to be implemented in artwork

between the actress and the audience (I Am Echoborg, 2024). Nevertheless, this creation form has not gained widespread recognition, and applications aiming to develop it are still in the developmental phase.

In the natural world component, artificial intelligence is rapidly advancing, particularly in a complementary role, where it suggests the selection of creative substance. An example of an application facilitating this is *Runway M*. Using *Runway M*, artists can utilise various models, such as image generators or natural language processing models. An artist can use a generative model to create abstract images and then decide how they would like to incorporate them into their project, whether as a poster or an illustration for a book. *Runway M* enables interactive and creative exploration of artificial intelligence capabilities, providing artists with control over the ultimate utilisation of the generated content. Currently, there are no tools that grant artificial intelligence autonomy in the selection of creative substances.

Currently, the relatively least utilised aspect of artificial intelligence is in the world of values component. In a complementary role, artificial intelligence can suggest values artists may express in their work. Theoretically, tools like chatbots (*e.g.*, generative pre-trained transformer) or generative models (*e.g.*, *Gemini* (chatbot)) could be helpful in this area by suggesting values resonating with the artist's intention. In reality, artificial intelligence still does not operate directly in the realm of values, even though it can recognise emotions or learn cognitive empathy. In a substitutive role, artificial intelligence can be asked to create a work conveying the values it selects, but the final implementation and acceptance still remain in the hands of humans.

While analysing aesthetic situation management with the application of artificial intelligence, the issue of reflexivity within an aesthetic situation cannot be forgotten. Reflexivity, as an emanation of humanity and aesthetic perception, is an intrinsic component of art participation, both for a creator and a recipient (Szostak, 2023a). The application of artificial intelligence within an aesthetic situation significantly influences the issue of reflexivity – its role, place, and impact on the final result of an aesthetic situation, *i.e.*, a work of art. On the contrary, it cannot be neglected that artificial intelligence may also reshape the form and scope of reflexivity within an aesthetic situation.

4.2. Challenges associated with artificial intelligence's integration

4.2.1. Bias in algorithms

Contrary to popular belief, artificial intelligence algorithms do not have to be objective, which is associated with artificial intelligence biases. Artificial intelligence bias leads to favoring or discriminating against certain groups or outcomes (Roselli et al., 2019). This happens for many reasons: it may be an action intentionally introduced by the designer, it may result from unreliable or unhygienic data, a small amount of data or data that is outdated. The appearance of bias may lead to skewed results and, consequently, unethical actions. This is particularly dangerous in artificial intelligence applications for tasks requiring creativity and content creation.

From the point of view of the aesthetic situation component analyzed in Table 1, bias may constitute significant limitations in terms of inspiration for the creative process. Depending on the data on which the algorithms are based, some significant part of the information that could serve the artist as an important source of information in the creative process is not taken into account. As a result, the phenomenon of tunneling occurs, *i.e.* the inspirational perspective is limited to only a narrow part of the information scope. As a result, the artist becomes trapped in an information bubble that limits their possibilities and inhibits the creative process.

A significant limitation in the field of artificial intelligence biases is the lack of awareness of their existence. There are no objective systems that monitor the level of bias in a given system, and as a consequence, it is difficult to detect them. Only by experimenting with a given program can make people notice certain limitations, which can significantly prolong the creative process and cause frustration for those involved in the process. Commonly available models of generative artificial intelligence that may be used in creative processes are based on large amounts of data, but it is not clear how broad they are and whether they do not confine the artist to information bubbles. Since creators are just learning to coexist with generative artificial intelligence, they should be aware of a number of limitations and ethical challenges related to its use, which is described in more detail in the next section of the article.

4.2.2. Ethical concerns

Integrating artificial intelligence into the realm of art raises multifaceted ethical concerns, from its potential impact on human creativity and autonomy to the fundamental authenticity and value of artificial intelligence-generated artworks. One pressing issue revolves around the fear that artificial intelligence may overshadow or diminish human creativity and autonomy within the artistic process. As artificial intelligence assumes tasks traditionally carried out by artists, there looms a risk of sidelining or undervaluing human creativity (Modliński & Moreira Pinto, 2020; Modliński et al., 2023). Moreover, the proliferation of artificial intelligence in art creation threatens the emotional and personal connection inherent in human-made art, potentially leading to dehumanising the artistic endeavour. The loss of this emotional depth could result in a commodification of art devoid of the richness and authenticity found in human expression (I Am Echoborg, 2024; Harbisson, 2019).

A significant concern is the prevalence of biases within artificial intelligence systems stemming from the biases inherent in the data used to train them. Such biases can manifest in the outcomes of artificial intelligence-generated art, raising questions about fairness and inclusivity in the artistic domain. Furthermore, the opacity surrounding artificial intelligence's art generation process poses challenges regarding accountability and the authenticity of artificial intelligence-generated artworks.

Additionally, the inability of artificial intelligence to fully engage with human values and emotions jeopardises the authenticity and emotional depth of artworks influenced by artificial intelligence. The traditional role of reflexivity in art may also be altered by artificial intelligence, potentially diminishing the personal and emotional engagement of both creators and recipients with the artwork. This alteration could lead to a perception of artificial intelligence-generated art as less valuable than human-created art, further exacerbating concerns

regarding the devaluation of human creativity and the potential replacement of human artists in specific creative processes.

Moreover, ethical considerations extend to recipients' reception of artificial intelligence-generated art, as acceptance of artificial intelligence's role in the creative process and the overall perception of its involvement vary widely. The impact of artificial intelligence on the pricing and evaluation of artworks is another area of concern, as it could distort traditional market dynamics and valuation criteria. Thus, integrating artificial intelligence into art production necessitates careful examination and consideration of its implications for human creativity, autonomy, authenticity, and societal values.

5. Conclusions

Although the results suggest that artificial intelligence currently finds greater application in a complementary role than in a substitutive one, such a statement may be associated with several limitations. Firstly, artificial intelligence is evolving rapidly, making it impossible to include all tools in the analysis. Secondly, the continuous development of this technology, especially its multimodality, may soon transfer it into a substitutive role. Thirdly, some tools developed in the laboratories of major tech companies and designed by startup companies are not communicated until their beta versions are available on the market. Therefore, such tools may emerge in the coming years that will enable a broader application of artificial intelligence in complementary and substitutive roles in each component of an aesthetic situation.

Nevertheless, the significant value of the results presented in Table 1 lies in its applicability. In subsequent research, it should be verified whether using artificial intelligence in various components of an aesthetic situation affects the reception of artwork by art recipients. It also seems significant to examine the use of artificial intelligence at which component of an aesthetic situation lowers or raises the evaluation and price of an artwork and how it influences the aesthetic experiences. An interesting aspect for further research is also the willingness of art recipients to delegate part of the autonomy in an aesthetic situation (*i.e.*, perception process) to artificial intelligence and their assessment by consumers as favourable or unfavourable. Such research would enable the planning of the creative process in a more thoughtful and sustainable manner.

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