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EXTENDED ABSTRACT

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International Jasin Multimedia & Computer Science Invention and Innovation Exhibition
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ARTventure: Learning Malay Traditional Dance Through Augmented Reality

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***Abstract*— Malaysia's traditional dances exemplify the nation's rich multicultural identity, a source of worldwide renown. Among these, Malay folk dances stand out, embracing diverse cultural practices like martial arts, storytelling, and humour. To ensure the preservation of this cultural heritage and ignite interest among the younger generation, effective materials are crucial. Enter an innovative augmented reality, this based learning application focused on the Inang dance, employing marker-based AR technology. This application holds the potential to safeguard Malay traditional dance among the youth, particularly students. Moreover, it fosters curiosity, inspiring users to delve deeper into the world of performing arts. Rooted in the ADDIE model, a proven and adaptable learning methodology, this project paves the way for future learning models to thrive, ensuring the legacy of Malaysia's traditional dances endures. For future recommendations, the application should offer comprehensive learning opportunities for Malay Dance enthusiasts. It must serve as a valuable resource for learning dance intricacies, acting as both a revision tool for experienced dancers and an attraction for newcomers to explore the culture. Additionally, attention to detail in animations is vital for creating immersive and captivating learning experiences. Expanding compatibility to multiple platforms will broaden the audience and promote the beauty of Malay Dance. The engagement testing yielded promising results and analysis, showcasing a favourable overall percentage of 72.71%. Despite encountering specific project limitations, these obstacles provide valuable lessons and serve as a compass for guiding future enhancements in application development. Through these enhancements, the augmented reality-based Malay Dance application can transform into a potent force, championing the promotion and preservation of this exquisite art form and its heritage. Simultaneously, it will entice users to embark on an alluring expedition, immersing themselves in the diverse and captivating cultural tapestry**

Keywords*— *cultural heritage, traditional dance, inang, augmented reality

I. INTRODUCTION

Natural The traditional dances performed in Malaysia, which reflect the different ethnic makeup of the nation of 35 million people, are one example of the multiculturalism that makes Malaysia famous around the world.. According to [1], the current promotional materials like pamphlets and posters, which aim to showcase heritage history, fail to capture the attention and interest of the younger generation, thus leading them to be less knowledgeable and concerned about preserving their heritage. If visual communication is used and implemented properly, it will offer numerous advantages from a wide range of perspectives. Based on the preliminary conducted, Poor engagement in learning Malay traditional dance among the younger generation. Lack of practice in Malay traditional dance among younger generations. According to Gonzales [2], a recognized expert in the choreography and interpretation of traditional dances in Malaysia, over time and due to urbanization, traditional dances are losing popularity and relevance among young Malaysians. Their fascination has shifted towards K-Pop and other trendy genres, leading to a decline in the practice and appreciation of traditional dances.

II. OBJECTIVES

There are three key objectives achieved in this project:

i To design a storyboard of an augmented reality-based learning

ii To develop an augmented reality-based learning application about Inang dance for the youth.

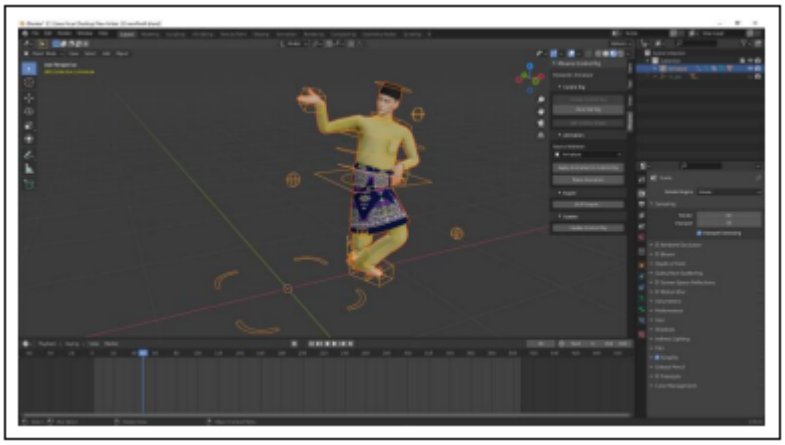
iii To evaluate the engagement of the augmented reality-based learning application about Inang dance for the youth.

The significance of this project is it might help in preserving the culture and heritage of Malay traditional dance among younger generations, especially students. Besides, it encourages the users in exploring more and take part in the performing arts in the future.

III. METHODS

In order to complete this prototype, ADDIE model has been selected as the framework for this research.. The acronym "ADDIE" represents the sequential steps of Analyze, Design, Develop, Implement, and Evaluate. GDLC encompasses the most comprehensive and effective methodology for game development projects. The ADDIE Model is an iterative instructional design method where the instructional designer may return to any earlier phase based on the findings of the formative evaluation of each step. This systematic approach of the ADDIE Model is highly valued by educators, instructional designers, and training developers due to its well-defined stages, which enable the creation of effective training tools [3]. As an instructional design model, ADDIE has gained widespread acceptance and widespread use.

The majority of assets in this application were crafted using Canva. Notably, the assets for each interface are designed with this software. Canva's capabilities made it effortless to create artwork, illustrations, and backgrounds for the application After the assets have been created, they will be downloaded and imported to Unity software for further implementation. After that, 3D model of the character and the animation of the dance moves were made using Blender software. Blender software is a very powerful platform and helpful in creating the 3D character and objects of this application. The rigging of the 3D character can be made thanks to Mixamo supported feature in Blender. As the Mixamo rigging feature has been applied, it helps a lot in animating the 3D character realistically. Figure 1 shows Blender 3D Animation.



IV. RESULTS AND FINDINGS

To fulfil the third objective of this project, a comprehensive evaluation of user engagement was carried out. Measuring user engagement is a subjective matter, and to assess it, a specially designed questionnaire inspired by the User Engagement Scale (UES) model was used. After users experienced the application, they were given a questionnaire to provide feedback. The evaluation focused on 6 aspects: aesthetics, novelty, perceived usability, focused attention, felt involvement and endurability. This approach aimed to gauge the level of user engagement and satisfaction with the augmented reality-based learning application experience.

Aspect	Percentage of Mean (%)
Aesthetics	87.67
Novelty	83.6
Perceived Usability	44.8
Focused Attention	66.87
Felt Involvement	83.27
Endurability	70.07
Percentage of Overall Mean	72.71

Aspect	Code	Question	Mean	Mean Percentage (%)
Aesthetics	AE1	This application was aesthetically appealing	4.49	89.8
	AE2	I like the graphics and images used on this application	4.4	88
	AE3	The screen layout of this application was visually pleasing	4.26	85.2
Novelty	NO1	I continued to explore out of curiosity	4.17	83.4
	NO2	The content of the application incited my curiosity	4.26	85.2
	NO3	I felt interested in the application	4.11	82.2
Perceived Usability	PU1	I found this application confusing to use	1.97	39.4
	PU2	This experience was demanding	2.52	50.4
	PU3	I could not do some of the things I needed to do in this application	2.23	44.6
Focused Attention	FA1	I lost track of the world around me while using the application	3.54	70.8
	FA2	I blocked out things around me when I was using this application	3.49	69.8
	FA3	I lost track of time while using the application	3	60
Felt Involvement	FI1	I was really drawn into finding out the content	4.37	87.4
	FI2	I was so involved in the application	3.66	73.2
	FI3	This experience was fun	4.46	89.2
Endurability	EN1	Using this application was worthwhile	4.17	83.4
	EN2	Using this application did not work out the way I planned	1.97	39.4
	EN3	I consider my experience a success and rewarding	4.37	87.4

V. CONCLUSIONS

In conclusion, the overall objective of the project is to design a storyboard of an augmented reality-based learning application about the Inang dance for the youth, to develop an augmented reality-based learning application aboutInang dance for the youth and to evaluate the engagement of the augmented reality-based learning application about Inang dance for the youth appears that the desired objectives have been accomplished. by the ARTventure: Learning Malay Traditional Dance Through Augmented Reality project. The results and analysis of the engagement testing demonstrate a favorable outcome, with an overall percentage of 72.71%. While certain project limitations have been identified, they can serve as valuable examples and references for future application improvements.

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