



E-PROCEEDINGS

INTERNATIONAL TINKER INNOVATION & ENTREPRENEURSHIP CHALLENGE (i-TIEC 2025)

"Fostering a Culture of Innovation and Entrepreneurial Excellence"



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23 January 2025
PTDI, UiTM Cawangan Johor
Kampus Pasir Gudang

ORGANIZED BY:

Electrical Engineering Studies, College of Engineering
Universiti Teknologi MARA (UiTM) Cawangan Johor
Kampus Pasir Gudang
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PREFACE

It is with great pleasure that we present the e-proceedings of International Tinker Innovation & Entrepreneurship Challenge (i-TIEC 2025), which compiles the extended abstracts submitted to the International Tinker Innovation & Entrepreneurship Challenge (i-TIEC 2025), held on 23 January 2025 at **PTDI, Universiti Teknologi MARA (UiTM) Cawangan Johor, Kampus Pasir Gudang**. This publication serves as a valuable resource, showcasing the intellectual contributions on the invention and innovation among students, academics, researchers, and professionals.

The International Tinker Innovation & Entrepreneurship Challenge (i-TIEC 2025), organized under the theme "Fostering a Culture of Innovation and Entrepreneurial Excellence," is designed to inspire participants at various academic levels, from secondary students to higher education students and professionals. The competition emphasizes both innovation and entrepreneurship, encouraging the development of product prototypes that address real-world problems and have clear commercialization potential. By focusing on technological and social innovations, i-TIEC 2025 highlights the importance of turning creative ideas into viable, market-ready solutions that can benefit users and society. The extended abstracts in this e-proceedings book showcase the diverse perspectives and depth of research presented during the event, reflecting the strong entrepreneurial element at its core.

We extend our sincere gratitude to the contributors for their dedication in sharing their innovation and the organizing committee for their hard work in ensuring the success of the event and this publication. We also appreciate the support of our collaborators; Mass Rapid Transit Corporation Sdn. Bhd. (MRT Corp), Universitas Labuhanbatu, Indonesia (ULB), Universitas Riau Kepulauan, Indonesia (UNRIKA) and IEEE Young Professionals Malaysia, whose contributions have been instrumental in making this event and publication possible.

We hope that this e-proceedings book will serve as a valuable reference for researchers, educators, and practitioners, inspiring further studies and collaborations in both innovation and entrepreneurship. May the knowledge shared here continue to spark new ideas and market-ready solutions, advancing our collective expertise and fostering the growth of entrepreneurial ventures.

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B-SS008: 2DTAP : THE ANIMATOR'S PROPOSAL

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ABSTRACT

The current 2D animation course requires students to understand its history, the latest technologies, and the animation development process within a 14-week. However, 40% of the semester is allocated to pre-production activities such as idea generation, storyline structuring, scriptwriting, and visual research. This allocation leaves students with insufficient time for technical tutorials and the creation of high-quality 2D animations. The 2D Animation Proposal Development Model (2DTAP) is an educational innovation leveraging AI technology, particularly ChatGPT, integrated with a systematic guideline. This model accelerates and simplifies the pre-production process, enabling students to focus on mastering production techniques. By combining AI technology with clear guidelines, 2DTAP reduces cognitive load, enhances learning effectiveness, and ensures students produce high-quality animation projects. The novelty of 2DTAP lies in its unique integration approach, merging AI with structured learning guidance to achieve relevant pre-production outcomes suitable to students' skill levels. Studies reveal that 2DTAP significantly improves learning quality and the final project outcomes of students, highlighting its potential to enhance the competitiveness of graduates in the animation industry.

Keywords: Education Technology, Animation, Artificial Intelligent, Emotion in Learning, Control Value

1. Product Description

2D Animation Proposal Development Model (2DTAP) is an innovative AI-powered solution designed to streamline the pre-production phase of 2D animation projects. By leveraging the capabilities of ChatGPT, 2DTAP provides students with systematic guidelines and assistance in generating creative ideas, developing storylines, and crafting scripts. This not only accelerates the pre-production process but also enhances the overall quality of animation proposals. The significance of 2DTAP lies in its potential to revolutionize 2D animation education. By automating time-consuming tasks, students can allocate more time to honing their technical skills and producing high-quality animations. Additionally, 2DTAP promotes creativity and critical thinking by providing a structured framework for idea generation and development. By integrating AI technology into the learning process, 2DTAP empowers students to achieve better outcomes and prepare them for success in the competitive animation industry.

2. 2D Animation Proses Diagram

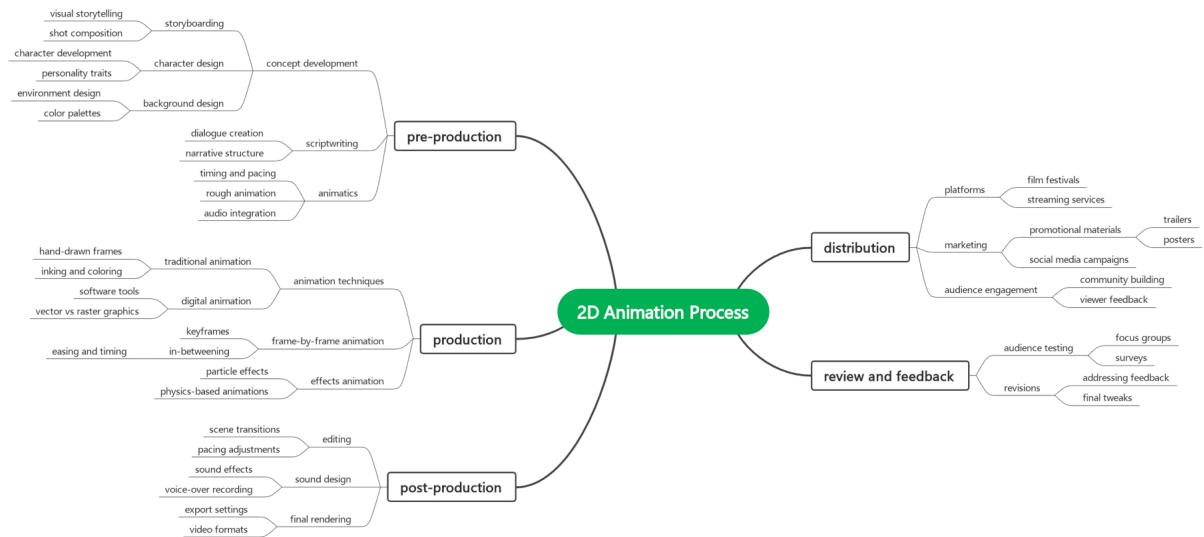


Figure 1. Current 2D Animation Process.

The current approach to 2D animation learning requires students to independently structure and execute several phases of the animation process. **Figure 1** illustrates the steps involved, including pre-production, production, post-production, distribution, and review and feedback. Among these, pre-production is a critical phase, typically allocated 4 to 5 weeks of learning within a semester. Consequently, students have only 9 to 10 weeks to develop technical skills and complete tutorial processes to produce the animation.

The pre-production phase aligns with CLO 1 (Illustrate the pre-production process to achieve the specification for 2D animation in the production stage) and is essential for mastering subsequent Course Learning Outcomes (CLOs). This phase acts as the foundation for the overall idea and creation of the 2D animation until its final output.

While students have been introduced to using Artificial Intelligence (AI) tools like ChatGPT during this phase, the results have been less than satisfactory. Students often struggle to navigate the AI-generated information effectively, leading to confusion and loss of direction. Therefore, it is crucial to establish proper guidelines and develop a supportive platform to help students use AI appropriately, ensuring the preservation of originality in their core ideas.

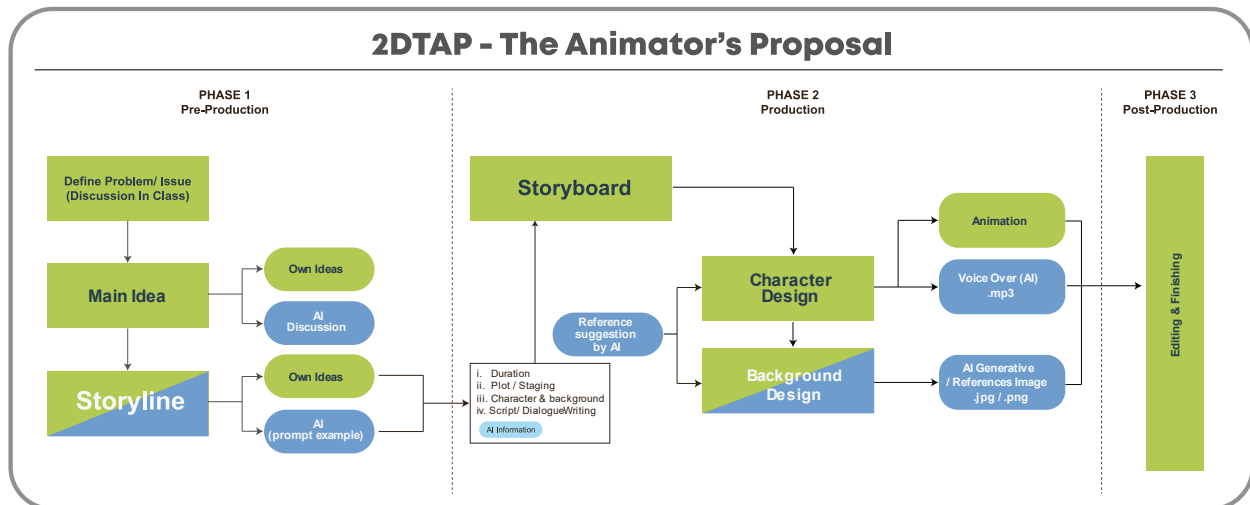


Figure 2. 2DTAP Modul

The 2DTAP (2D Animation Process) module is a restructured guideline that integrates traditional workflows with AI tools, emphasizing mastery of each critical step in the animation process. **Figure 2** demonstrates the structured stages, offering students choices while maintaining the originality of their ideas and skills. In this framework, processes highlighted in green represent original student efforts, while blue processes indicate AI-assisted integration.

AI applications in 2DTAP include generating storylines, visual references, voiceovers, dialogue scripts, and narrative construction. These AI-supported tasks typically fall under the expertise of other departments but were previously managed by animation students as part of their storytelling responsibilities. With 2DTAP, students can reduce pre-production time and focus more on tutorials and production processes, improving both efficiency and output quality.

The 2DTAP module has been validated by animation experts and basic application developers, ensuring its effectiveness in enhancing learning outcomes without disrupting students' comprehension. By emphasizing structured workflows and strategic AI use, 2DTAP significantly supports students in achieving higher-quality 2D animations within shorter time frames.

3. Novelty and uniqueness

AI Utilization Guidelines: Provides specific instructions for using AI in pre-production processes.

Cognitive Load Reduction: Designed to save students' time and effort during initial stages with user-friendly UI.

Interactive Application: Offers a web-based application enabling students to create complete proposals with interactive guidance.

4. Benefit to mankind

2DTAP has the potential to greatly benefit humanity by revolutionizing the field of animation education. By streamlining the pre-production process, 2DTAP empowers animators to focus on their creative vision and technical skills. This increase in efficiency and productivity can lead to the creation of more innovative and captivating animations. Furthermore, as animation becomes more accessible to a wider audience, 2DTAP can contribute to the development of diverse and inclusive storytelling, fostering empathy and understanding across cultures. Importantly, by promoting ethical practices in animation development, 2DTAP can help ensure that animations are produced responsibly and positively impact society. By teaching animators to consider the ethical implications of their work, 2DTAP can help prevent the creation of harmful or misleading content.

5. Innovation and Entrepreneurial Impact

2DTAP revolutionizes animation education through AI-powered automation, streamlining pre-production tasks and empowering animators. It fosters creativity by providing structured guidance and inspiring innovative ideas. 2DTAP's personalized approach optimizes learning experiences for individual users.

Entrepreneurially, 2DTAP opens new markets for AI-powered educational tools and services in the animation industry. It boosts job opportunities and accelerates innovation by enabling efficient, high-quality animation production. Its global reach empowers individuals to access advanced training and resources independently.

By transforming traditional animation education, 2DTAP fosters efficient, effective, and accessible learning. This sparks new business models and entrepreneurial opportunities, driving innovation in animation tools and software. 2DTAP's impact on the animation industry is profound, shaping its future by empowering animators, accelerating innovation, and creating new market opportunities.

6. Potential commercialization

2DTAP has significant commercial potential. It can be licensed to educational institutions, animation studios, and individual animators. By offering premium features, such as advanced AI tools, personalized coaching, and exclusive resources, 2DTAP can generate revenue through subscriptions or one-time purchases. Additionally, partnerships with animation software companies or hardware manufacturers can further expand its market reach and revenue streams.

7. Acknowledgment

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technical assistance, or moral support. Their contributions have been invaluable to the success of this project.

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