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Thumbnailing Using AI Assistance to Simulate Collaboration in Animation Production

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ABSTRACT

Artificial Intelligence (AI) has been a helping tool in education including animation study. AI can assist in many aspects in animation production, but studying animation is not only about making the animation but also learning the pipeline production. In real animation industry, pipeline production is a tool to collaborate with various talents with different roles efficiently. The collaboration is not limited to each role doing their own jobs but to direct other talent to work according to the brief. Making thumbnails using AI assistance can simulate similar collaboration and give the students experience on working with another brain despite working individually. The case study is using student animation assignments in production and storytelling class to simulate a collaboration between director and storyboard artist in making thumbnails. The assignment is to fulfil the learning objectives which is to analyze script to directing animation. The research is done with qualitative method to review the assignment to create a better learning and teaching experience of production and storytelling class.

ABSTRAK

Kecerdasan Buatan (AI) telah menjadi alat bantu dalam pendidikan termasuk studi animasi. AI dapat membantu dalam banyak aspek dalam produksi animasi, tetapi mempelajari animasi tidak hanya tentang membuat animasi tetapi juga mempelajari produksi alur kerja. Dalam industri animasi nyata, produksi alur kerja adalah alat untuk berkolaborasi dengan berbagai talenta dengan peran yang berbeda secara efisien.

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Kolaborasi tidak terbatas pada setiap peran yang melakukan pekerjaan mereka sendiri tetapi untuk mengarahkan talenta lain untuk bekerja sesuai dengan arahan. Membuat thumbnail menggunakan bantuan AI dapat mensimulasikan kolaborasi serupa dan memberi siswa pengalaman bekerja dengan otak lain meskipun bekerja secara individu. Studi kasus ini menggunakan tugas animasi siswa di kelas produksi dan mendongeng untuk mensimulasikan kolaborasi antara sutradara dan artis papan cerita dalam membuat thumbnail. Tugas tersebut adalah untuk memenuhi tujuan pembelajaran yaitu menganalisis naskah untuk mengarahkan animasi. Penelitian dilakukan dengan metode kualitatif untuk meninjau tugas guna menciptakan pengalaman belajar dan mengajar yang lebih baik di kelas produksi dan mendongeng.

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1. INTRODUCTION

AI has become part of daily life, from doing simple task like playing music to helping students in higher education, including visual communication design studies. AI can benefit design students in their learning process, from remembering, understanding, applying, evaluating, analyzing, to creating (based on Bloom's Digital Taxonomy) could be done with AI assistances. There are also chances that AI be misused during their study like such as copying. Therefore, it is important for the higher education student to understand the potential and limitations of AI, and the ethical consideration when using AI for design .

Animation as part of the visual communication design could utilize AI too. Every part in animation production pipeline could be done using AI assistance, from creating story, pre-production, animating to postproduction . Animation student could make a complete animation with AI, but animation study is not only about learning to make pretty drawings and finish an animation but also about design and planning. AI could help in many technical processes but without creative process, the result will be a repetition or imitation of existing design. In the field of art, repetition and imitation has no value [3].

2. BACKGROUND AND MOTIVATION

In Bina Nusantara University, production and storytelling course is a required course for visual communication design student majoring animation program. In production and storytelling course, the animation students learn about animation production pipeline from composing animation script, making storyboard and directing animation. The most practical way to learn about animation production is by making animation from the beginning. The animation technicality such as designing character, making animation and compositing are covered on different course, so the course focused on the story, production plan and directing. The students are allowed to use AI or hiring extra hands to complete the animation, but the creative process which is making the story and how the story is told must be made by the students.

According to the previous year's questionnaire to the production and storytelling students, half of the students prefer to work individually rather than in a team, due to the unbalanced effort in completing the task. One student mentioned it was better to be self-reliance while the other mentioned that in teamwork there always a possibility that one teammate gave no contribution at all.

In respond to the previous year's feedback, this year, the students can decide to work on a team or individually. From 2 classes, there are only 7 students who decided to work on teams (consist of 2 or 3 students). Animation production with the current technology, even without AI, could be done by one person only, the animation production ideally requires collaboration of various talents. Learning about pipeline production is not only learning about the animation process but also about how various talents with different roles work together efficiently. This aspect of pipeline production couldn't be learned if the whole animation production done individually. The students who are working in a team may learn about distributing task, but in many cases the students working separately instead of dividing the roles.

The students are about the same age with similar level of skill and experience, there is no hierarchy, so nobody step in as the director or the leader unless necessary. This could form another production pipeline, as every production may have different pipeline. In the real animation industry, it is more common to have divisions with hierarchy structure, where there is someone who responsible of a group of talents and be the

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decision maker. As the learning objective of the course is for the student to be able to analyze the animation script and storyboard for directing animation, there is a necessity to learn how to direct another talent and this couldn't be done alone. This is where AI has potential to be the solutions of the issue. AI would be hired as the students' teammate that they need to employ to help them do the course assignment.

3. HIRING AI AS STORYBOARD ARTIST

The final assignment of the course is to make an animation or a production-ready animation, by making a complete animation bible. To make the animation, the students need to make the story and concept first, then making storyboard, character design, etc. There are many steps to do the assignment that could use AI assistance, but the implementation needs to be limited during the course. The students must be responsible of the result and still have some creativity and innovation on their work.

According to the course syllabus, the other learning objective is to compose animation script and storyboard. Storyboarding is a crucial point for a director to start their creative journey . Storyboard is a tool to pre-visualize a story, consist of a sequence of illustrations or pictures portraying the settings, characters, action, and events .

To make a storyboard, a director needs to communicate with the other crew, and the other way around, a storyboard is a tool to communicate with the crew about the film they are going to make . Hence, the storyboarding process is the initial step to make an animation that is also the first phase of an animation production pipeline . Not limited to animation production, storyboarding could be a visual map to any project planning that requires creativity and critical thinking .

There are many steps to do before making storyboard, such as making thumbnails. Thumbnails are the early stage of storyboards, consist of small images or sketches, normally as big as a thumb nail, which describe some scenes of the story. In the real animation production, thumbnails are made by storyboard artist based on director's brief or feedback. Supposedly, design students especially animation students have decent drawing skills to produce storyboards and thumbnails themselves, as the process is very intuitive, but it also needs good visualization skills to imagine how the scene depicted before turning it into the drawings .

During thumbnailing and storyboarding process, the storyboard artist tries to make various solutions to depict the story in images. Storyboard are meant to be thrown away and replaced by another storyboard, that's why in the early version of the storyboard the images could be messy or raw. AI could generate image from text very quick although lack in refinement, made it potential to help the students doing the thumbnails.

The session was held on the 4th week of the course when the student already prepared a storyline. The students also given freedom to decide their pipeline, some students already started making character design and other sketches but haven't start making storyboard. The session assignment is to create at least 10 thumbnails that describe their animation, they also required to make note on their experiments. During the session, the students become the director of the animation and AI become their storyboard artist.

4. RESULTS AND DISCUSSION

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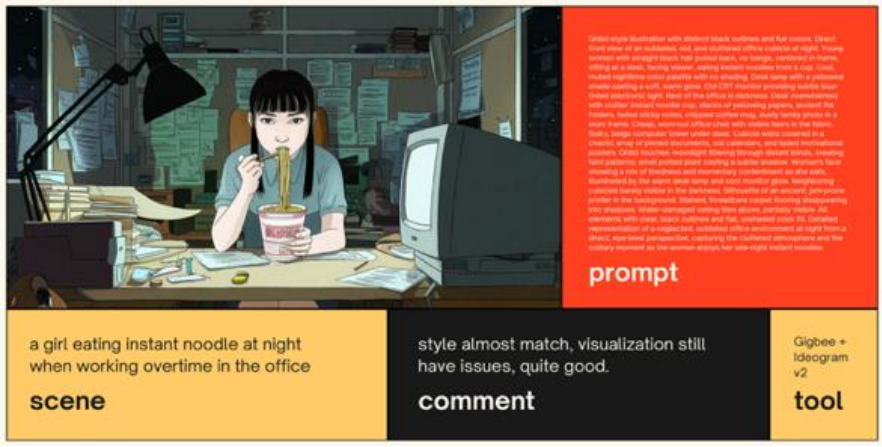
The AI tools that used by the students varies from CoPilot, Midjourney, Adobe Photoshop's AI tool, and the other free AI image generator they could find.

Some students wrote down the prompt they use to get the images (Fig.1) and some students focused on just getting the images. Some students tried to generate the images repeatedly to get what they were looking for. Some students edited the generated images to make it fits closely to the stories (Fig.2). Some students collected the images despite the images not telling the right stories (Fig.3).



Picture 1. AI generated thumbnail by Avrilia, completed with prompt and notes

[Source: Author Documentation Results, 2023]

Picture 2. Thumbnail assignment by Natya, picture on the left is the AI generated image, picture on the right is the edited image to fit the intended design

[Source: Author Documentation Results, 2023]

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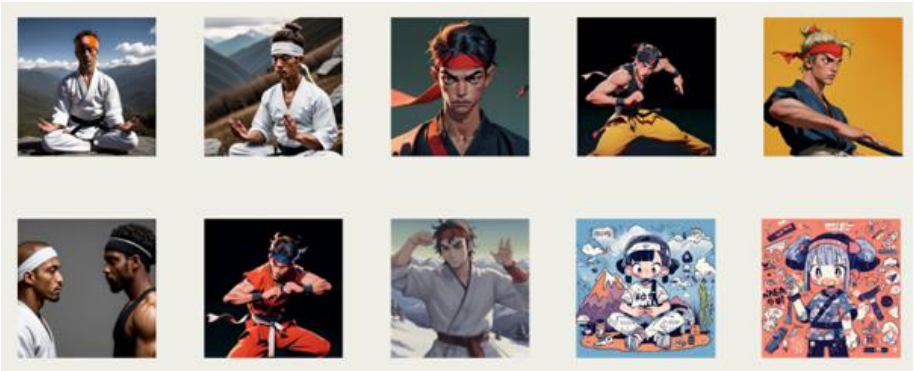
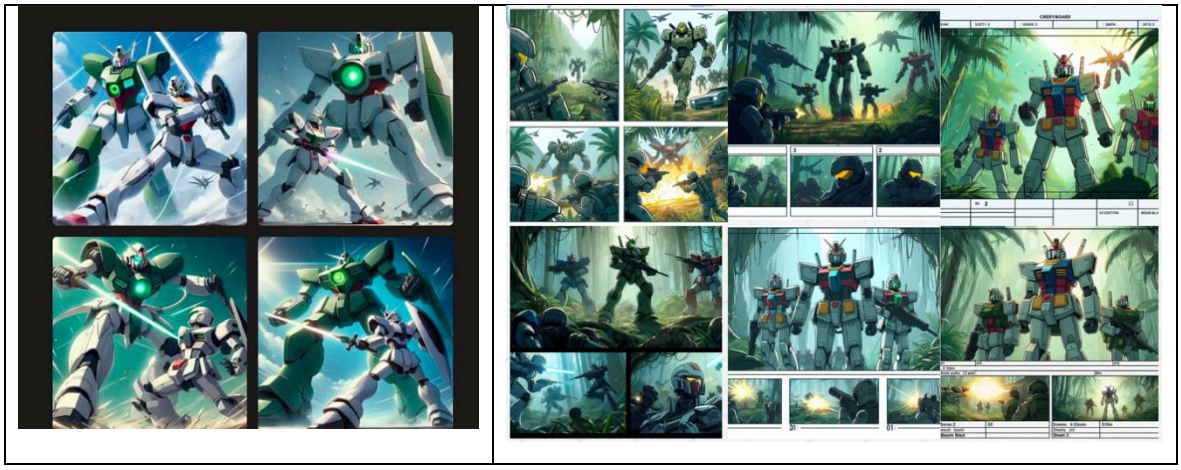


Picture 3. Thumbnail assignment by Sean, the AI generated images varied but not showing the storyline

[Source: Author Documentation Results, 2023]

Coincidentally there are 2 students who use mobile suit Gundam for their characters. The assignments were done before they made their character design but despite using the same reference, the results are different although both have difficulties in depicting variety of scenes (Fig.4). On the other hand, there are 3 students who works in a group but making the thumbnails individually, the results are similar, but the details varied although they were using the same story.



Picture 4. Thumbnail assignments by Isidore and Jonathan, both are using mobile suit Gundam as their reference

[Source: Author Documentation Results, 2023]

Some are successful on depicting their stories but not in the right styles (Fig.5), but some also failed at depicting their animation scenes although the result successfully shows their desired mood and style.

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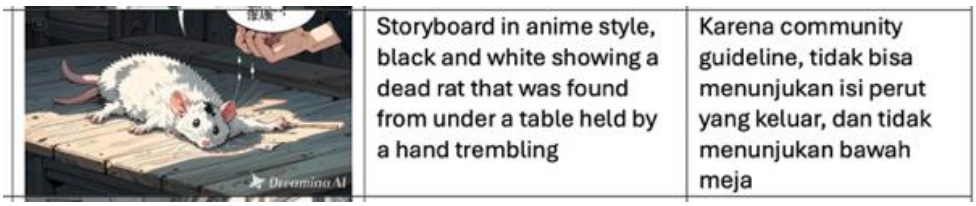
Picture 5. Thumbnail Assignment by Edla and Anne, a succesful attempt on telling the storyline

[Source: Author Documentation Results, 2023]

Based on the assignment results, the student made some notes. AI could be a source of inspiration and reference which are unthinkable and unexperienced before. Making prompt can be frustrating because it is difficult find the right keywords to achieve the desired specific details. AI failed to generate images against their rule such as no violence, so it can't generate image of explosion and dead rat.



Picture 6. Thumbnail assignment by Angela, the AI couldn't show dead rat with some blood image

[Source: Author Documentation Results, 2023]

There are also expected comments such as the missing limbs, weird clothing, wrong expression and other typically AI generated image error. The lack of result variations also caused by the lack of references and the free AI tools, the tools with subscription usually show better result but not suitable for students' financial condition.

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Picture 7. Thumbnail Assignment by Audrey showing the error created by AI

[Source: Author Documentation Results, 2023]

5. DISCUSSION AND CONCLUSION

AI can help students making thumbnails. Although the results are not 100% as they expected, the results help the students create the first visualizations of their animation. The challenging part of using AI to create animation thumbnails is to insert the character to the scene. Compared to live action film with human actors, animation characters are drawn and designed sometimes with different proportions and styles, it makes the characters difficult to be generated with AI. The limitation of AI such as in generating violence scenes could remind the students whether is the violence image necessary or could be replaced with another images.

The lack of variation in some thumbnails after further investigation is concluded as the AI limitation, because several cases happened due to the scene contain fighting scenes. Creating correct poses especially interaction between few characters in a scene is proven difficult using AI. Thumbnailing with AI gives the students experience in creating brief to another brain despite working alone.

Like working with real storyboard artist, the storyboard result relies on the director's brief and reference and the storyboard artist's level of expertism. The experienced storyboard artist could work with limited brief and actively looking for references. The free AI tools is an unexperienced storyboard artist, it could generate images quickly, but it needs a lot of references and direction from the students. Meanwhile, the human storyboard artist, even the unexperienced one benefited by their communication skill with the director.

It is easier to communicate with fellow human, rather than fixing prompt to get specific result. In research by Song, prompt assistance by ChatGPT make the AI image generator "understand" the prompt better. Working with another human is not without challenge as human design and drawing skill also limited, but it is the same reason why animation is usually made in collaboration with various talents, to challenge every talent limits. Finding the solution beyond the limitation could create innovation and creativity.

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So, making thumbnail with AI assistance could be a different experience for the students and has potential to encourage student to challenge their limits.

The AI text to image generator has potential to help the students finish their thumbnails and probably their animations too but to get the exact result, they might need to invest more time and money to train the AI machines.

From the teacher's point of view, the thumbnails help the teacher to understand the animations that will be made by the students. Some students are too shy to explain their ideas to the teacher, and some have difficulties in deciding the stories, by doing this assignment the students finally have images to explain their ideas without waiting for the semester ends. It helps the teacher for later give feedback to the students and help them to complete their animation.

By the time this paper is written, the semester is still running, and the animations are not completed yet, so the thumbnails couldn't be compared to the storyboards or the final animations. While the thumbnailing results are very interesting, it still needs further investigation whether the process help the students to finish their animation storytelling or not. It might be interesting to review the comparison result on a different article.

6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirm that the paper, titled "Thumbnailing Using AI Assistance to Simulate Collaboration in Animation Production," is free of plagiarism.

7. REFERENCES

S. Muji, E. Svensson, and M. Faraon, "Engaging with Artificial Intelligence in Graphic Design Education," in Proceedings - 2023 5th International Workshop on Artificial Intelligence and Education, WAIE 2023, Institute of Electrical and Electronics Engineers Inc., 2023, pp. 31–37. doi: 10.1109/WAIE60568.2023.00013.

J. Song and D. Yip, "Exploring the Intersection of AI Art and Film: A Case Study of Giant," in Proceedings - 2023 IEEE International Conference on Multimedia and Expo Workshops, ICMEW 2023, Institute of Electrical and Electronics Engineers Inc., 2023, pp. 347–352. doi: 10.1109/ICMEW59549.2023.00066.

M. Qu, Y. Liu, and Y. Feng, "Artificial Intelligence Empowered Visual Communication Graphic Design," in Proceedings - 2021 International Conference on Networking Systems of AI, INSAI 2021, Institute of Electrical and Electronics Engineers Inc., 2021, pp. 50–53. ßdoi: 10.1109/INSAI54028.2021.00021.

G. W. Yang, D. Y. Chen, and T. J. Mu, "Sketch-2-4D: Sketch driven dynamic 3D scene generation," Graph Models, vol. 136, Dec. 2024, doi: 10.1016/j.gmod.2024.101231.

F. Manuri, F. De Pace, V. Carrescia, S. Piumatti, and A. Sanna, "Storyboarding in extended reality: a comparison between two tabletop solutions," Aug. 22, 2024. doi: 10.21203/rs.3.rs-4807470/v1.

D. B. Goldman, B. Curless, D. Salesin, and S. M. Seitz, "Schematic storyboarding for video visualization and editing," in ACM SIGGRAPH 2006 Papers, SIGGRAPH '06, 2006, pp. 862–871. doi: 10.1145/1179352.1141967.

A. G. Oche, "The History of Storyboarding as a Co-Design Methodology", doi: 10.13140/RG.2.2.10502.38728.

R. Wahid and A. Aziz, "STORYBOARDING: A MODEL TECHNIQUE FOR THE LANGUAGE LEARNING PROCESS," LLT Journal: Journal on Language and Language Teaching, vol. 25, no. 2, pp. 497–504, Oct. 2022, doi: 10.24071/llt.v25i2.4253.

DOI: https://doi.org/10.17509/e.v24i1.80827
P-ISSN 0852-1190 E-ISSN 2502-0781

S. Mahardhika, ; A F Choiril, and A. Fathoni, "Storyboard dalam STORYBOARD DALAM PEMBUATAN MOTION GRAPHIC," HUMANIORA, vol. 4, no. 2, pp. 1183–1189, 2013.

J. Ditanti and D. Aqidatun Nisa, "'HINDARI SELF-DIAGNOSIS! YUK, KONSULTASIKAN KONDISIMU,'" Online. [Online]. Available: https://jurnal.idbbali.ac.id/index.php/nawalavisual

Y. Deng, "Application of artificial intelligence in art design," in Proceedings - 2021 International Conference on Computer Technology and Media Convergence Design, CTMCD 2021, Institute of Electrical and Electronics Engineers Inc., Apr. 2021, pp. 200–203. doi: 10.1109/CTMCD53128.2021.00049.

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