



**Program Book**

# IC2IE 2023

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OF COMPUTER AND INFORMATICS ENGINEERING**

**“AI Trust, Risk and Security  
Management (AI TRiSM)”**

**14-15 September 2023  
Aruna Senggigi, Lombok**

# PROCEEDINGS

2023 6<sup>th</sup> International Conference on Computer and  
Informatics Engineering (IC2IE)

**“AI Trust, Risk and Security Management (AI Trism)”**

14 – 15 September 2023  
Aruna Senggigi Lombok, Indonesia

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# Development of an Educational Game Visual Novel Introduction to Traditional Dance Based on Android: Case Study of Typical Dance of Lombok Island

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**Abstract**—This research aims to produce a practical Visual Novel Game learning media. This research is development research with the Multimedia Development Life Cycle (MDLC) method, including 4 stages, namely concept, design, material collection, manufacture, testing, and distribution. The subjects in this study were elementary school students, dance teachers, and songwriters with a purposive sampling technique. The data collection instrument was a questionnaire sheet. The analysis technique uses quantitative descriptive statistics and percentages. The results of testing the functionality of the application from black box testing show the results of the Visual Novel Game learning media are appropriate. The last test on the black box using the User Acceptance Test (UAT) shows the user satisfaction with Visual Novel Game learning media with very good results. The application feasibility results show very good with a percentage of 87.76% and the usability of the application shows very good with a percentage of 90.03%. The visual novel educational game adds insight into the typical dances of Lombok Island with a score of 92%, helps students understand the meaning of the Beriuk Tinjal dance with a score of 92%, and makes learning easy and fun with a score of 92%.

**Keywords**—educational game, visual novel, traditional dance, android

## I. INTRODUCTION

The development of technology has greatly increased over time so that the utilization of technology affects life including in education. One integration of technology is to produce visual novel game media in education to make learning interesting and interactive [1]–[3]. Visual novels are media that emphasize narrative in the game genre that focuses on interesting stories and strong characters. The storyline in visual novels follows the storyline by selecting the available icons [4]–[6].

Visual novel game as one of the creative and interactive learning media by combining game elements and narrative stories [7]. The active role taken by the player in the game affects the development of the plot and the ending of the story in making important decisions of the storyline [8]. An engaging narrative style through aesthetically pleasing visual images can make visual novel games attractive to users in improving their critical thinking, analysis, and problem-solving skills [9]. Visual novel games can improve reading skills and enrich vocabulary because users must understand

text and dialog to make the right decisions [10], [11]. This game alternative can increase learning motivation and provide an engaging learning experience for game users [12]–[14].

Visual novel game on the Android platform have had a significant impact on technological development [15]–[19]. Android is becoming a major platform with the increasing popularity of smartphones and the availability of apps in the Google Play Store for developers to release visual novels [20]–[28]. Opportunity for developers to reach a wider audience through the platform by leveraging millions of Android smartphone users around the world [29]–[34].

Android-based development through visual novel games with offers various advantages and opportunities for developers [35]–[40]. Android as an open-access platform with greater flexibility in terms of application development and distribution. Developers of media over the android platform in visual novels use developer tools such as Android Studios that test the application by using the emulator provided [35]–[41].

Relevance of visual novel game research that has been conducted on the topic of mathematics education [42], [43], biology education [44], early childhood education [45], [46], leadership education [47], oral hygiene among teens [48], literature and history [49], [50]. Previous findings show that visual novel games have been used in learning. However, there has been no research on the development of visual novel games on the introduction of typical dance of the island of Lombok.

Several other studies have developed visual novel games, such as those conducted by Kuo-Wei Kyle Lai & Hao-Jan Howard Chen [51] regarding visual games in a comparative study of the effect of VR and PC visual novel games on vocabulary learning. Furthermore, research conducted by Deli [52] regarding visual novel games in the analysis of user interfaces in English learning media with the heuristic testing method of 10 usability criteria. Then research was conducted by Jabali et al [53] on ethnomatic-based visual novel games to improve conceptual understanding of algebraic material using the ADDIE development method. Another study conducted by Angraini et al [54] regarding visual games was to review the application of HOTS-based math game learning media. In contrast to the research above, this

research develops and determines the effectiveness of traditional Sasak Lombok dance visual novel games using the MDLC development method.

This study aims to develop a feasible visual novel game learning media on the introduction of dance typical of the island of Lombok based on android. The material displayed in the game is a dance from Lombok which is focused more deeply on the Beriuk Tinjal Dance because this dance has a meaning of gratitude, values of togetherness and the joy of the people of Lombok for the success in harvesting abundant rice.

Interactivity is an important point in the development of this video game because for elementary school children there is a combination of static and dynamic images, audio and storytelling so that each character has a sound effect so that each character in the visual novel seems alive and can speak [55], then wrapped and can be played at any time on handheld devices such as mobile phones will be more practical.

In this visual novel game, two combined genres will be applied, namely adventure and puzzle with challenging mechanisms to play with the aim that players are not bored to play this video game, and there are other mechanisms that are applied such as rewards and punishments, when the player successfully completes a certain challenge, not forgetting also for easier access and distribution, the availability of this application on digital media distribution platforms such as Google Play Store, will facilitate security, validation and access to this video game.

## II. METHOD

This research is development research using the Multimedia Development Life Cycle (MDLC) method [56]. The development procedure includes concept, design, material collection, manufacture, testing, and distribution stages. The subjects in this study were elementary school students, dance teachers, and songwriters. Sampling using purposive sampling technique. The data collection instrument used a questionnaire on Visual Novel Game learning media. Data analysis techniques in this research and development are quantitative descriptive statistical analysis techniques and percentages. The development steps with the MDLC method can be seen in Fig. 1.

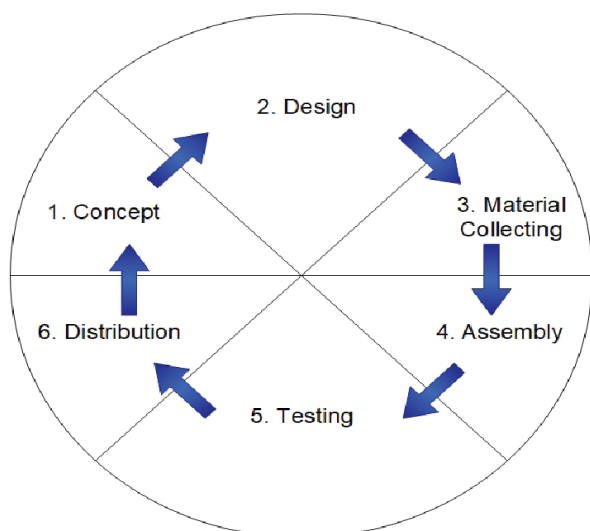


Fig. 1. Steps of the multimedia development life cycle (MDLC)

## III. RESULT AND DISCUSSION

The result of the research is a visual novel educational game on typical Lombok dances. The main page in Fig. 2 of the visual novel educational game media contains the title, start button, about button, save button, gallery button, and exit button. The start menu page contains the learn button and the play button can be seen in Fig. 3. The material about the typical traditional dance of the Sasak Lombok tribe can be seen in Fig. 3, Fig. 4, and Fig. 5. Fig. 6 contains the quiz at level 1 and Fig. 7 contains the level 2 quiz.



Fig. 2. Home page



Fig. 3. Learning and play page



Fig. 4. Material page

The results of testing the feasibility of Visual Novel Game learning media using Whitebox and Blackbox methods. Testing was carried out by media experts, material experts of elementary school students. Based on the assessment aspects by material experts, all components contained in the Visual Novel Game learning media have fulfilled in terms of assessment aspects which include the correctness of the material content, free from conceptual

errors, the latest and up-to-date material, the coverage and depth of the material, the adequacy of the reference and the interest and motivation of students. The results show that there is a novelty and depth of material that increases student motivation which is very good in learning.



Fig. 5. Time Portal page



Fig. 6. Level 1 quiz game page



Fig. 7. Level 2 quiz game page

The aspect of assessment by media experts shows very good for media delivery strategies in accordance with student characteristics that can encourage students to think critically in problem solving and can increase contextuality with applications according to everyday life. Application functionality testing from black box testing shows the results of Visual Novel Game learning media are appropriate. The last test on the black box using the User Acceptance Test (UAT) has user satisfaction of Visual Novel Game learning media with very good results. The application feasibility results show very good with a percentage of 87.76% and the usability of the application shows very good with a

percentage of 90.03%. Based on the results of testing by experts, it shows that visual novel educational games deserve to be one of the teaching aids for teachers to convey teaching material, increase student creativity and increase student attention and interest in the learning process, so that students can absorb the material well. This is in line with the results of previous research which proves that the use of instructional media can help teachers save time when explaining subject matter, increase student interest in learning, focus student attention, clarify concepts explained by the teacher, as well as helping students to easily remember the subject matter taught in class [57]–[59].

The findings of this study show that this visual novel educational game can help students gain insight into the typical dances of the island of Lombok with a score of 92%. This finding is consistent with the results of previous research which stated the effectiveness of visual novel games as learning can introduce and promote the diversity of regional dances [60]–[62]. In addition, game users can feel the feel of an adventure in introducing various types of typical traditional dances [63], [64]. In addition, findings, the animated images and narration in the visual novel educational game help students understand the meaning of the *Beriuk Tinjal* dance with a score of 92%. This is in accordance with the results of previous research which stated that an interesting combination of narration and visual images of dance allows users to understand the cultural background, meaning, and values contained in each dance movement [65]. The aspect of ease of learning found that this visual novel educational game made learning easy and fun by 92%. This result is supported by previous research which states that combining fun and informative learning aspects can be created through visual novel games [66], [67].

#### IV. CONCLUSION

The visual novel educational game has been tested by media and material experts, with the result that it is feasible to use because it has fulfilled all aspects of the test. The results of the feasibility of the User Acceptance Test (UAT) measuring user satisfaction obtained several important findings. The application feasibility results show very good with a percentage of 87.76% and the usability of the application shows very good with a percentage of 90.03%. This visual novel educational game can help students gain insight into the typical Lombok Island dance with a score of 92%, the animated images and narration in the visual novel educational game help students understand the meaning of the *Beriuk Tinjal* dance with a score of 92%, and this visual novel educational game makes learning becomes easy and fun with a score of 92%.

The implication of the results of this study is that visual novel games can be an alternative learning media that can assist teachers in presenting interesting and fun learning, as well as making it easier for students to understand the material. For further research, it is necessary to conduct research that develops visual novel games for other local wisdoms.

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