AI Comics as Art: Scientific Analysis of the Multimedia Content of AI Comics in Education

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Abstract - This paper examines the advantages and disadvantages of using AI comics as a tool for more effective artistic expression among students. The paper includes a detailed description of the production of AI comics. In addition to the visual, the study also focuses on drawing skills and the presentation of AI comics as an active agent in media creation - not only with content, but also with a careful application of form features. This type of process complements the working methodology that enhances expertise, skills, and knowledge and promotes critical and creative thinking in students. The collaborative processes often used in the educational process have been partially replaced by individualized work with AI comics. Of course, this does not relegate the learning outcomes to the background, but rather incorporates them into the design. In this way, students can develop a wide range of creative activities specific to the medium of AI comics: narrative construction (bridging the virtual world and reality), temporality, space, synergy of text and drawing, organizational skills, publishing, digitization, etc. In addition to the actual creation of the AI comic, learning about storytelling and project work brought students closer to understanding the art of the AI comic.

Keywords: AI, AI comics, multimedia, education, art, design, creativity, artificial intelligence

I. INTRODUCTION

It is human nature to strive for innovation and effective adaptation. For as long as humans have existed, we have created new tools from our environment to better meet our needs. This has been a consistent trend in human development over the centuries, and now it is more than evident as we achieve better and more interdependent connectivity with the advent of computer technology. The whole world is interconnected, concepts and ideas are shared instantly, and perspectives are broader than ever - in an increasingly global society. This has enabled a renaissance of ideas and innovation in various fields, with creative people at the forefront of advanced technologies aimed at improving humanity and its relationship with technology.

Among the significant concepts in modern society are artificial intelligence (AI) and its applicability to almost all areas of life. The effectiveness of artificial intelligence is increasing at an alarming rate. It can provide a simpler solution to a wide range of tasks, from handling everyday routine tasks to producing creative texts, art, and music. Moreover, the use of artificial intelligence and machine learning is currently the best method for collecting and analyzing data and increases the efficiency of certain activities that require massive data processing, such as weather forecasting, business analysis, face recognition, and others.

The aim of this paper is to provide an informative discourse on current trends, technologies, and innovations in education that can utilize AI technology in their field, and to show how it can promote progress in the arts in various fields in combination with multimedia technologies.

II. AI TEACHING IN CLASSROOM

New AI technologies and artificial intelligence management languages are increasingly shaping the field of contemporary art, raising a number of questions about the present and future of artistic creation. This new collaboration between humans and machines is not only democratizing artistic production, but also questioning its very essence: authorship, originality, and creativity in education.

The implication that artificial intelligence will reduce the number of jobs for artists working today in fields such as illustration, animation, and graphic design is overshadowed by the counter question - what is the value of this activity, and can teaching respond to the needs of the labor market, given the historical lens of the post-industrial revolution and the needs of the knowledge market.

Modern educators have a variety of pedagogical strategies to foster students' AI literacy through inquiry-based learning. The use of AI is an effective pedagogical approach based on the exploration and improvement of various language skills and technological achievements. By reflecting on their experiences with AI creations, students understand the importance of its application, but also experience the immediate impact of AI in the workplace and the ethics of its use through various learning activities.

Previous research [1], [2], [3], [4] has shown that students can create a meaningful scenario and implement appropriate new and modern solutions. Applying this

knowledge encourages students to solve real-world problems and not just know concepts, but connect them.

AI was often described as an anthropomorphic technology that possesses cognitive qualities equivalent to those of humans—a conception that notably resembles how AI is portrayed in the media. As a pedagogical implication, findings suggest that it would be valuable to "demystify" AI by exploring its technical principles (i.e., the role of data) of the "human-like" AI solutions students encounter in their everyday lives. Artificial intelligence (AI) competence is recognized as a new competence using comics as an example [5].

The growing number of research initiatives and creative applications that emerge in the intersection of AI and art, motivates to examine and discuss the creative and explorative potentials of AI technologies in the context of art [6].

III. AI LITERACY

Nowadays, the concept of digital literacy in the field of artificial intelligence, which includes skills, competencies, and abilities for its use, is increasingly differentiated.

The first use of the term "Artificial Intelligence Literacy" was in the work of Burgsteiner et al. [7] and Kandlhofer et al. [8] refers to the ability to understand the fundamental knowledge and concepts behind AI-driven technologies. Along with knowledge and ethical use of AI, AI literacy serves as a set of competencies that enable individuals to critically evaluate AI technologies and effectively communicate and collaborate with artificial intelligence [9].

Artificial intelligence (AI) is similar to traditional literacy, such as digital literacy, and should become a new literacy skill in response to this new era of intelligence [10].

On first sight, coming with a definition for "AI arts" does not sound hard. AI (an abbreviation for the term Artificial Intelligence) refers to computers being able to perform many human-like cognitive tasks, such as playing games of chess and Go, recognizing content in images, translating between languages, selecting best candidates in a job search based on their CVs, and so on. This is how AI has been traditionally understood, and we can extend this concept to the arts. Following this logic, "AI arts" would refer to humans programing computers to create with a significant degree of autonomy new artifacts or experiences that professional members of the art world recognize as belonging to "contemporary art" [11].

AI is becoming an essential technological skill, and teachers should equip students with modern skills to live and work with, and the use of AI should definitely begin at the secondary level. Therefore, it is appropriate to think about working with AI and applying such pedagogy in secondary education. As AI has become one of the most important technological skills of the 21st century, teachers must inevitably incorporate AI into students' education and foster their thinking to train them for the world in which they will live, learn, and work. In this context, it is important to point out that a work of art is not created simply by putting pen to paper.

The potential awareness that behind everything there may be potential ethical problems in the use of artificial intelligence will certainly disappear with time and the definition of "standards" for its use.

IV. COMIC

Comics as a media product are familiar to almost all students. Using comics, children transfer an idea onto paper (or another medium) and elaborate a variety of picture elements in the most appropriate way.

Comics are examined as a teaching and learning technique by combining media activities and art.

Comics use sequential images to convey the action and speech windows (speech bubbles) for character dialog, as well as special captions to clarify and reinforce the action. Comics are a multimodal medium; for example, a close-up of a tear can illustrate a character's emotions, or graphic elements can indicate danger, such as an explosion.

In doing so, students form qualitative judgments when selecting a topic and an appropriate method for conveying information.

Comics are an entertaining and familiar medium for storytellers and readers. Today, however, this type of visualization medium is underutilized as a medium of expression.

Comics can be seen as a central medium in the accelerated 'convergence culture" that sits between traditional literature and film. Adaptations of novels, poems, and even songs have become an important part of the so-called 'graphic novel' or 'graphic literature' [12].

V. CREATION OF COMICS

In addition to the visual, it also deals with drawing skills and the presentation of comics as an active process of media creation - not only with content, but also with careful application of formal features. Often, collaborative processes in the educational process are partially replaced by individualized work on comics. This, of course, does not relegate learning outcomes to the background. On the contrary, this type of process complements the work methodology that enhances subject knowledge, skills and knowledge, and critical and creative thinking. Design is undoubtedly integrated into the learning outcomes.

Students developed a wide range of creative activities specific to the comic book medium: narrative construction, temporality, space, text/drawing/synergy, organizational skills, publishing, digitization, etc.

The constant use of existing knowledge (experiences, history, facts) and the creation of their own narratives made it possible to build a bridge between the virtual world and reality.

Besides the actual creation, learning storytelling and project work brought students closer to the art of comics.

VI. OBJECTIVES

The goal of developing comics in digital and physical media is to broaden children's horizons to familiarize them with different aspects of pictorial elements and to achieve further generalization and generalization of concepts and ideas that can be transferred to "paper."

After receiving the task, the process was initiated in the following way:

1. elaboration of the idea and content

2. focus on the way of implementation

3. conceptual sketch of the media content

4. drawing on the computer and design of the cover

5. printing (if necessary)

6. analysis of the content

This process specified the way in which comics create meaning. The evolution of the creation of the comic was presented in the following steps: Moment, Frame, Image, Word, and Flow.

VII. WORKING METHODS

Pupils/students used sequential images to represent actions and processes, speech bubbles (in our example there were none, only text) to represent dialog between characters, and/or text headings to provide additional detail and explanation. By drawing comics, they had a more detailed elaboration of the illustration and activities than is the case when processing only one image. Sequential-temporal procedures were used in the description of attitudes and emotions. The AI comic was created on the website https://www.craiyon.com/ in the form of the former DALL-E Mini.

Taking into account prior knowledge about comics, we can distinguish four basic steps of recognizing activities:

- drawing activities,

- examination of technical procedures,

- layout of the drawing and

- emotions and attitudes.

In this way, qualitative overviews were made by category and an acceptable method of transferring information was found using other programs for digital processing (supplementing the image generated by the AI with text).
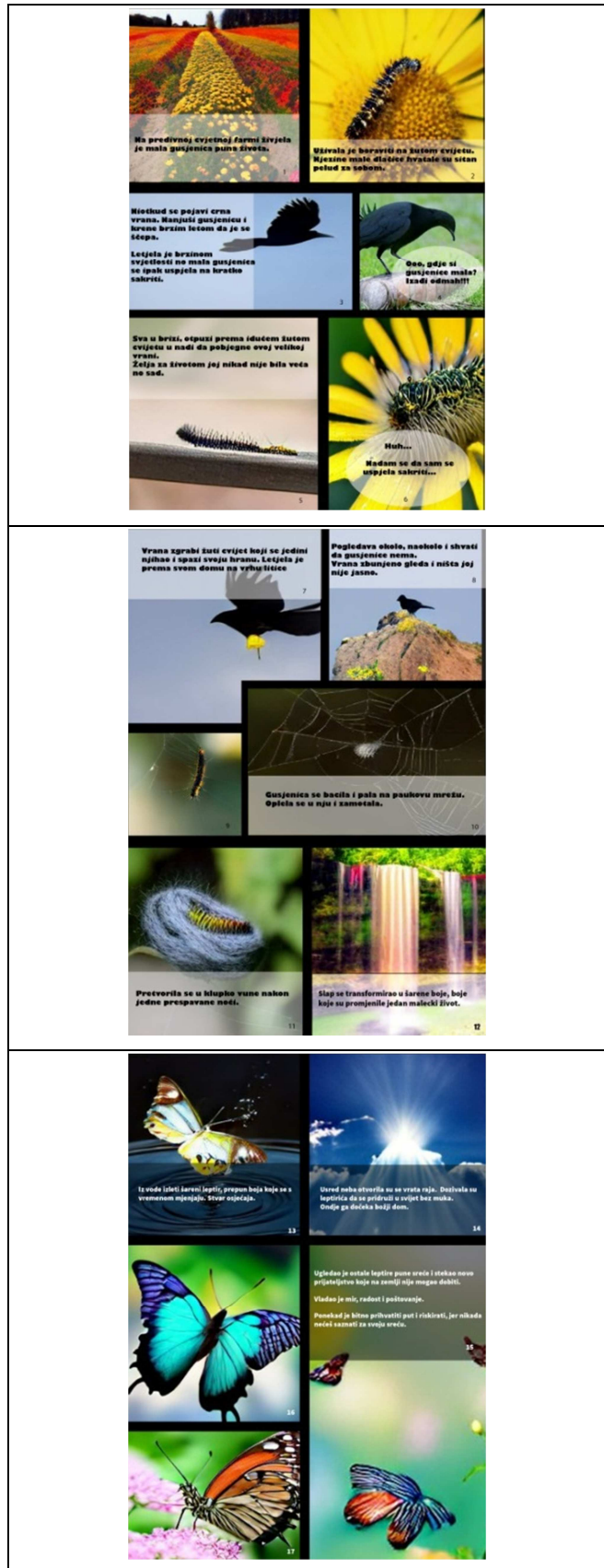
VIII. PRESENTATION OF THE COMIC

Figure 1. AI comics

IX. CONCLUSION

Artificial intelligence image creation technology is currently gaining traction in a wide variety of scientific, professional, and artistic circles. AI enables artists to inspire and increase the creative lane, i.e., it combines personal self-expression and collective exploration. AI encourages artists to expand and enrich expressive possibilities through innovative digital art.

If we are to take AI image creation seriously, we must create a standard for citing our credentials. Much like writing a scientific paper, a cited page/author is necessary to legitimize the work.

The answer is not to stop technological progress. Instead, we need to improve the way we integrate it into our world now.

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