

URSZULA LEWARTOWICZ

Maria Curie-Skłodowska University, Lublin

ORCID – 0000-0002-0915-9486

DAWID REJA

Maria Curie-Skłodowska University, Lublin

ORCID – 0009-0002-1447-0700

## POSSIBLE USES OF AI TOOLS IN ANIMATION PRACTICE\*

**Introduction:** The paper presents possible uses of tools generated by artificial intelligence (AI) from the point of view of socio-cultural animation – a concept based on agency, authenticity and autonomy, showing potential synergies between seemingly contradictory categories.

**Research Aim:** The aim of the study is to show the role of AI tools in animation practice by analysing their possible uses in animation projects at the key stages: pre-animation, actual animation, effectiveness measurement.

**Evidence-based Facts:** Rapid development of generative AI intensifies questions regarding the constitution of agency understood not only as a manifestation of the ability to act, but also as an expression of subjectivity and self-determination. These values constitute the foundation of socio-cultural animation, the aim of which is to strengthen human agency and autonomy. A constitutive feature of animation is humanistic methodology, which involves the use of individualized, non-directive methods taking into account personal and social contexts. This feature emphasizes the human-centred approach and human subjectivity, and at the same time, opens the door to new technologies. AI tools can support the activities of participants in animation processes both in the organizational dimension (project management) and in the substantive dimension (generating content and ideas) at all stages of animation projects.

**Summary:** AI tools provide support in the following areas of animation practice: searching of visual and audiovisual text sources, discovering needs and capabilities, organizing diagnostic and evaluation processes, project management, generating content and ideas supporting creative processes.

**Keywords:** socio-cultural animation, animation project, artificial intelligence, AI tools

---

\* Suggested citation: Lewartowicz, U., Reja, D. (2025). Possible Uses of AI Tools in Animation Practice. *Lubelski Rocznik Pedagogiczny*, 44(1), 141–151. <http://dx.doi.org/10.17951/lrp.2025.44.1.141-151>

## INTRODUCTION

Development of generative artificial intelligence (AI) systems has intensified discussions about its legitimacy. Undoubtedly, AI gives rise not only to optimistic narratives, and a daring vision of AI serving mankind is intertwined with the view of threat related to taking control over the world and the human race (Torczyńska, 2019). Neil Postman, a philosopher regarded as a “techno-pessimist”, assuming that sooner or later technology will control humans, pointed to two most famous modern dystopias that (just like *Blade Runner* or Zajdel’s novels) communicate a warning and fear of the future of humankind (Jaskuła, 2023). These are Orwell’s *1984* and Huxley’s *A Brave New World*. Orwell reportedly feared that what we hate will ruin us, whereas Huxley feared that what we love will ruin us (Postman, 2006).

On the other hand, AI has been presented with clear objectives, therefore, humankind should invest in it to foster technological development, solve problems effectively and find answers to the fundamental questions about our reality (Boden, 2020). These objectives have been implemented with noticeable effect on a daily basis, and AI has supported humans for decades, at different levels. From assistance in searching for web content (Google), to being a personal assistant (Siri), to support in finding a desired route (GPS) (Gasnaś & Globa, 2023). Artificial intelligence tends to be treated as an independent discipline, or even as a multi-disciplinary field of research at the interface of philosophy, mathematics, psychology, robotics or neuroscience (Przegalińska & Ciechanowski, 2020).

Discussions on the legitimacy and scope of using AI have been gaining momentum in social sciences and humanities focused on human capabilities, competencies, education and social functioning. They can be strongly heard also with reference to the arts and creation – be it in the context of creative agency, or issues related to violations of copyright and intellectual property rights. In this paper, we explore AI tools from the point of view of socio-cultural animation – a concept combining threads from the field of education, creation and social functioning of humans.

## RESEARCH AIM AND QUESTION

The aim of this paper is to present possible uses of AI tools in animation practice. We juxtapose two seemingly diverging categories: AI (perceived in opposition to organic, natural human intelligence) and socio-cultural animation (a concept of community and cultural/educational and cultural activity, essentially centred on agency, subjectivity and authenticity of relationships), in trying to answer the question: What role in animation practice can be played by AI-generated tools? Since socio-cultural animation is highly responsive to sociocultural processes and phenomena, it must follow the unique pace of technological development, after all

generating real-life responses to contemporary needs of the animated individuals, and thereby animators themselves.

In search of possible uses of AI in practical activities in the area of socio-cultural animation, we have analysed directories, such as Futurepedia, Future Tools or Stockvivi housing AI tools. Tools presented in this paper were selected in consideration of two criteria: accessibility (possible free of charge/partially free of charge use) and suitability in the context of specific stages of animation projects, that is pre-animation, actual animation, effectiveness measurement.

## EVIDENCE-BASED REVIEW

The pace of development and spread of AI referred to as the “new electricity” or “next” intelligence heralds a new age of social and cultural change (European Commission et al., 2018), once primarily envisaged by science fiction authors or makers of science fiction movies. Already sixty years ago, McLuhan (2004, p. 33) wrote about man using the media and high technologies as tools intended to “extend some psychological or physical human abilities”. Today, people are accompanied by AI daily, receiving its wide support in ordinary tasks. Without many of these tools (even the simplest ones incorporated in search engines, smart phones or even calculators), it would be hard to pursue daily activities (European Commission et al., 2018).

In the process of comprehending what AI really is, a key figure has been John McCarthy who was the first to use the term “artificial intelligence” in 1956 to refer to what had been previously known as “computer-aided simulation” (Boden, 2020). Today, in the simplest terms, AI is conceptualised as computer systems trying to imitate simple or more complex activities pursued by humans. For this reason, we can distinguish between *Narrow* or *Weak AI* that, notwithstanding its name, is able to solve problems not less effectively than humans, and *Strong AI* that could be compared to human intelligence which, for the moment, is beyond the grasp of contemporary man (Przegalińska & Ciechanowski, 2020). In this context, researchers have made a key distinction according to which natural intelligence is used by humans, whereas AI is used by machines. Therefore, AI is often referred to as machine intelligence intended to simulate cognitive functions associated with the human mind, such as learning, problem-solving, human speech or even competing with humans in strategic games, such as chess (Gasań & Globa, 2023).

For this reason, development of generative AI has raised questions about agency understood as the manifestation of a capacity to act. Martin Zeilinger emphasizes that it is intimately tied to self-determination, expressive freedom and autonomy, and asks a question: “How, then, is agency constituted in the age of AI? Who or what is an agent now?” (Łukawski et al., 2023).

This question appears to be particularly vital for socio-cultural animation which, after all, is based on the idea of agency focused on its stimulation, strengthening, transmitting, expressed since the very beginning in authenticity and subjectivity. The very etymology of the word “animation” points to the humanistic dimension (*anima* – soul; *animo* – to breathe soul into something/give life). Socio-cultural animation was born in response to political and cultural changes as an antidote to the problems of the emerging post-industrial society, referred to as “broken society” (Kopczyńska, 1993), “the lonely crowd” (Riesman, 1971), and consequently “the fractured culture” (Kopczyńska, 1993) and “broken subject” (Ferry, 1994). Its development was promoted by such tendencies and phenomena, as social disintegration, decline of any forms of community life, standardisation and homogeneity of patterns of behaviour. Animation activities were intended to bring back spiritual development, authenticity, inner-direction and agency, open-mindedness and sensitivity, an ability to make informed choices (Schindler, 2004).

The discussed categories can be heard in definitions and main assumptions of socio-cultural animation. Nycz (2013, p. 100) straightforwardly points out that the essence of animation “lies in creation of an informed subject – authentic, active, self-reliant and creative.” Authenticity and autonomy are listed among the key values underlying animation (Schindler, 2004) and are reflected in the basic tenets of animation, such as: humanistic orientation – focus on spiritual qualities and creative capabilities of humans, significance of authentic social relationships, convergence with assumptions of personalism, trends in humanistic psychology, active learning and non-directive education. Socio-cultural animation assumes that every person is a subject incorporated in the universe of values (Żurkowski, 2006), having creative capabilities and potential which animators help elicit, develop and cultivate. In accordance with the classical concept of Thery, animation implies three closely related processes: discovery (of desires, needs, creative capabilities), building relationships (strengthening interpersonal communication and integration, as well as contact of people with the arts), creation (awaking expression and creative agency). Therefore, animation is intended to: awaken and reveal that which is subjective; restore that which is community-based; elicit things that decide about development – creative agency, expression and subjective activity (Schindler, 2004).

Ideas of subjectivity are particularly strongly exposed in the personalistic (personal) interpretation of animation, and in the emancipating and critical approach. In the former case, it is emphasized that animation is education in the face of unification, standardisation and commercialisation of culture, as well as information and hedonistic societies, at the same time being a form of protection of personal values (Żardecki, 2020). According to the emancipating and critical approach, animation is

an expansion of some sort, an attempt to step outside the box, to go beyond prevailing patterns, fashions and overwhelming tendencies, ideologies, discourses, structures. It is about disclosing and realizing internal and external factors colonizing the awareness of humans and restricting subjective actions. Well aware of the colonising impact of both mainstream, official culture, as well as popular culture, animators have encouraged forms of social and cultural activity through which people can speak their mind, act in their own name, express their needs and create their own culture. (Słowińska, 2013, p. 124)

Implementation of animation activities is, therefore, based on respect and subjectivity, flexibility and open-mindedness, activity and creation. It is essential for the animator to be always ready to search for creative, original but first and foremost relevant and contextual solutions (Lewartowicz, 2020). Hence, one of the constituting traits of animation is humanistic methodology (Kubinowski, 2015, 2016) understood as the use of animation activities and procedures complying with non-directive, individualised subjective methodology determined by personal and social contexts. Methodological approach of the animator has nothing to do with activity based on patterns and standards. It is a creative competence based on recognising the method not as a standard, but as art and invention (Lewartowicz, 2020).

It appears that in animation conceptualised in this manner – emerged against standardisation and mechanisation, serving subjectivity, authenticity and agency, implemented individually, contextually and creatively, it is hard to find a place for artificially generated tools. However, considering the fact that animation is a living practice, responding to the ongoing cultural trends, and therefore contextual also at the social level, it is indeed in the humanistic methodological principle that we have noticed a place for new technologies assuming that culture animators “should be flexible, capable of enriching and introducing reasonable modifications of their techniques and working methods” (Łomny, 1994, p. 55).

## POSSIBLE USES OF AI TOOLS IN ANIMATION PROJECTS

Possible uses of AI tools in practical activities in the area of socio-cultural animation have been analysed with reference to categories of methods and techniques used in animation projects (Kubinowski & Lewartowicz, 2018). They are based on key stages of animation projects/activities: pre-animation, actual animation, and effectiveness measurement. The diagnosing phase involves identification and mapping of (individual/group/community) resources, capabilities, expectations and needs. They serve as the basis for determining objectives and for developing an action plan which is open to modification. Specific activities are implemented at the actual animation stage. Depending on the set objectives, they may take var-

ious forms – from group work techniques, educational and community and art undertakings, recreation and leisure time organisation, to participation methods and techniques. At this stage of activity, it is significant to evoke authentic engagement of participants, which is stimulated and reinforced by the animator. The final evaluation phase, involves determining effectiveness of the implemented activities.

At the pre-animation stage, AI tools may play a supporting role for the diagnostic methods and techniques, both typically research methods, as well as animation and research methods, and, therefore, developed in practice. In the first case, they may be used to transcribe individual and focused interviews with representatives of local community (e.g. Transcript.LOL), as well as to develop a working, inspirational survey questionnaire (Metaforms). At the pre-animation stage, useful tools may also include sentiment analysis tools (such as Odaptos, Sonar), that is emotional tones expressed by Internet users in their messages. Sentiment analysis algorithms allow to find and elicit subjective data found in the text, and the same identify the underlying attitude of the author of the message (Przegalińska & Ciechanowski, 2020). This allows to grasp social trends and opinions regarding issues of interest for the animators. High potential for animation diagnosis is presented by tools for analysing geo-spatial data (such as, e.g. ArcGIS, Social Explorer), used in such fields as: urban planning, geography, spatial planning or social research. At the pre-animation stage, they will be helpful in drawing up community characteristics through processing of such data as: age, gender, economic status of inhabitants, as well as mapping of infrastructure potentials – of cultural institutions, cultural heritage facilities and other venues significant in view of animation activities available across the area of our interest. These tools also allow to analyse trends as well as community and spatial changes, which in turn helps capture the dynamics of the local community.

In case of animation and research techniques, the use of AI tools appears to be particularly legitimate in mapping of spatial resources, that is while pursuing such techniques as a guided walk or an outdoor game. The former uses a formula of a walk during which the animator obtains information about a given place/area and about ways in which it is perceived by the inhabitants. Here, the support may be given by simple tools enabling searching and recognising objects (Google Lens), as well as more advanced technologies of augmented reality supported by generative AI, in order to develop new solutions for spatial management (combining capabilities/functionalities of such tools as Curate and Interior AI). The latter technique, an outdoor game, is an outdoor recreational group activity enabling to obtain information about the surroundings and their inhabitants. In this case, AI tools (e.g. ChatGPT) may be helpful in writing the scenario for the game exploring the history and cultural heritage of a given place.

The use of AI tools at the actual animation stage may be considered in organisational (supporting the project management process) and substance-based

terms (supporting generation of ideas and content) – with reference to different types of projects (group work, arts projects, participation projects, recreation and leisure projects).

In case of group work techniques/working with a group, AI tools may be used in the following scope: organisation of activities of task groups (Taskade, Notion AI), creating narratives for a group by generating storytelling via voice and speech generators (Eleven Lab, Voicemod), collecting characteristics of group members helpful in recognising their capabilities (Miro Assist), generation of images, audio and video files serving as inspiration in the process of developing the creative approach (Midjourney, Invideo AI, Suno), media content analysis in terms of bias and stereotypes as a form of raising awareness of community determinants and impacts (Perplexity, ChatGPT).

In animation projects based on art-related activities, the following possibilities to use AI tools may be indicated: developing the time frame for an art project (Gemini, ChatGPT), generating elements of scenario of stage/ performing activities (Writesonic), making music together during music workshops (Musicfy), generation of stylized audio signals and voices (Voicemod, Fliki), joint visualisations of works of socially engaged art – land art, mural, site-specific art (ArtPlacer, Interior AI).

Taking into account participation projects, that is focused on active participation of the local communities in activities and decisions concerning different areas of community life, AI tools may be helpful, among others, in gamification of activities intended to design a city of the future together with its inhabitants (Sidewalk Labs) or for the needs of the Charette procedure – e.g. while designing personas representing different walks of life (architect, officer, etc.) in a situation when their physical participation is not possible (Replika). During participation meetings intended to demonstrate the results of the social research, AI tools may be used, on the other hand, to generate utterances of virtual characters (Character AI), or to record the meeting (Beey AI).

Broad scope of application of AI tools is offered by recreation and leisure projects, that is ones centred around fun and entertainment activities (plays and games, outdoor events, forms associated with tourist and sporting activity). We could list here, among others: support for unconstrained creative processes, e.g. making songs together (Suno), preparation of games, e.g. a quiz checking knowledge about a given location for purposes of tourist-like activities, or as part of organisation of leisure time during summer camps (Quizgecko), creation of unique maps, puzzles, descriptions of characters for purposes of Role Playing Games/ Live Action Role Playing (Writecream).

The use of AI tools at the effectiveness measurement stage, just like at the pre-animation stage, is possible with reference to evaluation methods and techniques embedded in scientific research methodology, as well as techniques de-

veloped in practice. With the help of AI tools, we are capable of creating, e.g. an interactive working evaluation form (Feedback AI). AI tools can also be helpful in converting video from evaluation interviews to text (Clipto), quantitative analysis of evaluation indicators (GPT Excel, MathGPT), generating visualisations of feedback – diagrams, tables, mind maps (Whimsical), collecting and automated ordering of group reflections in real time using virtual boards (Miro Assist). In case of evaluation techniques used in animation and research, AI tools may provide support in, among others, generating a list of questions to recipients of a given initiative for summary purposes (FeedbackFruits), or creating images, collages, “photo documentaries” comprising visualisation of the reflections of project participants (Midjourney).

## SUMMARY AND CONCLUSION

The presented review of possible uses of AI tools in animation practice is, of course, incomplete, contributory and, due to emergent properties of animation methodology, and most importantly rapid development of AI tools, not particularly universal. Nonetheless, it shows potential scopes of using AI tools in animation projects, suggesting primarily their supporting role. This support is demonstrated/manifested in such tasks as:

- searching and aggregation of textual data (documents, analyses, reports) as well as video and audio and video sources (drawings, images, photos, video materials) for information of interest for the animator and animated individuals – at each stage of an animation project;
- discovering the capabilities and needs (analysis of tendencies, opinions, geo-spatial data) – at the pre-animation stage;
- organisation of research processes (recording of utterances; transcribing audio and video recordings; creation of working research tools; organisation and visualisation of data) – at the pre-animation and effectiveness evaluation stage;
- project management (creating schedules and cost estimates, team work organisation);
- generation of ideas supporting natural creative processes of participants of animation activities – primarily at the implementation stage;
- content generation (of text, music, images, multimedia) for use during artistic, participation or recreation and leisure activities – at the implementation stage.

It is not without reason that we have used the term “AI tools” in this paper. We indeed perceive them as tools in the hands of participants of animation processes (both culture animator, and animated individuals) being aware of the fact that the



animator's toolbox is infinite and holds no universal keys matching all possible systems. Considering the underlying assumptions of socio-cultural animation related to authenticity, agency and subjectivity, we also must not forget that AI will not replace humans in situations requiring understanding of emotions, empathy and building authentic relationships. It is also not able to "really understand the cultural, historical or emotional context like humans are, although it may simulate this understanding by making use of large data sets" (Łukawski et al., 2023, p. 17).

## REFERENCES

- Boden, M.A. (2020). *Sztuczna inteligencja. Jej natura i przyszłość*. Wyd. UŁ.
- European Commission, Joint Research Centre, Tuomi, I., Punie, Y., Vuorikari, R. et al. (2018). *The impact of Artificial Intelligence on learning, teaching, and education*, Punie, Y. (editor), Vuorikari, R. (editor), Cabrera, M. (editor). Publications Office. Retrieved 10, June, 2024 from: <https://op.europa.eu/en/publication-detail/-/publication/5cb8eee3-e888-11e8-b690-01aa75ed71a1/language-en>
- Ferry, L. (1994). Homo Aestheticus. *Sztuka i Filozofia*, 1, 5 – 36.
- Gasnaş, A., & Globa, A. (2023). Rolul Inteligenței artificiale în educație. *Acta et Commentationes, Sciences of Education*, 2(32), 46–57. <http://doi.org/10.36120/2587-3636.v32i2>
- Jaskuła, S. (2023). Sztuczna inteligencja w edukacji we współczesnej rzeczywistości hybrydalnej. *Perspektywy Kultury*, 42(3), 13–26. <http://doi.org/10.35765/pk.2023.4203.04>
- Kopczyńska, M. (1993). *Animacja społeczno-kulturalna: podstawowe pojęcia i zagadnienia*. Centrum Animacji Kulturalnej.
- Kubinowski, D. (2015). Istota animacji kultury jako idei pedagogicznej. *Studia Kulturowo-Edukacyjne*, 10(1), 49–61.
- Kubinowski, D. (2016). Kultura animacji jako humanistyczna pedagogia. *Nauki o Wychowaniu. Studia Interdyscyplinarne*, 3(2), 97–108.
- Kubinowski, D., & Lewartowicz U. (2018). *Animacja kultury w perspektywie pedagogicznej. Studia i szkice*. Impuls.
- Lewartowicz, U. (2020). Metodyczność. In D. Kubinowski & U. Lewartowicz (Eds.), *Kompetencje kluczowe animatorów kultury i ich kształcenie* (pp. 113–123). Adam Marszałek.
- Łomny, Z. (1994). Animacja kulturalna promocją humanistycznego i tożsamościowego wzbogacania ludzi. In J. Gajda (Ed.), *Animacja kulturalna jako problem pedagogiczny* (pp. 52–60). Agencja Dziennikarska „VIPress”.
- Łukawski, T., Łukawski, A., & Rafał, M. (2023). *Do czego AI nie służy. Przewodnik dla nauczycieli stworzony przez grupę roboczą ds. AI*. Ministerstwo Edukacji i Nauki, MEiN Tech, Instytut Badań Edukacyjnych. Retrieved 10, June, 2024 from: [https://ibe.edu.pl/images/Przewodnik\\_Do\\_czego\\_AI\\_nie\\_służy.pdf](https://ibe.edu.pl/images/Przewodnik_Do_czego_AI_nie_służy.pdf)

- McLuhan, M. (2004). *Zrozumieć media: Przedłużenia człowieka*. Wydawnictwo Naukowo-Techniczne.
- Nycz, E. (2013). Animacja społeczno-kulturalna: między ideą a trudem codziennej realizacji. In K. Nowak-Wolna & E. Nycz (Eds.), *Kultura, animacja, zmiana społeczna* (pp. 201–217). Wyd. UO.
- Postman, N. (2006). *Zabawić się na śmierć. Dyskurs publiczny w epoce show-biznesu*. MUZA.
- Przegalińska, A., & Ciechanowski, L. (2020). *Wykorzystywanie algorytmów sztucznej inteligencji w instytucjach kultury. Ekspertyza przygotowana na zlecenie Ministerstwa Kultury i Dziedzictwa Narodowego*, Warszawa 2019/2020. Retrieved 9, May, 2024 from: <https://www.gov.pl/web/kultura>
- Reisman, D. (1971). *Samotny tłum*. PWN.
- Schindler, A. (2004). Czym jest animacja społeczno-kulturalna? In K. Hrycyk (Ed.), *Konteksty animacji społeczno-kulturalnej* (pp. 19–36). Państwowe Pomaturalne Studium Kształcenia Animatorów Kultury i Bibliotekarzy.
- Słowińska, S. (2013). Projekt animacyjny jako metoda pracy w oparciu o badania w działaniu. In D. Kubinowski & U. Lewartowicz (Eds.), *Animacja kultury – współczesne dyskursy teorii i praktyki* (pp. 121–137). Makmed.
- Torczyńska, M. (2019). Sztuczna inteligencja i jej społeczno-kulturowe implikacje w codziennym życiu. *Kultura i Historia*, 36(2), 106–126.
- Żardecki, W. (2020). Główne kierunki rozwoju animacji kultury. Od animacji społecznej do osobowej. *Lubelski Rocznik Pedagogiczny*, 39(1), 269–282. <http://doi.org/10.17951/lrp.2020.39.1.269-282>
- Żurakowski, B. (2006). Animacja społeczno-kulturalna wobec zagadnienia wartości. In B. Jedlewska (Ed.), *Akademickie kształcenie animatorów i menedżerów kultury w Polsce – koncepcje, doświadczenia, wyzwania* (pp. 75–86). Verba.

## MOŻLIWOŚCI WYKORZYSTANIA NARZĘDZI SI W PRAKTYCE ANIMACJI KULTURY

**Wprowadzenie:** Artykuł prezentuje możliwości zastosowania generowanych przez sztuczną inteligencję (SI) narzędzi w perspektywie animacji kultury – koncepcji bazującej na ideach sprawczości, autentyczności i autonomii, ukazując potencjalne pola synergii pomiędzy pozornie sprzecznymi kategoriami.

**Cel badań:** Celem badań jest ukazanie roli narzędzi SI w praktyce animacji kultury poprzez analizę możliwości ich wykorzystania w projektach animacyjnych w odniesieniu do kluczowych etapów, takich jak: preanimacja, animacja właściwa, pomiar efektywności.

**Stan wiedzy:** Dynamiczny rozwój generatywnej SI intensyfikuje pytania dotyczące konstytuowania się sprawczości rozumianej nie tylko jako przejaw umiejętności działania, ale również wyraz podmiotowości i samostanowienia. Wartości te stanowią fundament animacji kultury, której celem jest wzmacnianie sprawczości i autonomii człowieka. Cechą konstytutywną animacji jest humanistyczna metodyczność polegająca na stosowaniu zindywidualizowanych, niedyrektywnych metod, uwzględniających konteksty osobowe

i społeczne. Cecha ta akcentuje orientację na człowieka i jego podmiotowość, jednocześnie otwiera przestrzeń dla nowych technologii. Narzędzia SI mogą wspierać działania uczestników procesów animacyjnych (animatorów kultury oraz osób animowanych) zarówno w wymiarze organizacyjnym (zarządzanie projektem), jak i merytorycznym (generowania treści i pomysłów) na wszystkich etapach projektów animacyjnych.

**Podsumowanie:** Narzędzia SI stanowią wsparcie w następujących obszarach praktyki animacji kultury: przeszukiwanie źródeł tekstowych wizualnych i audiowizualnych, odkrywanie potrzeb i potencjałów, organizacja procesów diagnostycznych i ewaluacyjnych, zarządzanie projektem, generowanie treści oraz pomysłów wspomagających procesy twórcze.

**Słowa kluczowe:** animacja kultury, projekt animacyjny, sztuczna inteligencja, narzędzia SI