



Mari Mengeja: Edisi Jawi

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ABSTRACT

Nowadays, current education system does include Jawi such as inj-QAF programmed and Pendidikan Islam subject in school. However, from the researches and survey conducted, it is found that Jawi education in Malaysia is still taught using traditional ways such as using flash card and textbook, that has less interactivity which causes student to have difficulty in maintaining their concentration. Learning Jawi in class is bound to limited time and learning Jawi words is cognitively complex due to the number of rules applied. The purpose of this project is to give an alternative learning material to those who are interested in learning Jawi by using game-based learning approach which implements game elements such as repetition, reward system and penalty in the gameplay. This project is built in mobile device which let people learn ubiquitously. This project uses Game Development Life Cycle (GDLC) model approach where it has six phases which are initiation, pre-production, production, testing, beta and release phase. Game Based Learning (GBL) model is used as the guide in developing the game concept to ensure that the game is developed in line with the learning Jawi intention despite it being a game. At the end of the project, the Game Based Learning application has been successfully developed. However, some future works have also been identified to further improve the game such as to add various avatars, adding multi-language function and making it available for multiplatform.

KEYWORDS: Jawi Learning, Game-based Learning, Game Based Learning Design Model, Game Development Life Cycle, Functionality Testing

1 INTRODUCTION

Mari Mengeja: Edisi Jawi is a mobile game-based learning application and can be used by for students who are recurrently learning Jawi in school or anyone who are interested to learn about Jawi language. Jawi scripts have been developing and standardized until the present day. From 29 alphabets, it has increased to 36 alphabets. Therefore, this application focus on spelling with

these 36 alphabets that had been standardized. The application consist of two sections which are learning part and assessment part. GCLC model is used in developing this project.

2 OBJECTIVE

The objectives of this project are to design a Jawi spelling game via game-based learning, to develop a mobile learning application of Jawi spelling game via game-based learning and to test the functionality of the Jawi spelling game via game-based learning application.

3 SIGNIFICANCE (S)

The significances of this project are to provides an alternative way in learning how to spell in Jawi language and to give a new approach for students who want to learn on how to spell Jawi words correctly. In addition, the application can also be used as a ubiquitous application and enable learning anywhere outside class at anyplace and anytime.

4 METHODOLOGY/TECHNIQUE

The methodology used to design this project is Game Development Life Cycle [GDLC]. GDLC offers a guide to the development process of the game that focuses on the production of high quality output. GDLC model is proposed to answer the three research questions which are what steps needed to develop a game, what are the quality criteria that must to be considered during each step and how to create a good quality game [1]. GDLC model consists of 6 development phases. Production cycle consists of Pre-production, Production, and Testing. The first phase is initiation, this phase required to create a rough concept of what kind of game that will be created. Pre-production is the first step in production cycle. In this phase, game design and the development of the game prototype are created. Production is the principal process which revolves around the creation of assets, creation of source codes and integration of both elements. Testing phase is conducted to test the game usability. The testing method is specific to each stage of the prototype, formal details testing and refinement is the method used in this testing phase. Beta is a phase to conduct an external tester called beta testing. Method used is same as in testing phase. When the game is finished and ready to be released to the user, this release phase will play a big part as the product launch, project documentation, knowledge sharing, and maintenance and game development schedule are involved in this phase. Table 1 shows the methodology activites.

Table 1 Summary of GDLC Model

[6] Phase	[7] Activities
[8] Initiation	<ul style="list-style-type: none"> • Generate idea and game concept • Draft rough concept of the game • Get information from journal, article, by passing questionnaire and by conducting an interview • Plan the game concept
[9] Pre-production phase	<ul style="list-style-type: none"> • Implement the GBL design model of the game. • Design the game storyboard, use case, navigational chart and proposed GUI
[10] Production phase	<ul style="list-style-type: none"> • Choose suitable programming language • Define hardware and software requirements
[11] Testing phase	<ul style="list-style-type: none"> • Functionality case is conducted based on the test case • Identify bugs and error
[12] Beta phase	<ul style="list-style-type: none"> • Game is tested by user • Feedback is recorded for further view • Survey is being conducted based on testing that had been done
[13] Release phase	<ul style="list-style-type: none"> • Release game to public

The game concept was created based on the framework of Game-Based Learning (GBL) Design Model. Game based learning (GBL) is a type of gameplay that defines learning outcomes. GBL is designed to achieve a balance between playing and teaching, and to enable players to use their knowledge and skills in the real play environment [2]. The core concept behind game-based learning is teaching through repetition, failure and the accomplishment of goals. Table 2 shows the GBL design model and its elements.

Table 2 Summary of GBL Model

[14] Elements	[15] Description
[16] Game goal	[17] To learn Jawi words and characters
[18] Game mechanism	[19] Adventure
[20] Interaction	[21] Button interactivity for different functions
[22] Freedom	[23] Limited freedom to run throughout the game bound by the obstacles and set of question
[24] Game fantasy	[25] To save a village from sinking
[26] Narrative	[27] Run and solve Jawi question to retrieve magic brick to save the village from sinking
[28] Sensation	[29] The 3D animation
[30] Game value	[31] Bricks accumulation throughout the game by answering the question
[32] Challenge	[33] Spell Jawi words and avoid obstacle
[34] Mystery	[35] Find the magic brick to save the village from sinking

5 RESULT

Functionality test is conducted to test the functionality of the application and to identify any bugs. To test the overall application, it can be done via playtesting simultaneously with functionality test [3]. To make the testing more specific, a test case is used in performing the functionality testing. Once the feature shows the expected result, the test case will be marked as 'pass', while the 'fail' case will be repaired and checked again until the 'pass' status is obtained. The test case for the functionality test consists of start and exit application, start game, new game, continue game, learning mode, selecting level, play game, view manual and view

setting. At the end of testing, the game functions as expected as all test cases achieve the pass status.

6 CONCLUSION

As a conclusion, the application of Mari Mengeja: Edisi Jawi is successfully developed based on the objective that has been stated. The application is able to deliver its content which is to learn spell Jawi words in a more interactive ways. The application has been evaluated based on functionality test with positive result. There are some limitation that can be improve in the future.

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