Artificial Intelligence and Originality in Design

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Abstract

The Purpose of the Study: *This paper addresses how artificial intelligence (AI) plays a role in the world of design and how it affects the concept of originality. The paper examines the use of AI in areas such as graphic design, logo design, painting, original designs and web design, and discusses the innovations that this technology brings to design processes. The paper also considers the positive and negative effects of AI on designers. Positive effects include the acceleration of design processes and the access to a wider creative spectrum. On the other hand, the impact of AI on originality is a controversial issue. It is questioned how original the designs produced with AI are and whether these designs have artistic value.*

Literature Review/Background: *The impact of artificial intelligence (AI) technology in the field of design and the reconsideration of the concept of originality are mentioned. While AI offers speed and efficiency in design processes, creative solutions have been addressed through learning from data and algorithms. While the innovations and efficiency advantages offered by AI expand the creative capacities of designers, the concepts of originality and personal expression are evaluated.*

Methodology: *The research design of the study was qualitative, document scanning method was used as the data collection method, and content analysis method was used to analyse the data. Using the document scanning method, the effects of artificial intelligence in design and the concepts of originality were discussed.*

Findings: *The impact of artificial intelligence (AI) technology in the field of design necessitates a reconsideration of the concept of originality. While AI offers speed and efficiency in design processes, it produces creative solutions through learning from data and algorithms. However, originality in this process can often be derived from existing data or based on style transfers. While the innovations and efficiency advantages offered by AI expand the creative capacities of designers, it may cause you to question the concepts of originality and personal expression.*

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Conclusion: *the paper suggests that AI is an important tool in the design world and predicts that this technology will become even more widespread in the future. However, it is emphasised that AI should be used carefully and consciously in creative processes.*

Keywords: *Artificial Intelligence, Design, Digital Age, Algorithm, Copyright.*

Tasarımda Yapay Zekâ ve Özgünlük Kavramı

Öz

Giriş ve Çalışmanın Amacı: *Bu çalışma, yapay zekânın (YZ) tasarım dünyasında nasıl bir rol oynadığını ve özgünlük kavramını nasıl etkilediğini ele almaktadır. Makale, YZ'nin grafik tasarım, logo tasarımı, resim, özgün tasarımlar ve web tasarımı gibi alanlarda kullanımını incelemekte ve bu teknolojinin tasarım süreçlerine getirdiği yenilikleri tartışmaktadır. Makale, YZ'nin tasarımcılar üzerindeki olumlu ve olumsuz etkilerini de ele almaktadır. Olumlu etkiler arasında, tasarım süreçlerinin hızlanması ve daha geniş bir yaratıcı yelpazeye ulaşılması yer almaktadır. Öte yandan, YZ'nin özgünlük üzerindeki etkisi tartışmalı bir konudur. YZ ile üretilen tasarımların ne kadar özgün olduğu ve bu tasarımların sanat değeri taşıyıp taşımadığı sorgulanmaktadır*

Kavramsal/Kuramsal Çerçeve: *Yapay zekâ (YZ) teknolojisinin tasarım alanındaki etkisi, özgünlük kavramının yeniden ele alınmasını değinilmiştir. YZ, tasarım süreçlerinde hız ve verimlilik sunarken, verilerden öğrenme ve algoritmalar aracılığıyla yaratıcı çözümler ele alınmıştır. YZ'nin sunduğu yenilikler ve verimlilik avantajları, tasarımcıların yaratıcı kapasitelerini genişletirken, özgünlük ve kişisel ifade kavramlarını değerlendirilmiştir.*

Yöntem: *Çalışmanın araştırma deseni nitel olmak üzere, veri toplama yöntemi olarak belge tarama yöntemi, ayrıca verilerin analizinde ise içerik analizi yöntemi kullanılmıştır. Belge tarama yöntemi kullanılarak, tasarımda yapay zekânın etkileri ve özgünlük kavramları ele alınmıştır.*

Bulgular: *Yapay zekâ (YZ) teknolojisinin tasarım alanındaki etkisi, özgünlük kavramının yeniden ele alınmasını zorunlu kılmaktadır. YZ, tasarım süreçlerinde hız ve verimlilik sunarken, verilerden öğrenme ve algoritmalar aracılığıyla yaratıcı çözümler üretir. Ancak, bu süreçte özgünlük genellikle mevcut verilerden türetilmiş veya stil transferlerine dayalı olabilir. YZ'nin sunduğu yenilikler ve verimlilik avantajları, tasarımcıların yaratıcı kapasitelerini genişletirken, özgünlük ve kişisel ifade kavramlarını sorgulamanıza neden olabilir.*

Sonuç: *Makale, YZ'nin tasarım dünyasında önemli bir araç olduğunu ve gelecekte bu teknolojinin daha da yaygınlaşacağını öngörmektedir. Ancak, YZ'nin yaratıcı süreçlerde dikkatli ve bilinçli bir şekilde kullanılması gerektiği vurgulanmaktadır.*

Anahtar Kelimeler: *Yapay Zekâ, Tasarım, Dijital Çağ, Algoritma, Telif Hakkı.*

1. Introduction

The rapidly increasing use of artificial intelligence (AI) in the design world has profound implications for the creative process, and has reopened the concept of originality to debate. Traditionally, originality has been seen as a value that emphasises the uniqueness of a work and the individuality of the creative process. However, the increasing involvement of artificial intelligence algorithms in design production is pushing the boundaries of the concept of originality. While AI can produce new designs by learning from large data sets, the decrease in dependence on human creativity in this production process requires a redefinition of the concept of originality.

The possibilities offered by AI in the field of design lead us to question the relationship between originality and creativity. Designs produced by artificial intelligence can produce innovative and striking results, even if they are derived from artefacts created in the past. This raises the question of whether the concept of originality is based solely on individual creativity or on the creative process itself. Therefore, understanding the impact of AI on originality in design is an important requirement for reassessing both technological advances and the meaning of originality in art and design.

2. The Importance of Artificial Intelligence in Design

Artificial intelligence (AI) has become an increasingly important technology in the design world. Its ability to speed up design processes, increase efficiency and open up new creative possibilities makes AI an integral part of modern design. Through its ability to learn from large datasets, AI enables designers to access information and trends that were previously unavailable to them. This allows for more informed and strategic design decisions (Deveci, 2022).

The importance of AI in the design process is not only limited to speed and efficiency; it also takes creativity to new heights. AI can create complex patterns, visual effects and forms that are difficult to achieve with traditional methods, offering designers new forms of expression. It can also analyse user data to produce personalised designs, resulting in more targeted and effective design solutions. These versatile uses of AI in Subscribe to DeepL Pro to edit this document. Visit www.DeepL.com/pro for more information. Design play a critical role in shaping the design world of the future by transforming both industrial and creative design processes (Ökmen, 2021).

3. Definition of Originality in Artificial Intelligence

The concept of originality in artificial intelligence (AI) means that the content, design or solutions produced by AI systems have new and creative features that have not existed before.

This concept is related to the creativity of AI and refers to the ability of an AI system to produce an original idea, artwork, design or solution without human intervention or with minimal human input (Afrouzi, 2020).

In artificial intelligence, originality also brings with it philosophical and ethical debates. This is because originality is often associated with human intelligence and creativity, which makes the question of whether AI can truly be "original" a topic of discussion among many researchers and experts. Furthermore, the process of AI generating originality is limited by the data on which the model is trained, which means that the concepts of originality and innovation may sometimes be questioned. In AI, originality refers to the emergence of new, unique, and innovative ideas, similar to human-like creative thinking processes. However, AI's originality also involves challenges, such as the ability to go beyond existing data and possess human-like creative capacity (Baker, 2020).

3.1. Algorithmic Originality.

The originality of AI is directly related to the uniqueness of the algorithms used and the results produced by these algorithms. If an AI model can produce new and unprecedented results by learning from data sets, this is considered as originality (Fan, 2020). However, an important question here is whether AI produces a new result by simply rearranging existing data, or whether it follows a truly creative process.

Algorithmic originality refers to the capacity of artificial intelligence to produce original content in creative fields. However, this process still raises philosophical, ethical, and technical questions. When compared to human-like creativity, the ability of AI to create originality still faces significant limitations. Therefore, the future development of algorithmic originality involves both technological progress and ethical debates (Brown, & Davis, 2020).

3.2. ***Creative Production***.

The originality capacity of AI is used to determine how innovative and novel the content produced by AI is, especially in creative fields. This relates to whether AI can create new artefacts with human-like creativity in areas such as art, music, writing or design. For example, if an AI system creates a piece of music or a visual artwork that did not exist before, it can be considered as originality in AI (Kapır, 2021).

In recent years, artificial intelligence has begun to play an active role in creative production processes. AI systems have the capacity to produce original content in fields such as art, music, literature and design. Such AI tools can accelerate people's traditional creativity processes, help

overcome creative blocks by suggesting new ideas, and offer different aesthetic approaches (Davis, 2020, August 22).

3.3. *Relationship Between Data and Authenticity*.

The capacity of AI systems to produce original content depends to a large extent on the data sets on which they are trained. If the AI learns from large and diverse data sets, its results may be more original. However, the extent to which the results produced by the AI are dependent on the datasets on which it is trained and the extent to which it is able to differentiate from these datasets and produce something new plays a critical role in the evaluation of originality (Ökmen, 2021).

3.4. *Legal and Ethical Aspects*.

The concept of authenticity in AI is also subject to legal and ethical debates. Copyright and property rights of the contents produced by AI raise questions about how original these contents are and to whom they belong. If an AI system creates a new work by reinterpreting other works, how original this work will be considered and to whom it legally belongs are important discussion points (Kapır, 2021).

3.5. The Difference between Originality and Creativity.

Originality in AI is not always recognised as equivalent to human creativity. The algorithmically generated content of AI may be original, but this originality is different from the conscious, purposeful and meaningful creativity of human creativity. The originality of AI is considered more as an innovation resulting from data processing capacity and algorithmic diversity.

The concept of originality in artificial intelligence refers to the ability of AI systems to produce new and unique content through data and algorithms. This concept is addressed with both technical and ethical dimensions and is evaluated in the context of the similarities or differences of AI to human creativity. The acceptance of the content produced by AI as original is based on factors such as the uniqueness of the methods, data sets and results (Fan, 2020).

4. Redefining Authenticity in the Digital Age

In the digital age, the concept of originality is being redefined and transformed with technological developments, the widespread use of the internet, and the increase in the use of digital tools. In the traditional sense, originality was defined as a completely new, unique and

unprecedented creation of a work or idea. However, the digital age has expanded and complicated this definition, making it necessary to consider originality from different angles (Artkın, 2022).

4.1. Expansion of Digital Production Tools.

In the digital age, creative processes such as design, art, music and writing can be realised more quickly and easily through digital tools and software. While this situation enables many people to participate in creative processes, it also requires rethinking the concept of originality. Digital tools facilitate the creation of new works by rearranging, manipulating or combining existing content (Ballı, 2020). However, the extent to which such creations can be considered original becomes controversial when compared to the traditional definition of originality.

4.2. Content Sharing and Accessibility.

With the widespread use of the Internet, access to information and artefacts has become much easier. People have become able to instantly access content from around the world and use it in their own works. While this situation fuels creative processes on the one hand, on the other hand, it creates the need to question the authenticity of works. The dissemination, copying, modification and re-presentation of a work in digital media blurs the concept of authenticity (Bossema, Allouch, Plaat, & Saunders, 2023).

Content sharing and accessibility are two key concepts that complement each other in digital media production. In order for content to reach a wide audience, it must be accessible. If content is not accessible to users with certain disabilities, the impact of sharing is limited. For example, content shared on social media platforms should be supported with audio descriptions or subtitles for visually impaired users.

Furthermore, accessible content is beneficial not only for individuals with disabilities but for everyone. For instance, designing quick access to content on mobile devices and creating user-friendly interfaces increases accessibility to content across different devices and browsers (Thompson, 2021).

4.3. Artificial Intelligence and the Role of Algorithms.

Artificial intelligence and algorithms play an important role in redefining the concept of authenticity in the digital age. AI can produce new and unique content by learning from large data sets. However, the questions of whether this content is truly "original" and whether AI merely

reorganises existing data or produces new content through a creative process are at the centre of the originality debate. How the content produced by AI will be compared with human creativity and how these contents will be included in legal processes such as copyrights require revising the definition of originality in the digital age (Chung, 2022).

4.4. Cultural and Social Dynamics.

Authenticity in the digital age is also being reshaped by increasing globalisation and cultural interaction. Influences from different cultures can be shared and disseminated more easily in the digital environment. This situation also questions the authenticity and ownership of cultural content. The fact that an artefact belongs to a specific culture but reaches a global audience through digital tools and platforms expands the boundaries of the concept of authenticity (Christie's, 2018).

4.5. Originality and the Evolution of Creative Processes.

In the digital age, creative processes are also transforming and the meaning of originality in these processes is changing. Creative individuals can now quickly realise and share their ideas through digital tools and platforms. In this process, originality is associated with how an idea or work is presented, how it is interpreted and how it creates interaction in the digital world, rather than being completely new. Originality becomes more of a form of creativity and expression in the digital age, which requires going beyond the traditional definition of originality (Esen, 2019).

In the digital age, the concept of originality has gained a meaning that has expanded and transformed with the impact of technology, the internet and artificial intelligence. This new definition marks a period in which creativity is reshaped through digital tools and platforms, and the criteria for originality have diversified. Authenticity is now assessed not only by the uniqueness of a work, but also by its role and impact on creative processes in the digital age.

5. Methods of Measuring the Originality of the Design

Measuring the originality of a design is a highly complex and subjective process in the world of art and design. Originality is defined by the uniqueness and innovativeness of a design; that is, it is expected to have a characteristic that has not existed before or is markedly different from what already exists. However, it is difficult to objectively assess originality, as this evaluation process depends on many variables due to the complexity of creative processes as well as cultural and historical contexts (Dorst, 2015).

5.1. There are Several Ways to Measure Authenticity:

Comparative Analysis: In order to assess the originality of a design, it is common to compare it with existing or past designs. If the design is distinctly different from known works, it can be said to be original. However, what should be taken into account in this comparison is not only superficial similarities, but also the techniques, ideas and ways of implementation (Sanders, & Stappers, 2008).

Analysing the Creative Process: Understanding how a design is created is also important in assessing originality. How much did the designer depend on previous works or the works of others? Did he/she develop a new idea or technique? Such questions can shed light on the originality of the design process.

Cultural and Historical Context: The time and space context in which a design is produced is also important in the evaluation of originality. An original design can offer a new meaning or aesthetic value by differentiating from the cultural and historical context in which it exists. This context is used to evaluate the innovativeness of the design and the degree of differentiation from others (Dorst, 2015).

Conceptual Innovation: The originality of the idea or concept behind the design is also an important factor. This relates not only to the visual or physical characteristics of the design, but also to the meaning and message it carries. Designs that offer a new conceptual approach or problem-solving method can be considered original (Sanders, & Stappers, 2008).

Technological Innovation: The technology or techniques used in the production of a design can also be considered as a criterion of originality. In particular, designs produced with the use of new technologies may create results that were not possible before and this may contribute to the originality of the design.

Measuring the authenticity of a design is a multidimensional process in which both objective and subjective elements are considered together. Careful analysis of the different components of the design and their relationship with each other and with the wider cultural context plays a fundamental role in authenticity assessment (Dorst, 2015).

6. Methods for Determining the Originality of a Design Produced by Artificial Intelligence

Determining the originality of a design produced by artificial intelligence (AI) requires some challenges and evaluation criteria different from traditional design processes. The inclusion of AI in the design process requires a new approach to the creative source and production process of the

design. Here are some of the methods used to determine the originality of an AI-generated design.

6.1. Analysing Algorithm and Data Source.

Algorithm Structure: The originality of the algorithms used by AI is an important factor affecting the originality of the resulting design. For example, whether the machine learning model used in the production of the design is innovative or not can determine the originality of the design (Akin, & Akin, 1996).

Data Set: The data set on which the AI is trained also determines the originality of the design. If the AI is fed from data sets that have not been seen before or have limited access, the design produced is more likely to be original. However, designs derived from widely used, common and publicly accessible data sets may be variations of existing designs rather than originality (Artut, 2019).

Comparative Analysis of Outputs Comparison with Previous Designs: Designs produced by AI can be compared with existing man-made or other AI designs to assess their uniqueness. This comparison helps to determine whether the design is unique through similarities and differences (Dorst, 2015).

Style and Thematic Evaluation: It is analysed whether the design produced by the AI differs stylistically and thematically from the previous works. An original AI design should have qualities that go beyond recognised styles or bring a new perspective to existing themes.

6.2. Transparency of the Creative Process.

Analysing Algorithmic Decision Processes: How the AI makes decisions and what processes it goes through should be analysed transparently. Did the AI work completely automatically in design production or was it guided by human intervention? The answers to these questions are critical in understanding how original the design is (Artut, 2019).

Human and AI Interaction: The interaction between human and AI in the design process is an important factor in determining originality. Designs created entirely by AI may have a different degree of originality compared to the designs resulting from the collaboration with human creativity.

6.3. Conceptual and Aesthetic Innovation.

Innovative Ideas: The originality of the design produced by AI can also be evaluated by conceptual innovation and originality in aesthetics. It is valuable in terms of originality if the AI

introduces a completely new aesthetic or a design idea that has not been considered before (Esen, 2019).

Diversity and Unexpected Results: The diversity of the designs produced by the AI and the fact that the results are unexpected, unusual or distinctly different from previous studies can be used as a criterion of originality.

Examples:

Art: Movements like Surrealism in the early 20th century changed traditional concepts of art by focusing on abstract thought and unconscious mental processes.

Architecture: Postmodern architecture has produced designs shaped by a more aesthetic and symbolic approach, going beyond functionalism.

6.4. Legal and Ethical Evaluation.

Copyright and Ownership: Legal and ethical aspects should also be considered in determining the originality of the design produced by AI. If a design is derived from another work without permission, this may weaken the claim of originality of the design.

Ethical Issues: The ethical dimension of the data used by AI in the creative process may affect the originality assessment of the design. For example, unauthorised use of other designers' works or unauthorised reproduction of cultural artefacts may weaken the claim of originality (Esen, 2019).

Determining the originality of a design produced by AI requires both a technical and conceptual evaluation. Considering factors such as the structure of the algorithm, the data set used, the conceptual innovations and aesthetic originality of the design, it is decided whether the design produced by the AI is original or not. This process requires a more complex and multidimensional approach than traditional design evaluations.

7. Originality in the Light of Copyright and Patent Concepts

Copyright and patents are two important intellectual property instruments used to protect the originality of a work or invention and to provide legal rights to its owner. Originality is considered a fundamental criterion for both copyright and patents, but the scope and application areas of these concepts are different (Eliri, 2010).

7.1. Copyright and Originality.

Copyright is an intellectual property right that provides protection of creative works such as literary, artistic, music, software and film. One of the basic conditions of copyright is that the work must be "original". This means that the work must be a product of the creator's personal contribution and creativity. Copyright protection is automatically activated upon the creation of a work and grants the author rights such as copying, distributing and exhibiting the work.

Originality, in the context of copyright, does not mean that the work is completely new and unique, but that it is created by the creator's own effort (Eliri, 2010). For example, a photograph taken by a photographer, even if the same scene has been taken by someone else before, is considered original because the photographer's personal perspective and technical ability played a role in creating this work.

7.2. Patent and Originality.

A patent is an intellectual property right that provides protection for new and original inventions. Patent protection gives the inventor the right to produce, use, sell and prevent others from using the invention for a certain period of time. In order to obtain a patent, the invention must be original, innovative and applicable to industry.

Originality in the context of patents implies that an invention must contain an innovation that has not existed before or that goes beyond the known techniques (Günay, 2021). This means that the invention carries a distinct novelty and an inventive step when compared to "previously known techniques". Patent applications usually undergo detailed examinations that assess these elements of novelty and originality.

7.3. Differences in Originality within the Scope of Copyright and Patent.

One of the main differences between copyright and patents is the nature of the protected elements and the criteria of originality. While copyright protects mostly creative and artistic works, patents protect technological and industrial inventions. While originality for copyright is based on the personal contribution of the creator of the work, originality for patents requires that the invention stands out from others in terms of novelty and technical development (Bossema, Allouch, Plaat, & Saunders, 2023).

While copyright has a broader definition of originality and considers individual contribution in the creative process sufficient, patent requires stricter and more objective criteria for originality.

Therefore, while a work can be protected by copyright, the same work must demonstrate technical innovation and industrial applicability in order to receive patent protection. The concepts of copyright and patents are two basic intellectual property instruments designed to protect originality in different fields. Copyright protects the individual originality of creative and artistic works, while patents focus on the protection of technical innovations. Both concepts are built on the criterion of originality, but the definition of originality and the way it is applied differ according to the type of work or invention being protected.

8. Creative Applications Using Artificial Intelligence for Authenticity

Various topics and creative practices that can be addressed under the title of "Creative Practices Using Artificial Intelligence for Originality" investigate how artificial intelligence (AI) technologies are used to produce original content in fields such as art, design, music, and literature. These practices focus on how AI combines with human creativity to produce unique and innovative results (McCormack, Gifford, & Hutchings, 2019).

8.1. Creating New Works in Visual Arts with AI.

Artificial intelligence has become an important tool in creating original works, especially in visual arts. Using AI algorithms, artists can create completely new and unique artworks that did not exist before. This process is achieved through techniques such as style transfer and generative adversarial networks (GANs). For example, using GANs, an artist persona of the AI can be created, and this artist can produce works in his or her own unique style. These artefacts can be considered completely original because they are not copies of pre-existing works, but are inspired by existing art movements (Colton, & Wiggins, 2012).

8.2. The Role of AI in Music Composition.

In the music industry, AI is helping composers and musicians to create new melodies, rhythms and sound combinations. AI-based music production tools can produce new and original pieces by learning from large music databases. Such applications can both inspire human musicians and create new types of music composed entirely by AI. For example, melodies synthesised by AI by analysing various musical styles can be original and aesthetically satisfying even without human intervention (Elgammal, Liu, Elhoseiny, & Mazzone, 2017).

8.3. Personalised Designs with AI.

Artificial intelligence is also being used to create originality in graphic design. Using AI,

designers can create personalised and unique graphics, logos, and web interfaces. This process enables the creation of designs that are shaped in line with the preferences and needs of users. By analysing different user data, AI can deliver unique products tailored specifically for each person. This application is used to create remarkable original content, especially in the fields of advertising and brand design (McCosker, & Wilken, 2020).

8.4. AI Supported Literature and Creative Writing.

Artificial intelligence has also been used for originality in creative writing. AI-powered software tools can write original stories, poems and articles by analysing different writing styles. Such applications enable AI to create new works by imitating a particular author's style or to write unique writings in its own algorithmic style. Originality emerges here through the new perspectives and forms of expression that AI brings to the writing process (McCosker, & Wilken, 2020).

8.5. Architecture and Product Design with AI.

AI is also used in the fields of architecture and industrial design to create originality. Using various parameters and data sets, AI can generate new building designs or industrial products. Such designs can be completely innovative, both aesthetically and functionally, and may have unprecedented structural or aesthetic features. For example, AI algorithms can create unique products and architectural structures optimised according to specific criteria such as environmental sustainability or ergonomics (Colton, & Wiggins, 2012). The possibilities offered by AI, combined with human creativity, pave the way for the emergence of new works of art, music, designs and writings that were not possible before.

9. Visual Authenticity: Aesthetics and Innovation in Artificial Intelligence Supported Designs

The impact of AI in the field of visual design is particularly evident in the algorithmic optimisation of aesthetic decisions and their integration into traditional design processes. By learning from large data sets, AI can reveal previously untried styles and compositions, making it possible to create completely original designs in terms of both aesthetics and innovation (Taluğ, & Eken, 2023).

This impact of AI on aesthetics and innovation takes designers' creativity to new horizons, while at the same time accelerating and making design processes more accessible. By optimising factors such as speed, accuracy and customisation in the production of visual content, AI-enabled design tools ensure that each design is both aesthetically satisfying and innovative. In this way, the integration of AI into design processes allows not only the enrichment of aesthetic understanding,

but also the redefinition of visual authenticity (Yıldırım, 2024).

10. Innovative Design Approaches and Contributions of Artificial Intelligence

In today's rapidly changing world, innovative design refers to the processes and methods by which designers and creative professionals continuously seek new ways of designing. Unlike traditional design methodologies, these approaches often aim to provide aesthetic, functional and technical solutions that have not been explored before. In recent years, artificial intelligence (AI) has made significant contributions to these innovative design approaches. The possibilities of algorithmic learning, big data analysis and automatic optimisation offered by AI are transforming every stage of the design process.

The most obvious impact of AI on innovative design lies in its ability to speed up the design process and make solutions accessible that were previously difficult to achieve. Traditional design methods often require long and laborious processes, but by automating these processes, AI eases the workload of designers and gives them more creative space. For example, AI-based design tools can learn from large data sets and make recommendations tailored to designers' needs. These tools accelerate designers' trial-and-error processes that take hours, enabling them to come up with innovative solutions in a much shorter time (Özdemir, 2022).

In addition, the algorithmic optimisation capabilities offered by AI take design innovation to the next level. Especially in visual design, AI models can produce designs optimised according to specific aesthetic and functional criteria. This ensures that not only the visual aesthetics but also the functionality of the design is maximised. For example, in architectural design, AI models can analyse factors such as environmental sustainability, material efficiency and user experience to produce both aesthetically and functionally optimised structures. Such an approach not only makes the design innovative, but also provides practical solutions to real-world problems. The contributions of AI are not limited to this. AI also helps designers to uncover new styles and techniques that they have not explored in their creative process. In particular, by utilising style transfer and generative design techniques, AI can create unique aesthetic combinations previously unimagined by designers. In this way, AI's contribution to innovative design not only offers practical solutions, but also expands the boundaries of artistic creativity. In this process, the continuous learning ability of AI develops further with each design, enabling the creation of more sophisticated and original designs with each passing day (Deveci, 2022).

Furthermore, AI's capabilities in data analytics and analysing user behaviour pave the way for personalised design solutions. By analysing individual user data, AI can offer products and services tailored to each user's specific needs and preferences. This can significantly improve the user

experience and enable brands to gain a competitive advantage, especially in digital marketing and e-commerce. Personalisation, as one of the most powerful tools offered by AI, has become one of the cornerstones of innovative approaches in design (Artut, 2019).

Artificial intelligence is radically changing and redefining design processes, offering multifaceted contributions to innovative design approaches. AI has become a unique tool to accelerate designers' work, deliver aesthetically and functionally optimised solutions, push creative boundaries and create personalised experiences. These contributions are of great value not only for designers, but also for all sectors where design is applied. Innovative design approaches supported by AI are poised to become the fundamental building blocks of future creative processes.

11. Advantages of Artificial Intelligence Assisted Design and Productivity

Artificial intelligence assisted design offers many advantages by increasing efficiency and productivity in design processes. AI algorithms significantly reduce the workload of designers and speed up processes thanks to big data analysis and automatic optimisation techniques. Especially in the design phase, the automation offered by AI allows designers to perform time-consuming and repetitive tasks more quickly and accurately. AI-based tools can quickly make recommendations based on design criteria and generate innovative and aesthetically satisfying solutions through style transfers and generative design techniques. This allows designers to focus on more creative and strategic tasks, thus helping to produce both original and high-quality designs in a shorter time (Deveci, 2022). Furthermore, the customisation capabilities of AI make it possible to create unique designs that suit individual user needs, thereby increasing customer satisfaction and providing a competitive advantage.

11.1. Artificial Intelligence Creativity.

Whether AI is creative or not can vary depending on what "creativity" means. Traditionally, creativity is defined as the ability to produce original and valuable ideas, artefacts or solutions. While AI can produce such creative outputs to a certain extent, this process is not directly comparable to human creativity.

AI can create new designs, works of art or music, especially using generative models and algorithms. In this process, AI learns from large data sets and generates combinations or solutions that have not been seen before. For example, AI-based algorithms can recreate artistic styles, create new graphic designs or creative writing. However, such outputs are usually based on programming, data analysis and learning from existing examples. That is, the "creativity" of AI works

in line with certain rules and data, which may not be considered by some as true creativity (Ballı, 2020).

11.2. The Creativity of Artificial Intelligence can be Valuable in the Following Ways:

Innovative Combinations: YZ produces innovative results with unusual combinations and style transfers.

Speed and Efficiency: AI works quickly on large data sets, speeding up creative processes and providing more options.

Personalisation: It offers personalised and unique solutions by analysing user data. AI creativity does not include elements such as emotional context, human experience or personal expression. Humans often produce original artefacts in their creative process, taking into account emotional, cultural and personal contexts. These aspects cannot be fully replicated by AI. As a result, although the creative outputs of AI do not replace human creativity, they can be considered as a tool that complements and supports it (Özdal, 2024).

12. Comparison of Human Creativity and Artificial Intelligence Creativity

The differences between human creativity and AI creativity relate to the fundamental nature of these two creative processes. Human creativity produces original and profound artefacts based on emotional, cultural and personal experiences. Humans develop creative ideas through intrinsic motivations, intuitions and individual contexts. This process is often characterised by originality and personal expression and involves the integration of emotional context and personal experiences (Yıldırım, 2024).

AI creativity is based on algorithms and large data sets. AI creates new combinations and designs by analysing existing data, which leads to fast and efficient results. However, AI's creativity lacks emotional depth. AI works based on the data sets and rules it is programmed with and therefore cannot add emotional expression or personal experiences. AI's creativity is often limited to style transfers and innovative combinations (Özdemir, 2022).

While human creativity is enriched by individual vision and intrinsic values, AI creativity is fuelled by analysing data and algorithms. Humans provide flexibility and depth in their creativity, while AI can do fast and repetitive work on large amounts of data. As a result, AI and human creativity can be considered complementary. The efficiency and ability of AI to provide innovative suggestions, combined with the emotional and personal depth of human creativity, can expand

the boundaries of creative processes.

13. Artificial Intelligence and the Role of Originality in Design

Artificial intelligence (AI) and originality in design are at the centre of modern creative processes. In the design world, originality is often associated with innovation and individuality. In this context, it is important to understand how AI influences originality in design. Artificial intelligence offers efficiency and innovation in design processes. Using generative algorithms and machine learning techniques, AI learns from large data sets and creates new designs using this data. AI can experiment with different aesthetic combinations by analysing current design trends or through various style transfer techniques. This process speeds up repetitive and data-intensive tasks, allowing designers to devote their time to more creative work (Güney, & Yavuz, 2020).

However, how AI affects originality in design raises some challenges. The designs produced by AI are often based on data sets used in the learning process. Therefore, the designs created by AI can sometimes be derived from existing data, which can question the concept of originality. Artificial intelligence can recombine existing examples of aesthetics and style, but this is different from creating a completely new and original design idea (Ballı, 2020).

Authenticity is often shaped by individual expression, innovation and personal experience. Human creativity can include deep emotional contexts and personal visions, making designs more authentic and meaningful. Artificial intelligence, while not having such emotional and personal depths, is an important tool that supports and accelerates the design process. AI can support and enrich originality in design, but may be limited in generating originality on its own. When combined with human creativity, AI enhances design processes by offering both efficiency and innovation. In order to preserve and encourage originality in creative processes, the tools provided by AI need to be balanced with human vision and experience (Taluğ, & Eken, 2023).

14. Authenticity and the Future of Artificial Intelligence Applications

Authenticity and the future of artificial intelligence (AI) applications point to significant transformations in the creative industries. The integration of AI into creative processes is influencing how authenticity is redefined and evolving in the world of design and art. In the future, how these interactions take shape will determine the evolution of both technology and creative thinking. AI offers speed and efficiency in design and art production through big data analytics and algorithms. Generative design tools and machine learning techniques allow designers to develop new aesthetic and functional solutions. These tools create various combinations of style and form by learning from existing data. However, originality in these processes often remains within the limits of

the data and the algorithm, which can restrict the process of creating a new aesthetic to deriving from existing examples (Sivri, 2023).

Authenticity is the essence of creative processes and is often associated with personal expression, innovation and individual vision. While human creativity is deepened by emotional context and personal experience, AI's ability to create originality is limited by data and algorithms. Yet, the speed and efficiency offered by AI provides designers with experimental opportunities that were not previously possible. AI can help designers expand their creative boundaries and pursue new aesthetic endeavours. In the future, the combination of AI and human creativity may define originality and creativity in new ways. The tools provided by AI can help designers develop more original and innovative ideas by supporting creative processes. However, these innovations enabled by AI are likely to become more meaningful and profound when combined with human experience and emotional context. This means that the concept of authenticity will evolve in the constant interaction of both technology and creative thinking (Christie's, (2018).

Future applications of AI will enable us to explore new definitions of originality and creativity. New tools and methods offered by AI can transform creative processes, while preserving and enriching the value of human creativity and the importance of originality. This interaction may pave the way for more innovative and deeply creative outcomes in the future.

15. Conclusion and Recommendations

The impact of artificial intelligence (AI) technology in the field of design necessitates a reconsideration of the concept of originality. While AI offers speed and efficiency in design processes, it produces creative solutions through learning from data and algorithms. However, originality in this process can often be derived from existing data or based on style transfers. While the innovations and efficiency advantages offered by AI expand the creative capacities of designers, it may cause you to question the concepts of originality and personal expression.

The effects of AI on authenticity vary depending on how designers utilise this technology. AI allows designers to explore a wider aesthetic range and create prototypes faster. However, true authenticity requires personal vision, emotional context and innovation. AI should be considered as a tool in this context; unless it is placed at the centre of creative processes, authenticity can be difficult to maintain and encourage.

15.1. Recommendations:

Balancing Artificial Intelligence and Human Creativity: While utilising the speed and efficiency

offered by AI in design processes, it is important to preserve the emotional and personal depth of human creativity. By using AI as a tool, it will be possible to develop innovative solutions in the field of originality and personal expression.

Education and awareness-raising: Educational programmes should be established for designers and artists to enable them to understand the limits and potential of AI. This can help them learn how AI can be used effectively in creative processes.

Development of Originality Measurement Criteria: New measurement criteria and methodologies should be developed to assess how AI can create originality in design. This is important to better understand the role of AI in design processes and to create approaches that promote originality.

Collaboration and Integration: Projects and collaborations that support the integration of AI and human creativity should be encouraged. The combination of human creativity with the technical capabilities offered by AI can lead to more in-depth and original designs.

The concept of originality in AI and design plays a critical role in our understanding of how creative processes evolve. The innovations offered by AI can support and enrich originality, but this process needs to be balanced with human creativity and personal expression. In the future, the relationship between AI and authenticity will open up new and exciting possibilities in the world of design and art.

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