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ABSTRACTS BOOK

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NUMERICAL GAMIFICATION: "MARI MENGENAL NOMBOR" FOR PRESCHOOL CHILDREN

Muhammad Saifullah Khairudin, Samsiah Ahmad, Zalikha Zulkifli[*], Masurah Mohamad and Lily Marlia Abdul Latif

Faculty of Computer and Mathematical Science, Universiti Teknologi MARA, Perak Branch, Tapah Campus, MALAYSIA

[*]*E-mail: samsi260@uitm.edu.my*

ABSTRACT

Preschool education is important in learning experience in the world of education. In 21st century, preliminary education especially preschool are able to understand the numbering system as foundation for other mathematical operation. However, some of the children in preschool have difficulties understand the numbers when it involved addition and subtraction. Therefore, in this project had invent learning number in gamification approach technique in order to provide learning numbers among preschool much interesting, entertaining and effective rather than traditional or conventional approach. This game had been developed based on multimedia development life cycle with the adaptation of mechanic, dynamic and aesthetic framework. This numerical gamification has been developed in Malay language which known as "Mari Mengenal Nombor". This project focuses more on preschool children having learning experience through game that has been developed. Thus, this innovation has shown significantly improved among preschool children in learning numbers as adaptation of Digital of Education 5.0.

Keywords: numerical, gamifications, preschool children

1. INTRODUCTION

Mathematic is one of the important subjects in early childhood education that requires all pre-school children to take at the end of their early education before they attend to primary school. Mathematic in preschool number is divided into three types of syllabus which are number concept, time concept and operation. In number concept, it covers how to pronounce, count, and write numbers. In reality, many students unable to perform in mathematic as the learning scope of Mathematic is difficult which unable them to master it properly and thus makes the students to feel uninterested to learn. Therefore, students feel less interest in learning Mathematic because they prefer more subjects that require them to have excitement while learning. However, if the students do not master the Mathematical concept, it would affect their Mathematic at their primary level. This is because the number concept aspect is one of the key elements that need to be learned and mastered by a preschool children. Therefore, in this project, "MARI MENGENAL NOMBOR" introduced which has been developed in order to solve these problems. With this application, it can help the players to learn mathematic in effective ways using the game and helps players to understand more about number concept. It also can motivate students and helps them to pay attention and stay focused on the subject by making learning more fun. Not only just playing games but also can encourage students to learn from the mistakes.

2. METHOD: MDA Framework

In game development, a method used to evaluate games is the Mechanics-Dynamics-Aesthetics (MDA) framework. Through putting them down in to three elements, it establishes the usage of games: mechanics, dynamics and aesthetics. There is some element in mechanic which are badges, progress bar, virtual currency, and awards and the element that will be use are badges, reward, virtual currency and awards. Dynamic elements include things like strategy, behavior, and relationships between game entities. For this project, the element that will be use is behavior and it provide feedback to the student for each task they completed. This element will make increase their interest in playing the game application. The element in aesthetics are sensation, fantasy, narrative, challenge, fellowship, discovery, expression and submission and the element had been used is challenge and expression. For challenge, children will try to answer all the task that will be given while expression had allowed children will be stunned and excitement when playing the game application.

3. RESULT FINDINGS

After already get the data of the preliminary and post implementation findings. It shows that the performance of skill for the preschool children is increase. The diagram shows the effectiveness of the project is achieved.
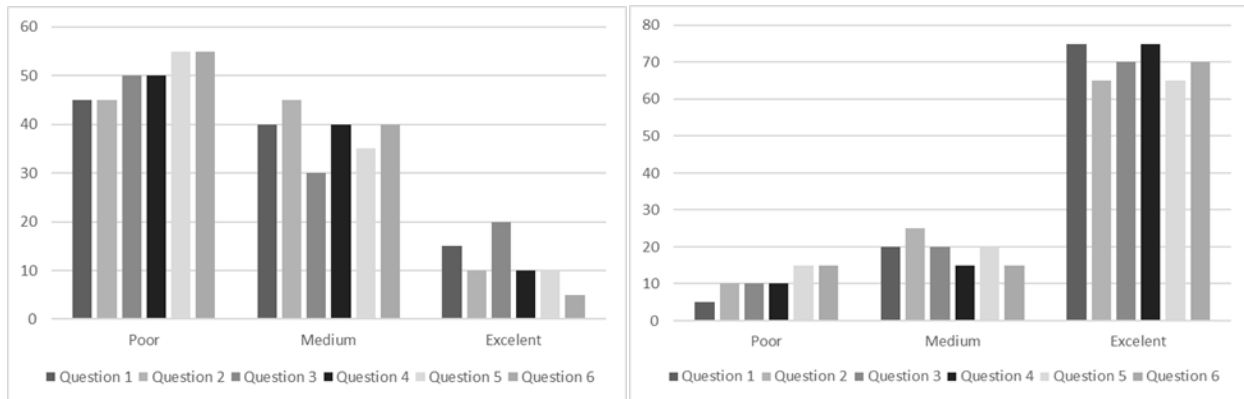
Figure 1. Performance before(left) and after(right) using the game application

4. CONCLUSION

"Mari Mengenal Nombor" which is 2D platformer game has been successfully designed and developed. During the game development, objectives of the project were emphasized which are to develop numerical education game using gamification technique and to evaluate the effectiveness of developed game among the preschool children.

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