

CONFERENCE PROCEEDING

Noni's Adventure Online Game

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Abstract

Subject of Mathematics is a compulsory subject that is offered to every student in Malaysia. Its syllabus teaches mathematic concepts, which inculcate students with understanding and skills mastery to solve practical problems. However, the difficulties associated with the concepts could easily demotivate the students, hence, to reinvigorate their enthusiasm in learning the subject, an interactive learning tool is required to increase students' interest and motivation in learning its concepts. In the era of Education 4.0, the development of gamification in other fields included education has risen. The usage of gamification in teaching and learning can be replaced by the conventional teaching method. Therefore, an online mathematics game has been developed for primary school students. The online game has been developed using Stencyl software. Stencyl is a video game development tool that allows users to create 2D video games for computers, mobile devices, and the web. Since the software is free, the teachers can use it as a tool for making online game project at school as project-based-learning.

Keywords: *mathematics, online game, primary, school*

INTRODUCTION

In the Education 4.0 era, the development of gamification in other areas, including education, has increased. It is possible to substitute the use of gamification in teaching and learning with the traditional teaching process. The survey was, therefore conducted to determine the issue facing the subject of mathematics for primary school students.

Educational games are games specifically designed for education. Many people recognise why this educational tool has become mainstream in terms of the psychological need and benefits of gaming. Games are also enjoyable and immersive games that can teach us objectives, rules and encouragement. Reading benefits are intrinsic to gaming, but a major factor is a preference. According to Steinkulher 's study, if students were given choices in their in-game reading, the impact was more powerful than the game alone.

Therefore, an online mathematics game was created for primary school students. The online game was created using software from Stencyl. Stencyl is a video game development platform for computers, mobile devices, and the internet that allows users to build 2D video games. Since the software is free, teachers can use it as a project-based learning tool for creating online game projects at school.

METHODOLOGY

An idea to create this game is derived when many students had a problem with learning Mathematics subject. Based on the statistic of students in Mathematics subject, that is not enough to achieve the Malaysian Ministry of Education's goal [1]. So, this project is started to identify the problem faced of Malaysian primary students with Mathematics subject by the survey. It will give clear data for this project. The data then, will be examined. Next, an online game of learning Mathematics is developed to help students to learn in an easier way and interactive learning. After that, the effectiveness of the game is determined to check it either it is effective and helpful for student's study Mathematics or not. Lastly, after the game had been satisfied and modified, it will be published on the Internet.

RESULTS AND DISCUSSION

Mathematics

In our daily life, mathematics is so significant. Students should, therefore, be given the ability to interact mathematically, reason mathematically, build self-confidence to solve problems with mathematics to achieve success in learning mathematics [2]. Mathematics is also an ability to think that further practise must be performed by learners. A good education in mathematics needs to change as technology changes [3].

Gamification

Gamification will assist us in learning, and there is a winning state at the end. The game has not taught us never to give up when we lose, but the game has taught us to think about new strategies for passing the level. A creative approach to promoting motivation is gamification [4].

Noni's Adventure is a game to stimulate the curiosity and awareness of primary students in mathematics subjects. This game is also attributed to Education 4.0. While students are playing the game, they can also increase their knowledge of mathematics, as students are still using gadgets today. Firstly, this game is classified for students between the ages of 10 and 12. Therefore, the questions given follows the Primary School Standard Curriculum (KSSR) Mathematics syllabus. There is a main character in this game, Noni, who must beat the clown to gain the score. She also needs to clear barriers and holes to avoid losing her existence. Players must complete the question before progressing to the next stage by answering the right question. If the player gets it wrong, the level must be repeated until the correct answer is answered. In this game, for Noni to reach school, there are five different levels. So, five questions are sent to the players and answered correctly. There is also a bonus round to help students raise their score while playing with peers, to make it more competitive. **Figure 1 shows some of the user interface of Noni's Adventure Online Game.**

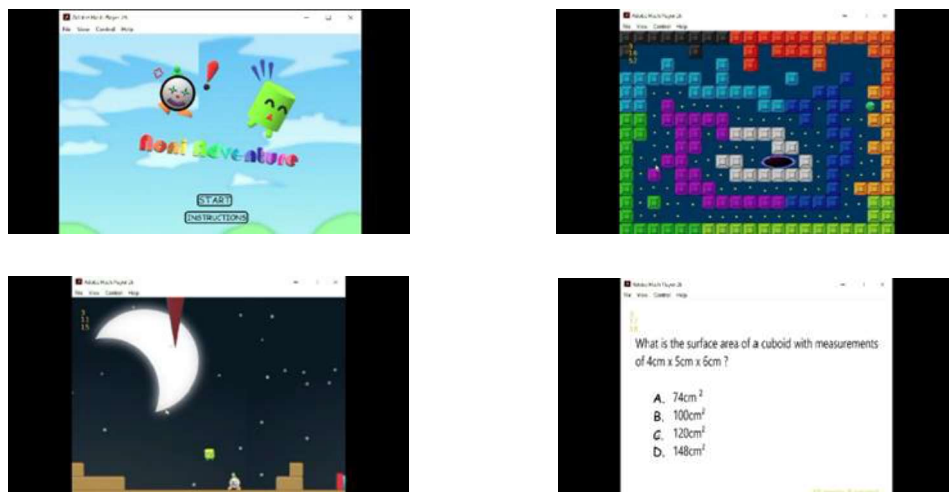


Figure 1. User interface of Noni's Adventure Online Game

CONCLUSION

The development of an online Mathematics game known as Noni' Adventure is developed for primary school students. It can be commercialized as an educational game for primary school student and produce individuals who are logical, critical, analytical, creative, and innovative.

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