SEARCH Journal of Media and Communication Research
Online ISSN: 2672-7080

SEARCH 17(6), 125–139
Special Issue: 8th International SEARCH Conference 2024
DOI: 10.58946/search-17.6.P8
https://fslmjournals.taylors.edu.my/search/

AI-assisted media: Revolutionising storytelling in animation pre-production

*Mohamad Razeef Shah Mohmad Rafik
Universiti Teknologi MARA, Shah Alam, Malaysia
razeef.mohd@uitm.edu.my

Safwan Anwar Azizan
Universiti Teknologi MARA, Shah Alam, Malaysia

Ahmad Md Redzuan
Universiti Teknologi MARA, Shah Alam, Malaysia

Naquefarhan Zainal Abidin
Universiti Teknologi MARA, Shah Alam, Malaysia

ABSTRACT

The widespread adoption of artificial intelligence (AI) has significantly transformed several production methods in the global creative industries, including Malaysia. The application of AI-assisted media is seen to be utilised as the initial tool in developing the early pre-production development from the conceptual process of developing an idea to the final script for the creative industry, specifically towards animation pre-production. Each component in the pre-production phase is seen to incorporate AI-driven technology as the primary catalyst for initial development. This transformative role is evident and can be specifically applied in conceptualising and realising storytelling within animation pre-production. This paper explores and examines the utilisation and integration of AI-assisted media in the initial story development process in the pre-production stage of animation. The study employed a qualitative indirect observation method to examine the AI-assisted media currently available for generating story elements. The functionality of these AI-assisted media is monitored based on their ability to generate ideation and storytelling elements using the four steps of the story-driven approach in story development: ideation, story arc, logline, and scriptwriting. The samples of available AI-assisted media were selected using purposive sampling based on the criteria of generating story elements through the generative capabilities of natural language processing (NLP) and existing online data derived from user reviews, forum discussions, and expert analyses. The findings indicate that two AI-assisted media were identified for each of the four steps of the story-driven approach. These eight distinct AI-assisted media can enhance story development for aspiring storytellers and animators in animation pre-production. The integration of AI-assisted media indicates that AI tools are transforming the story development process by making it more efficient and reducing the time required for production. Additionally, it effectively communicates the desired story and plot development.

Keywords: ***AI-assisted media, animation storytelling, animation pre-production, AI driven storytelling, creative automation***

* Corresponding author

INTRODUCTION

The transformative impact of artificial intelligence (AI) has been widely used across various media industries, with the field of animation standing out as a prime example. These technological advancements in AI tools have been integrated into early development, changing the traditional approach toward animation pre-production (Jiang et al., 2022). AI technology has significantly shifted the animation pre-production development process paradigm, enabling directors, storytellers, and scriptwriters to adopt AI-assisted media in the storytelling approach of the pre-production phase. As the capabilities of AI continue to expand, its influence on the animation industry has become increasingly noticeable, with AI technology transforming the nature of storytelling and the story development process, redefining content development in the creative media landscape (Liu & Peng, 2021).

The integration of AI tools has empowered directors and animators to surpass the limitations of traditional methods, allowing for the generation of visually stunning and photorealistic imagery. The synergistic relationship between AI tools and animation pre-production can profoundly transform the industry, eliminating the distinctions between human and machine-driven creation. This introduces a fresh paradigm for previously impossible storytelling possibilities as AI tools become increasingly indistinguishable from human-generated content, thus resulting in a new era of collaborative creativity that surpasses simple categorisation and challenges traditional concepts of artistic authorship and expression (Crimaldi & Leonelli, 2023; Xi & Abdul Latif, 2022).

The crucial role of storytelling in animation cannot be emphasised enough, as it is the primary factor determining an animation's success. A story can evoke emotions, shape perspectives, and leave unforgettable impressions on the audience's minds (Chiu & Chu, 2019). The integration of AI technology in animation pre-production is expected to profoundly impact traditional storytelling methods, allowing for new opportunities in story, plot, and character development, building character traits, and applying storytelling elements to enhance audience engagement (Gu et al., 2023).

Moreover, the generative capabilities of AI tools, such as natural language processing (NLP) and computer vision, have opened up new avenues for story and narrative exploration in the story development process. The advances in these fields have enabled the generation of high-quality, coherent content, including story and narrative development, dialogue and scriptwriting, character profile, traits and backstory development, and even plot sequences, which can serve as a starting point for producers, directors, storytellers, and scriptwriters to develop and refine the interaction between human creativity and AI-assisted media (Siarohin et al., 2021; Leong et al., 2023).

LITERATURE REVIEW

Traditional storytelling approach in animation pre-production

Over the years, numerous studies have been conducted on animation storytelling. The primary concern addressed by industry practitioners regarding storytelling in animation pre-production involves the approach to the story development process. The issues addressed include the traditional approach to story development (Aziz et al., 2014; Cutting, 2016), enhancing the story development process by utilising modern digital

technologies and developing a captivating narrative that resonates with the audience (Peterson, 2018; Yan, 2018). Another concern raised was the prolonged duration required for story development, which spans one to two years, a significantly lengthy duration. It is essential to address this issue by reducing the time needed for development (Akleman et al., 2015; Mou, 2015).

The study of the traditional story development process in animation pre-production is not a new issue. The conventional story development process typically consists of four fundamental steps outlined in the story-driven approach (see Figure 1). These steps involve generating ideas, incorporating storytelling elements, and developing the narrative structure (Huang & Grizzard, 2022; Shah et al., 2023). Mou and Tu (2013) asserted that scriptwriting is the initial phase in the process of story development, as supported by Glebas (2008) and Cutting (2016). In addition, a study by Mou et al. (2013) clarified that the traditional approach to story development involves progressing from story to script and from script to image. Additionally, according to Kim and Kim (2016), the narrative structure also plays a crucial role in determining the sequence and direction of the story during its development.

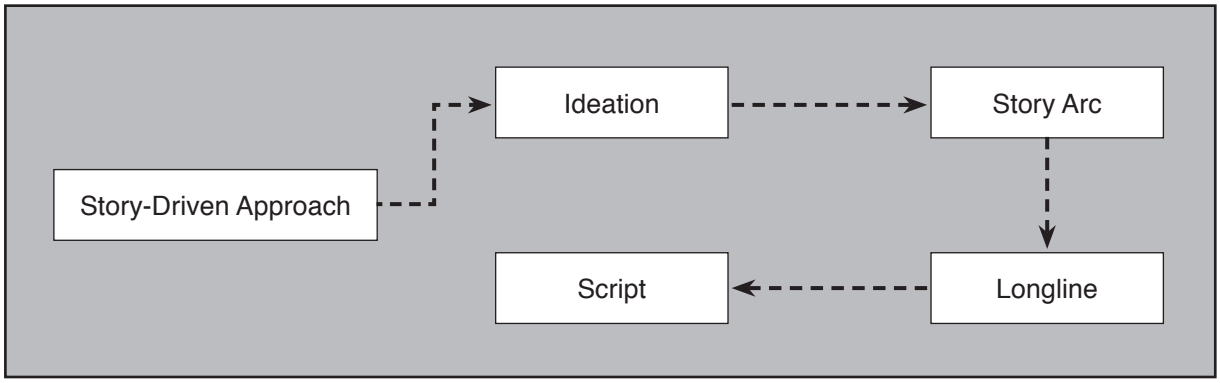

Figure 1. Story-driven approach in the story development process

Furthermore, using storytelling elements and narrative structure is also considered an integral component of the traditional storytelling approach. Several studies have defined the essential components employed in story development. The elements include plot, character, conflict, setting, resolution, and theme (Ghazali & Ghani, 2019; Shah et al., 2021). These storytelling elements are essential for story development. The plot, setting, conflict, and themes must correspond to evoke an emotional response from the audience (Mou, 2015; Yan, 2018). Similarly, developing a strong character and revealing the character's needs and motivations throughout the narrative, conflict, setting, and resolution are essential (Field, 2013; Huntley, 2007). In order to achieve a satisfactory conclusion and gain the audience's approval, it is crucial to clearly define these six elements and introduce conflict at the beginning (Field, 2013; Wang, 2012).

In addition, incorporating a narrative structure into the story's development is essential. A narrative structure serves as the fundamental framework for structuring the sequence and direction of a story (Huang & Grizzard, 2022; Vidakovic, 2021). Understanding the basic structure of a story is essential in the process of developing a narrative. Various theorists have devised distinct theoretical frameworks for structuring

narratives in film and animation. The three-act structure, derived from Aristotle's Poetics, is one of the oldest narrative structures (Cohn, 2013; Shah et al., 2023).

However, the emergence of AI-assisted media has brought various challenges to traditional storytelling due to the substantial technological shift and the necessity to integrate digital technologies (Gu et al., 2023). One significant challenge the industry practitioner faces is audience fragmentation due to digital media. The growing number of digital platforms has fundamentally transformed how audiences engage with animated content, posing challenges for traditional storytelling approaches to captivate their attention. The rise of interactive and digital media formats has led to a steep decline in conventional storytelling approaches (Miller & Bennett, 2022).

Integration of AI into the story development process

Integrating AI-assisted media into the story development process for animation pre-production is considered inevitable. This new approach of incorporating AI into the story development process is regarded as an innovative approach that revolutionises how stories and narratives are developed during the initial stages of story development. An analysis of the current state of AI integration reveals its utilisation in story development, including story and character development, scriptwriting, and world-building (Doshi & Hauser, 2024; Pellas, 2023).

AI tools have gained significant momentum in recent years, specifically in their utilisation for story and narrative development. AI tools such as generative adversarial networks (GANs) and natural language processing (NLP) are significant in developing an exciting and engaging story and narrative. These emerging technologies facilitate the automation of story development, encompassing the diverse progression of plotlines and character arcs, which can dynamically adjust to audience preferences (Gao, 2023). This highlights the importance of establishing an appropriate balance when utilising AI tools to ensure their effectiveness in preserving the story's progression.

Alternatively, the application of AI tools has gained significant attention due to their potential to enhance human creativity in scriptwriting rather than replace it. Current AI tools for scriptwriting can analyse existing scripts to identify the utilisation of storytelling elements, narrative structures, and character dynamics (Shah et al., 2022). This analysis provides valuable insights to scriptwriters, aiding the creative process (Fang et al., 2023). Recent studies suggest that using AI tools can improve users' ability to understand and create stories as well as boost their confidence in writing (Messingschlager & Appel, 2022; Pellas, 2023). AI technology can be a valuable tool for developing storytelling skills for educational purposes.

Similarly, applying AI tools is crucial in character development and world-building, an essential component of storytelling development. Using machine learning algorithms, AI tools can analyse character traits derived from pre-existing stories and narratives, allowing the storyteller and scriptwriter to develop a more relatable character (Gao, 2023). Furthermore, the utilisation of AI tools in world-building involves the development of detailed environments. These elements establish the context that enhances the narrative landscape, facilitating a more intricate interaction between the characters and the setting (Gao, 2023). Using AI tools in these areas will enable the optimisation of the creative process, thereby promoting a new approach to the narrative and story development process.

Utilising AI in storytelling for animation pre-production

The incorporation of AI-assisted media into the storytelling approach is swiftly transforming the creative landscape by providing new tools and techniques to enhance the process of story development. The first step in incorporating AI tools into storytelling requires human creators to become familiar with the current AI tools and their capabilities. These AI tools can range from text generators, like OpenAI's GPT3, to more specialised AI applications designed for specific storytelling tasks, such as plot and character development as well as scriptwriting (Mao et al., 2023). It is essential to comprehend the capabilities and constraints of these tools in order for creators to improve their storytelling approach. It is crucial to highlight the significance of using a hybrid intelligence approach, combining the creator's expertise with AI tools. This approach enables more efficient collaborations in the innovative development of stories. This collaboration will boost the creative output and cultivate a greater understanding of how AI tools can be utilised in narrative development (Mao et al., 2023).

Selecting appropriate AI tools for specific storytelling requirements is crucial for optimising the efficacy of AI tools in the creative process. Different AI tools serve other purposes, such as generating plot development, creating character arcs, or even composing music for a particular narrative (Cheng, 2022). For instance, generative AI can facilitate brainstorming sessions by offering storytellers and scriptwriters a wide range of ideas that can be refined and expanded upon (Noy & Zhang, 2023). The selection process should consider the intended audience, the story's genre, the storytelling elements, and the narrative structure that requires enhancement. The focus on the productivity impacts of generative AI across different AI tools highlights the importance of comprehending the specific context in which these tools are utilised, as this can significantly influence their efficacy (Cheng, 2022; Noy & Zhang, 2023; Shah et al., 2022).

Moreover, integrating AI tools into the pre-production workflow involves systematically incorporating AI technologies within the current creative process. This integration can streamline the different stages of storytelling, from ideas and conceptual development to scriptwriting. The AI tools aim to optimise repetitive tasks, such as generating background details or formatting scripts, allowing storytellers and scriptwriters to focus on the complex aspects of storytelling (Ben-Tal et al., 2021). Moreover, these AI tools can offer valuable insights through data analysis, enabling creators to understand audience preferences and trends better. This, in turn, can guide the decision-making process for optimal story and narrative (Rezwana & Maher, 2023).

The integration process should also consider the collaborative dynamics between human creators and AI systems, as efficient communication between humans and AI is essential for maximising this collaborative experience. Implementing clear protocols for interaction and evaluation can improve the quality of the creative output, ensuring that the AI's input will follow the creator's desired vision (Rezwana & Maher, 2023).

METHODOLOGY

This study adopted a qualitative secondary data synthesis to examine how AI-assisted methods can support the story development process during the pre-production stage of animation. Rather than conducting direct usability testing or experimental trials, this

study analysed publicly available secondary data consisting of expert commentaries, user-generated reviews, forum discussions, professional demonstrations, and tutorial videos of available AI tools. These materials provided an in-depth insight into how industry practitioners and users interact with the AI tools and how these tools perform in the creative context of real-world applications.

Indirect observation in this study refers specifically to the systematic examination of data generated by other users. No experimental engagement or direct observation was conducted with the available AI tools. This approach aligns specifically with established qualitative research, in which data are analysed using pre-existing digital traces to better understand the functions, practices, and perceptions surrounding emerging technologies. The secondary synthesis approach was deemed suitable given the rapidly evolving nature of AI-assisted storytelling tools, which makes user-generated evidence a vital source. This, in return, provides the opportunity to capture broader patterns of how these AI storytelling tools are used within the creative industry, which may not be achievable through direct testing only.

Purposive sampling techniques were employed to identify AI tools relevant to the four components of the story-driven approach: ideation, story arc development, logline formulation, and scriptwriting. An initial set of 24 AI tools was reviewed, and eight tools were selected based on the criteria of the selected set (see Table 1). This purposive approach was necessary, as many AI tools advertise the ability to generate creative output but do not meaningfully contribute to story development. This set was based on selecting the tools most relevant to the story development process during the animation pre-production stage. The final sample consisted of Claude AI, Microsoft Copilot, Rytr, GPT-4, Gemini, ToolBaz, Jasper AI, and Perplexity AI for the four story-driven components.

Table 1. Sample size and criteria of selection

No	Story-Driven Approach	AI Tools & Technology	Criteria of Selection
1	Ideation	1. Claude AI 2. Microsoft Copilot	1. Generative capabilities (NLP) and outputs for generating ideas, story arcs, loglines, and scriptwriting 2. Facilitate user engagement and interaction 3. Enhance the storytelling process
2	Story Arc	1. Rytr 2. GPT-4	
3	Logline	1. Gemini 2. ToolBaz	
4	Scriptwriting	1. Jasper AI 2. Perplexity AI	

The data were extracted from publicly available online data sources, including user reviews from platforms such as YouTube, Reddit, and professional blogs, expert evaluations from AI researchers and creative practitioners, through available tutorial videos and technical demonstrations, forums, discussions of user-tested storytelling prompts and articles as well as comparative analyses published by experts in the animation and AI industry. These sources provided rich qualitative data and materials on how different AI tools perform, what story and narrative features they can generate and how the users assess their strengths and limitations.

The data collection procedure utilised in this study involved analysing outputs from stories and narratives submitted by users across multiple platforms. Two forms of

data were collected. Firstly, using descriptive accounts in which users' written experiences describe how an AI tool responds to a specific writing task; secondly, through generated story outputs, where story and narrative examples of ideas, plotlines, loglines or script excerpts are provided in the user submission or expert demonstration. To maintain analytic consistency, only the data that aligns with the four story-driven components was retained. The data were then organised into a structural matrix, enabling systematic comparison across tools.

The data were analysed using qualitative content analysis, which is appropriate for synthesising textual data across diverse online sources. The analysis approach followed four stages: initial coding, pattern identification, comparative mapping across the four components and thematic synthesis. For the first stage, initial coding, user and expert statements were coded according to the story and narrative categories, including creative ideation, narrative coherence, structural clarity, generative flexibility, dialogue development, and character depth.

For the second stage, pattern identification, where codes were grouped to identify recurring patterns in how tools supported specific story development tasks. For the third stage, comparative mapping across the four components, where the AI tools were mapped against the story-driven approach to determine which AI tools were most effective for ideation, which AI tool supported structural development, which AI tool generated stronger loglines, and which AI tool excelled in scriptwriting. The fourth and final stage, thematic synthesis, in which broader themes were generated to explain the functional distinctions among tools for creative expansion, narrative precision, and structural guidance.

To enhance credibility and trustworthiness, data triangulation was conducted by sourcing materials from different platforms and expert users. Audit trails were maintained by documenting the coding approach and category refinement, and reflexive consideration was ensured by avoiding privileging specific AI tools or user groups. All of the data analysed were publicly accessible and did not involve private communication or direct user participation. No identifiable personal information was collected, and this study adhered to the ethical norms governing the analysis of digital content for academic research.

FINDINGS AND DISCUSSION

Findings

The utilisation of AI tools in generating ideation for storytelling

The first analysis focused on ideation. In animation storytelling, ideation refers to the development of a story idea from concept to a fully developed narrative. This includes brainstorming, conceptualisation, and structuring the idea into a story encompassing concept, plot, and character development. In the traditional story development approach, storytellers and scriptwriters must generate concepts from the foundation, which is time-consuming. After observation and analysis, two AI tools were identified: Claude AI and Microsoft Copilot (see Table 2).

Table 2. AI tools utilised in generating ideation for storytelling

No	AI Tool and Source	Generative Functions	Prompts Utilised	Storytelling Capabilities
1	Claude AI (claude.ai)	1. Generate concept and plot development ideas 2. Generate character development ideas 3. Generate themes for plot and character development	1. Concept and plot development prompts (create an animation story idea) 2. Character development prompts (create a character idea for)	Generating ideas for story, plot and character development, setting and world-building development, and exploring themes
2	Microsoft Copilot (copilot.microsoft.com)	1. Generate story ideas 2. Generate plot and character idea development	1. Concept and plot development prompts (create an animation story idea) 2. Character development prompts (create a character idea for)	Generating ideas for concept and theme, plot and character development, setting and world-building development, and also research and fact-checking

The initial AI tool, Claude AI, employs advanced natural language processing for its generative capabilities. It can be utilised to produce coherent and captivating text suitable for ideation in animation storytelling. Claude AI can generate ideas for concepts, plots, character development, and storytelling themes. Prompts for concept, plot, and character development can be employed to commence the ideation process. The tool can also serve its generative function for storytelling capabilities by producing ideas for story, plot, character, setting, and world-building and examining pertinent themes for animation storytelling.

Similarly, Microsoft Copilot employs advanced natural language processing for its generative functions. The generative functions, employed prompts, and storytelling abilities are similar in idea development for animation storytelling with Claude AI. Microsoft Copilot has an advantage in research and fact-checking capabilities, which are unavailable in Claude AI. Both tools demonstrate generative capabilities and share similarities in story, plot, and character development, allowing users to modify prompts for refinement. However, the significant difference between the two tools is that Claude AI provides more creative ideas and detailed narrative elements to enhance storytelling. In contrast, Microsoft Copilot can generate a more structured outline for ideas for storytelling.

The utilisation of AI tools in generating story arc for storytelling

The second analysis concentrated on the story arc. In animation storytelling, a story arc represents a narrative structure that illustrates the development of plots and characters throughout the story from beginning to end. Each narrative structure follows a fundamental framework aligned with Aristotle's three-act structure, comprising a beginning, middle, and end. In the traditional approach of story development, storytellers and scriptwriters typically have to determine the most effective narrative structure for story development, which is often time-consuming. Following the observation and analysis, two AI tools were identified: Rytr and GPT-4 (see Table 3).

Table 3. AI tools utilised in generating story arc for storytelling

No	AI Tool and Source	Generative Functions	Prompts Utilised	Storytelling Capabilities
1	Rytr (rytr.me)	1. Generate story arc structures 2. Generate conflict and resolution within the story arc	1. Traditional story arc prompts (create a detailed story arc for) 2. Non-traditional story arc prompts (develop a non-linear story arc) 3. Complex story arc prompts (develop a non-linear story arc)	Generating structured storytelling frameworks, story arc components such as conflict, climax, resolution, falling action, character arc and theme exploration
2	GPT-4 (chatgpt.com)	1. Generate story arc templates 2. Generate story frameworks such as three-acts, 5-acts, hero's journey	1. Three-act structure prompts emphasising animation elements (create a detailed story arc for) 2. Character-driven arc prompts (develop a character-driven story arc for)	Generating story arcs and narrative frameworks with key plot points and character arcs

Rytr utilises both natural language processing and advanced natural language processing methods for its generative functionalities. This tool can develop various types of story arcs, from traditional to complex, employing either a linear or non-linear approach. The components within the story arc, namely conflict and resolution, could also be generated. The above can be prompted based on traditional or complex story arcs, based on specified prompts. The tool facilitates storytelling by allowing the development of structured narratives that include story arcs, conflict, climax, resolution, falling action, character development, and theme exploration.

Likewise, GPT-4 utilises advanced natural language processing for its generative functions. The generative functions and storytelling capabilities for story arc development in Rytr are comparable; however, GPT-4 can produce story arc templates and frameworks with character story arcs. The applicable prompts include the three-act structure and character-driven arc. Both tools exhibit identical generative functionality and storytelling capabilities, allowing users to modify the prompts for improvement. However, GPT-4 is more suited for developing complex story arcs. In contrast, Rytr generates less complicated and straightforward story arcs.

The utilisation of AI tools in generating loglines for storytelling

The third analysis concentrated on the logline. In animation storytelling, a logline conveys the core of a story. The logline usually consists of a short one-sentence synopsis summarising the story, emphasising the primary plot and character. In traditional story development, storytellers typically utilise a logline to present their idea to attract interest and communicate the central premise. Following the observation and analysis, two AI tools were identified: Gemini and ToolBaz (see Table 4).

Table 4. AI tools utilised in generating loglines for storytelling

No	AI Tool and Source	Generative Functions	Prompts Utilised	Storytelling Capabilities
1	Gemini (gemini.google.com)	1. Generate key elements in the logline, such as plot, character, conflict, setting, goal and stakes	1. Traditional logline generation prompts (create a compelling logline for) 2. Unique animation concept logline prompts (generate a one-sentence logline for)	Generate a logline with the capability of editing and refining, creative exploration, genre and tone alignment and integrating plot details
2	ToolBaz (toolbaz.com)	1. Generate key elements in the logline, such as plot, character, conflict, setting, goal and stakes	1. Classic animation adventure logline prompts (generate a one-sentence logline for) 2. Unique Fantasy setting logline prompts (create a logline for)	Generate a logline with the capability of refining and feedback, creative exploration and integrating story elements

Gemini is observed to utilise machine learning, natural language processing and advanced natural language processing as its generative function. This AI tool can produce essential components for developing a one-sentence logline, including plot, character, conflict, setting and objective. Two identified prompt approaches for logline generation are traditional logline development and unique animation concept logline. The storytelling capabilities in logline generation within Gemini include editing and refinement, creative exploration, genre and tone alignment, and the integration of plot details.

On the contrary, ToolBaz employs advanced natural language processing for its generative capabilities. The generative functions and storytelling capabilities are identical in logline development with Gemini. The prompt capability in ToolBaz is varied and predominantly emphasises traditional animation, adventure, and fantasy genres. Both tools demonstrate similar generative abilities in generating loglines for animation storytelling, and users can modify the prompts for improvements. However, the primary distinction between the two tools is that Gemini generates more coherent and creative loglines that emphasise narrative depth with engaging storytelling elements. In contrast, ToolBaz generates more accurate and contextually relevant loglines, capable of adapting to the prompted narrative themes.

The utilisation of AI tools in generating scriptwriting for storytelling

The final analysis was on scriptwriting. In animation storytelling, a script is an extensive document describing the story, narrative, plot, action sequences, and dialogue. The script typically serves as the foundation and premise for the story's progression, written by a scriptwriter. In traditional storytelling development, the scriptwriting process for animation is lengthy, spanning from one month to a year, depending on the type and complexity of the animation. The process is typically lengthy and time-consuming. After observation and analysis, two AI tools were identified: Jasper AI and Perplexity AI (see Table 5).

Table 5. AI tools utilised in generating scriptwriting for storytelling

No	AI Tool and Source	Generative Functions	Prompts Utilised	Storytelling Capabilities
1	Jasper AI (jasper.ai)	1. Generate narrative development for structuring plot and character development. 2. Generate scene, visual description and dialogue	1. Plot development and scene creation prompts (create an outline and script for) 2. Dialogue and character development prompts (write a dialogue for)	Generate creative plot creation, dialogue writing, scene description with structure and pacing and character development
2	Perplexity AI (perplexity.ai)	1. Generate plot development, character dialogue and scene descriptions 2. Generate script formats	1. Plot outline and scene creation prompts (generate a detailed plot outline for) 2. Dialogue and character development prompts (write a dialogue scene for)	Generate creative plot development and structure, scene descriptions and sequencing, character development, genre adaptation and script formatting

Jasper AI employs natural language processing and advanced natural language processing techniques to enhance its generative capabilities. It can generate narrative development by organising the plot and developing the characters and settings through visual descriptions and dialogue. The prompts relate to the plot, scene, character development, and dialogue. The storytelling capabilities focus on creative plot development, dialogue composition, structured scene description, pacing, and character development.

Conversely, Perplexity AI utilises advanced natural language processing for its generative functions. The generative functions, prompts employed, and storytelling abilities are similar for scriptwriting for animation; however, Perplexity AI has a slight advantage due to its capability to produce script formatting, a feature lacking in Jasper AI. Both tools demonstrate similar generative abilities in adapting to diverse storytelling genres and enhancing scripts based on feedback, with users are able to modify prompts for revisions. The primary distinction between the two tools is that Jasper AI is optimised for producing a structured script, dialogue, and scene with a specific focus and format. On the contrary, Perplexity AI is an exceptional tool for generating scripts that encompass plot, character development, and dialogue tailored for creative scriptwriting.

Limitations

This study is subject to several limitations. Firstly, all the findings were derived from secondary online sources, and the AI tools were not directly tested. As a result, the analysis depended on the accuracy and completeness of the expert commentaries and user-generated reviews, which may vary in credibility and depth. Secondly, AI tools evolve rapidly, and new features and updates may alter their capabilities, making the findings derived from them time-sensitive. Thirdly, this study does not include triangulation with professional animation industry experts, storytellers, scriptwriters, or animators, which limits the practical applicability of the findings to the real-world animation pre-production process. Finally, the secondary data did not allow for evaluation of potential inconsistencies in AI outputs, such as erroneous narrative patterns or hallucinated

content. These limitations must be considered when interpreting the scope and impact of the findings.

Discussion

While the findings highlight the functional strengths of the AI tools, their significance extends beyond technical capability. The integration of AI tools into the story development process fundamentally reshapes the creative labour in animation pre-production. Ideation and narrative planning become faster but are also more homogenised when multiple AI tools rely on similar large language models. This raises the questions about originality and stylistic diversity in the development of animation storytelling. Furthermore, AI-generated content may subtly constrain a story's creative direction, leading to formulaic arcs or predictable character patterns. Therefore, the role of the human creator remains essential and central, not only as an editor of AI-generated content but also as a critical interpreter who resists the risk of story and narrative standardisation across different animated content.

Furthermore, this study offers a comprehensive exploration and examination of AI tools applicable to the multiple stages of the story-driven animation storytelling process, encompassing ideation, story arc, logline, and scriptwriting. The findings indicate that AI tools, including Claude AI, Microsoft Copilot, Rytr, GPT-4, Gemini, ToolBaz, Jasper AI, and Perplexity AI, provide significant improvements by integrating these technologies into the different stages of animation storytelling.

CONCLUSION

The findings suggest that AI-assisted media can enhance efficiency and expand creative possibilities in the story development process of the animation pre-production stage. However, the use of AI also introduces new challenges related to story and narrative originality, creative autonomy, and over-reliance on generative systems. The value of AI lies not in replacing the storyteller or scriptwriter, but in supporting the early conceptualisation stage of animation storytelling, offering alternative story and narrative paths, and reducing repetitive labour. As AI tools continue to develop, future research should include direct usability testing, collaboration with industry practitioners, and examination of the long-term impacts on narrative diversity in the animation pre-production stage. A balanced, critical engagement with AI will be essential for ensuring that technological innovation enriches rather than standardises creative expression.

References

Aziz, J., Hashim, H., & Ibrahim, F. (2014). Malaysian film industry in transformation: Challenges and potential. *Jurnal Komunikasi, Malaysian Journal of Communication, 30*(1), 35–49. https://doi.org/10.17576/jkmjc-2014-3001-03

Akleman, E., Franchi, S., Kaleci, D., Mandell, L., Yamauchi, T., & Akleman, D. (2015). A theoretical framework to represent narrative structures for visual storytelling. *Proceedings of Bridges 2015: Mathematics, Music, Art, Architecture, Culture, January*, 129–136. https://doi.org/10.13140/RG.2.1.3887.3440

Ben-Tal, O., Harris, M. T., & Sturm, B. L. (2021). How music AI is useful: Engagements with composers, performers and audiences. *Leonardo, 54*(5), 510–516. https://doi.org/10.1162/leon_a_01959

Cheng, M. (2022). The creativity of artificial intelligence in art. *Proceedings, 81*(1), 110. https://doi.org/10.3390/proceedings2022081110

Chiu, H., & Chu, W. (2019). Analysis of the narrative types of "metaphor" in animated short films. *Scientific Research Publishing, 7*(4), 206–224. https://doi.org/10.4236/adr.2019.74017

Cohn, N. (2013). Visual narrative structure. *Cognitive Science, 37*(3), 413–452. https://doi.org/10.1111/cogs.12016

Crimaldi, F., & Leonelli, M. (2023). AI and the creative realm: A short review of current and future applications. *Cornell University.* https://doi.org/10.48550/arXiv.2306.

Cutting, J. E. (2016). Narrative theory and the dynamics of popular movies. *Psychonomic Bulletin and Review, 23*(6), 1713–1743. https://doi.org/10.3758/s13423-016-1051-4

Doshi, A. R. & Hauser, O. P. (2024). Generative AI enhances individual creativity but reduces the collective diversity of novel content. *Science Advances, 10*(28). https://doi.org/10.1126/sciadv.adn5290

Fang, X., Ng, D. T. K., Leung, J. K. L., & Chu, S. (2023). A systematic review of artificial intelligence technologies used for story writing. *Education and Information Technologies, 28*(11), 14361–14397. https://doi.org/10.1007/s10639-023-11741-5

Field, S. (2013). The foundations of screenwriting. *Buletin of Japan Society of Animal Science, 84*, 487–492. http://ir.obihiro.ac.jp/dspace/handle/10322/3933

Gao, R. (2023). AIGC Technology: Reshaping the future of the animation industry. *Highlights in Science, Engineering and Technology, 56*, 148–152. https://doi.org/10.54097/hset.v56i.10096

Ghazali, M. N. B. M., & Ghani, D. A. (2019). The importance of great storytelling in Malaysia animation industries. *International Journal of Innovative Technology and Exploring Engineering, 8*(Special issue 2), 230–235. https://doi.org/10.35940/ijitee.K1035.09811S219

Glebas, F. (2008). *Directing the story: Professional storytelling and storyboarding techniques for live action and animation*. Focal Press.

Gu, R., Li, H., Su, C., & Wu, W. (2023). *Innovative digital storytelling with AIGC: Exploration and discussion of recent advances*. Cornell University. https://doi.org/10.48550/arxiv.2309.14329

Huang, J., & Grizzard, M. (2022). Beyond content: Exploring the effects of narrative structure on entertainment experience. *Journal of Media Psychology: Theories, Methods, and Applications.* Advance online publication. https://doi.org/10.1027/1864-1105/a000331

Huntley, C. (2007). *How and why dramatica is different from six other story paradigms. Dramatica theory*. Write Brothers, Inc. http://dramatica.com/articles/how-and-why-dramatica-is-different-fromsix-other-story-paradigms

Jiang, R., Wang, L., & Tsai, S. (2022). An empirical study on digital media technology in film and television animation design. *Mathematical Problems in Engineering*. https://doi.org/10.1155/2022/5905117

Kim, S. K., & Kim, S. K. (2016). Survey on the narrative structure of the interactive storytelling authoring system. *International Journal of Applied Engineering Research, 11*(18), 9236–9239.

Liu, Q., & Peng, H Y. (2021, April 1). Influence of artificial intelligence technology on animation creation. *IOP Publishing, 1881*(3), 032076. https://doi.org/10.1088/1742-6596/1881/3/032076

Mao, Y., Rafner, J., Wang, Y., & Sherson, J. (2023). A hybrid intelligence approach to training generative design assistants: Partnership between human experts and AI enhanced co-creative tools. *Proceedings of the Second International Conference on Hybrid Human-Artificial Intelligence* (pp. 108–123). IOS Press. https://doi.org/10.3233/faia230078

Messingschlager, T. V. & Appel, M. (2022). Creative artificial intelligence and narrative transportation. *Psychology of Aesthetics, Creativity, and the Arts, 18*(5), 848–857. https://doi.org/10.1037/aca0000495

Miller, R., & Bennett, J. (2022). Fragmentation and attention: The impact of digital media on traditional storytelling. *Media and Communication Review, 10*(3), 202–218. https://doi.org/10.6789/mcr.2022.103202

Mou, T. (2015). Creative story design method in animation pre-production pipeline. In A. Chakrabarti, T. Taura & Y. Nagai (eds), *The Third International Conference on Design and Creativity Proceedings* (pp. 124–131).

Mou, T., Jeng, T., & Chen, C. (2013). From storyboard to story: Animation content development. *Educational Research and Reviews, 8*(13), 1032–1047. https://doi.org/10.5897/ERR2013.1484

Mou TY, & Tu GS (2013). *Storyboarding for animation*. Grandtech.

Noy, S. & Zhang, W. (2023). Experimental evidence on the productivity effects of generative artificial intelligence. *Science, 381*(6654), 187–192. https://doi.org/10.1126/science.adh2586

Pellas, N. (2023). The effects of generative AI platforms on undergraduates' narrative intelligence and writing self-efficacy. *Education Sciences, 13*(11), 1155. https://doi.org/10.3390/educsci13111155

Peterson, D. (2018, August 12). An introduction to the hero's journey from Christopher Vogler's "The writer's journey: Mythic structure." *ThoughtCo*. https://www.thoughtco.com/the-heros-journeyintroduction-31355

Rezwana, J. & Maher, M. L. (2023). Designing creative AI partners with COFI: A framework for modeling interaction in human-AI co-creative systems. *ACM Transactions on Computer-Human Interaction, 30*(5), 1–28. https://doi.org/10.1145/3519026

Shah, M. R., Rafi, A., & Perumal, V. (2021). A conceptual model of malaysian computer animation storytelling. *NVEO - Natural Volatiles & Essential Oils Journal, 8*(4), 10362–10371.

Shah, M. R., Eshaq, M. A. R., & Perumal, V. (2022). Investigating storytelling differences between western and eastern computer animation. *Proceedings of the 2nd International Conference on Creative Multimedia 2022* (ICCM 2022) (pp. 124–133). https://doi.org/10.2991/978-2-494069-57-2

Shah, M. R., Rafi, A., & Perumal, V. (2023). Post-Aristotelian story paradigm and its influence on malaysian computer-animated television series. *International Journal of Academic Research in Business and Social Sciences, 13*(1), 1237–1249. https://doi.org/10.6007/ijarbss/v13-i1/16172

Siarohin, A., Woodford, O.J., Ren, J., Chai, M., & Tulyakov, S. (2021, January 1). *Motion representations for articulated animation.* Cornell University. https://doi.org/10.48550/arXiv.2104.

Vidakovic, L. (2021). Fragmented narratives: Exploring storytelling approaches for animation in spatial context. *International Journal of Film and Media Arts, 6*(2), 7–27. https://revistas.ulusofona.pt/index.php/ijfma/article/view/7648

Leong, W. K., Chew, Y-Y., Zulkifli, B., & Kho, S. N. (2023). Perception of university students towards the use of artificial intelligence-generated voice in explainer videos. *SEARCH Journal of Media and Communication Research, 15*(Special Issue: SEARCH 2022 Conference), 77–89.

Wang, L. (2012). Story of the monkey: The modular narrative and its origin of 'The Uproar in Heaven'. *Cartoon and Animation Studies, 29*, 61–75. https://doi.org/10.7230/koscas.2012.29.061

Xi, Y., & Abdul Latif, R. (2022). Reconstruction of news production driven by artificial intelligence in China. *SEARCH Journal of Media and Communication Research, 14*(2), 29–45.

Yan, L. (2018). The analysis of story creation of animated film Coco. *Journal of the Korea Entertainment Industry Association, 12*(8), 35–42. https://doi.org/10.21184/jkeia.2018.12.12.8.35

Mohamad Razeef Shah Mohmad Rafik (Ts Dr)

is a notable figure and practitioner who teaches animation, game design, development and storytelling for creative media at the Faculty of Communication and Media Studies, Universiti Teknologi MARA (UiTM). With a PhD in Creative Multimedia from Multimedia University (MMU), he specialises in integrating storytelling elements and narrative structures within animation and game design development. As a registered Professional Technologist with the Malaysia Board of Technologists, Ts. Dr Razeef's contributions extend to advancing animation and game design and development through innovative research and publications. His work focuses on enhancing creative media through compelling storytelling and effective design strategies, making him a prominent educator and thought leader in these dynamic fields.

Safwan Anwar Azizan

is a highly skilled professional with extensive experience in animation, graphic design, games, and education. He earned his master's degree in Visual Communication and New Media from UiTM, focusing on "Visual Illusion: Reviving Historical Structure through Projection Mapping," and holds both a Bachelor in Multimedia Technology (Computer Animation) and a Diploma in Animation from Universiti Kuala Lumpur (UNIKL). Safwan started his career as a practical student and 3D animator at Aniotek Sdn. Bhd. and Animagis Sdn. Bhd., where he developed his 3D modelling, animation, and character design expertise. His career progressed with senior animator and 3D designer roles at Eplus Entertainment Sdn Bhd. He has also made significant contributions as a lecturer at Kru Academy, Point Academy, and Lim Kok Wing University. He continues to influence the field as a lecturer at UiTM, focusing on 3D animation, game development, social media, and digital media, fostering the next generation of creative professionals.

Ahmad MD Redzuan

holds a degree in Mass Communication, specialising in journalism and a master's degree in Corporate Communication. With 14 years of experience as a lecturer, he has taught various courses at the university level, including Communication Theory, Media Psychology, and Marketing Communication. His main field of research focuses on communication studies, particularly in areas such as media effects, corporate communication, and audience psychology. Ahmad has contributed to understanding effective communication strategies in media and corporate settings throughout his academic career, making him a valuable educator and researcher.

Naquefarhan Zainal Abidin

is a lecturer at the Faculty of Communication and Media Studies, UITM Shah Alam, where he teaches undergraduate students animation and game design. He possesses a bachelor's degree in Computer Animation from UniKL MIIT and a master's degree in Visual Communication and New Media from UiTM Shah Alam. He is pursuing a PhD in Art and Design at UITM Shah Alam. He is a Adobe Certified Professional in Visual Design in Photoshop, Graphic Design and Illustration. In addition to his strong academic background and credentials, he has extensive experience as an animator and background artist for international series animations. His comprehensive expertise and hands-on experience contribute significantly to creative media's academic and professional realms.