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ANALYSIS AND COMPARISON OF SERVICES FOR CREATING IMAGES USING ARTIFICIAL INTELLIGENCE

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Abstracts

This article examines artificial intelligence (AI) tools for image generation and analyzes their capabilities. The authors examine platforms such as Adobe Firefly, MidJourney, Leonardo.ai, Recraft.ai, Microsoft Designer, DALL·E 3, and Canva, arguing that they not only facilitate creativity but also expand its boundaries. Thanks to AI, the creation of visual content becomes accessible to everyone, which, according to the researchers, can turn anyone into an “artist”.

The study focuses on the positive impact of AI in education: increasing student motivation, improving knowledge acquisition, and supporting the cognitive process.

AI technologies open up new perspectives, but their implementation requires a conscious approach from educators and artists. Responsible adaptation of these tools is necessary to achieve long-term benefits. As AI develops, its role in art and education is likely to lead to a rethinking of creativity and innovation. This, in turn, will require continuous professional development of specialists to effectively use the potential of AI.

Keywords: *artificial intelligence, image, Adobe Firefly, MidJourney, Leonardo.ai, Recraft.ai, Microsoft Designer, DALL·E 3, Canva AI.*

INTRODUCTION

In today's rapidly evolving world, artificial intelligence (AI) plays a key role in transforming various aspects of our lives. It is reshaping the way we work, learn, communicate, and create. From automating routine tasks to generating art and analyzing complex data, AI has become an integral part of daily life, presenting both opportunities and challenges for society [1]. The advancement of AI is also revolutionizing education, offering new possibilities while simultaneously raising both utopian and dystopian scenarios. Emerging technologies and digital platforms are reshaping learning approaches by introducing innovative tools and methods [2]. AI is significantly transforming education by redefining traditional teaching and assessment methods [3]. One of its primary applications is adaptive learning, which enables the creation of personalized curricula tailored to each student's needs and learning pace. This enhances the effectiveness of education by allowing students to engage with materials that align with their strengths and areas for improvement [4]. Moreover, AI and machine learning are becoming essential components of modern educational technologies. The increasing use of AI in education is driven by advanced platforms and integrated solutions that enhance the learning experience. Recent studies (2018–2023) highlight AI's potential in education, including personalized learning, administrative task optimization, and improved student-teacher interaction. These studies also emphasize the importance of ethical considerations and responsible AI integration, underscoring the need for collaboration between educators and AI specialists to ensure sustainable educational development [5]. As AI research continues to evolve in the educational field, many experts anticipate changes in the roles of teachers, schools, and educational leaders. While AI is generally perceived positively, educators and researchers express concerns about its impact on the future of teaching. Legal professionals focus on the regulatory aspects and potential challenges of AI in education, whereas engineers view it as a tool for enhancing learning quality and benefiting all stakeholders in the educational process [6].

THE PURPOSE OF THE STUDY

Research into artificial intelligence services that can be used to create images and compare their capabilities.

DISCUSSION OF THE RESEARCH PROBLEM

Artificial intelligence (AI) automates the technical aspects of creativity, thereby changing the role of the artist. Now, the main value lies not in the skill of execution, but in the uniqueness of the idea. Artists increasingly act as curators and authors of concepts, using AI to bring their ideas to life. This raises important questions about authorship and the uniqueness of art. As AI takes over routine tasks, the human contribution shifts toward creativity and unconventional thinking. In art, it is crucial to create not only visually attractive works but also meaningful ones. In science and business, the ability to innovate is highly valued. In the AI era, people must develop a creative approach, as this skill will become essential [7]. Artificial intelligence technologies are significantly influencing the development of research and creative processes in the visual arts. Each year, more initiatives and applications that combine AI and art are emerging, opening up new opportunities for creativity and research. This encourages a deeper analysis and discussion of the potential of such technologies in an artistic context [8]. Synthetic visual art is becoming a commodity thanks to generative AI. The trend of using AI for collaborative creation will inevitably affect the creative processes of artists, and it is important to understand how the use of generative AI at different stages of the creative process impacts both the artist's evaluation and the outcome of human-machine collaboration [9]. The rapid development of artificial intelligence is likely to challenge current concepts and understandings of fine arts. AI that challenges human creativity represents one of the most powerful signs of the cultural and social transformation that AI is driving [10].

The authors [11] believe that artificial intelligence will significantly impact various aspects of our lives, particularly in the field of work, replacing many professions. Although humans have traditionally been considered indispensable in creativity, AI can play an important role in both the creation and appreciation of art. Despite lacking emotions and a deep understanding of ideas, AI is capable of generating meaningful works of art. The development of aesthetically sensitive machines will force us to rethink the concepts of beauty, creativity, and the essence of art.

The findings indicate that GenAI image-making tools can have a positive impact on learning. At the same time, while supporting the memorization of information, a positive effect on student motivation and satisfaction is also observed. The use of image-building tools is not a replacement but rather a complement to traditional teaching and learning activities. The conclusion is that the use of artificial intelligence in education can offer new learning opportunities. With the expanded use of GenAI, it is important for both students and teachers to keep up. However, this will require more time and resources for the professional development of teachers [12].

RESULTS OF THE STUDY

Let's consider artificial intelligence services for converting text into images.

Adobe Firefly integrates with Adobe applications such as Photoshop and Illustrator, allowing users to work within a unified environment. One of its key features is generative fill, which automatically replaces objects in an image while considering context and style (for example, it enables object removal or replacement in photos). Firefly also generates images based on text descriptions, creating unique illustrations. The high image quality is ensured by advanced AI algorithms and licensed data (including Adobe Stock and open-access images), making Firefly safe for commercial use. The interface is intuitive and available both as a web version and integrated within Adobe products. It also offers the ability to generate vector graphics for logo creation. A free version is available but has limitations on the number of requests. Firefly is mainly integrated with Adobe products, which restricts interaction with other platforms (such as Canva).

MidJourney is a popular AI-powered image generator that operates through the Discord platform. Discord is a communication platform that supports text, voice, and video chats. It is

widely used among gamers, developers, and creative communities as it allows users to create servers (virtual spaces) where they can communicate in dedicated channels. Users enter text prompts, and the AI generates multiple image variations. The tool offers a wide range of customization options, including style selection (e.g., photorealism, watercolor, anime), aspect ratio adjustment, detailing, up scaling (increasing resolution), variations (alternative versions), and remixing (image editing). Pros: High image quality, fast processing, extensive customization options. Cons: Paid subscription, inconvenient interface via Discord, lack of integrations with other platforms (e.g., Photoshop). The free version allows users to generate a limited number of images (up to 25 prompts), after which a subscription is required.

Leonardo.ai specializes in generating highly detailed images for the gaming industry, animation, and concept art. It supports features such as fine-tuning (training the model with custom images), canvas (adding or removing elements), and 3D texture generation for game engines. The interface is simple: users enter a prompt and receive multiple image variations. Pros: High detail, user-friendly interface, free version (up to 12 images per day). Cons: The free version has a request limit and restricted functionality.

A paid subscription grants access to higher resolution and API integration with other platforms.

Recraft.ai is designed for professional designers and supports both raster and vector image generation. This makes it unique among competitors, as it allows users to create logos, icons, digital illustrations, and 3D graphics. Its main advantage is the ability to precisely position text within images and work with vector formats such as SVG. The interface offers an "infinite canvas" for design work, a Style Creation feature for customizing styles, editing tools (e.g., background removal), and an AI Eraser for object removal. The free version allows unlimited image generation but only for non-commercial use. A paid subscription provides access to private projects, an API, and improved quality. Cons: Limited platform integrations and the requirement for a subscription for commercial use.

Microsoft Designer is a modern AI-powered graphic editor developed by Microsoft for quickly creating visual content. The tool is available online via designer.microsoft.com and is integrated with Microsoft 365. It supports image generation via DALL-E and includes photo editing features (such as background or object removal), as well as the ability to create stickers, emojis, and wallpapers. Microsoft Designer is available in a free version with limitations and also as part of a Microsoft 365 subscription. Pros: Ease of use, integration with Microsoft 365, ethical AI-generated image labeling. Cons: Requires a constant internet connection and has a limited number of free generations.

DALL·E 3 by OpenAI is a powerful tool for generating photorealistic illustrations based on text descriptions. It is available through a ChatGPT Plus subscription.

Pros: High-quality and detailed images, the ability to edit and expand images, built-in filters for safe content generation. Cons: No standalone graphic editor, limited integrations with other platforms.

A free version is available in a limited mode within ChatGPT.

Canva AI (Magic Studio) is part of the Canva platform and offers a wide range of AI tools, including text-to-image generation, background removal, and automated design.

The free version provides access to basic features, but a Canva Pro subscription is required for advanced tools. Pros: Simple interface, large template library. Cons: Lower image quality compared to specialized tools, limited integration with professional editors.

Table 1

Service	Main features	Free version	Free version limitations	Image quality	Integrations
Adobe Firefly	Image generation and editing, generative fill, text-to-image	Yes (limited)	Limited generation	High	Adobe Photoshop, Illustrator

MidJourney	Image generation based on text queries, Upscaling, Remix, Variations	Yes (up to 25 requests)	Request limit	Very high	Discord
Leonardo.ai	Generation of detailed images, Fine-Tuning, 3D Texture Generation	Yes (up to 12 images/day)	Request limit, lower quality	High	API for integrations
Recraft.ai	Raster and vector graphics generation, AI Eraser, Style Creation	Yes (for non-commercial use only)	Yes (for non-commercial use only)	Medium	Limited integration support
Microsoft Designer	Image generation via DALL-E, photo editing, sticker creation	Yes (limited)	High	Free request limit	Microsoft 365
DALL·E 3	Photorealistic images, Inpainting, Outpainting	No	Very high	No free version	Limited integrations
Canva AI	Image generation, Magic Eraser, Magic Write, templates	Yes (limited features)	Medium	Limited AI quality and capabilities	Social networks, limited integration with graphic editors

These services make it easy to create high-quality images, potentially revolutionizing human creative practice. Today, artificial intelligence that turns text into images raises a new question: will the need for artistic skills change in the same way that photography once changed the role of drawings and paintings in visual representation?

CONCLUSIONS

Artificial intelligence is making significant strides across various fields, including education and the arts. Its integration into education enhances personalized learning, boosts student motivation, and streamlines administrative tasks. While AI tools offer promising opportunities for both educators and students, they also raise important ethical and practical concerns that require careful integration. In the arts, AI is transforming creative processes by shifting the focus from technical execution to conceptual originality, enabling artists to use AI as a tool for innovation. The use of AI in art also challenges traditional notions of authorship and creativity, fostering a collaborative dynamic between humans and machines. The findings suggest that AI tools, such as Adobe Firefly, MidJourney, Leonardo.ai, and others, do not replace traditional methods but rather complement them, offering new ways to enhance creativity and learning. Moving forward, the responsible adaptation and integration of AI will be crucial to maximizing its benefits, requiring ongoing professional development for both educators and artists to fully harness its potential.

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