UNIVERSITI TEKNOLOGI MARA

IMPLEMENTING GAME-BASED LEARNING FOR TEACHING IMMUNE SYSTEM MECHANISM WITH STRATEGY GENRE

NURUL ATIKAH BINTI ARIFFIN KAMAL

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ABSTRACT

The immune system, biology education, and game-based learning are all investigated in this study. The relevance of the immune system in infection defense is highlighted, as is the historical value of biology education in understanding living beings. With a focus on strategy games, game-based learning is suggested as an engaging and interactive technique. Traditional methods of learning, particularly in biology, lack engagement and rely on passive information communication. Without visualization, remembering scientific data, such as those about the immune system, can be difficult. This prevents students from obtaining thorough knowledge and effectively connecting concepts. Using a life cycle game development technique provides a systematic answer to the problems of traditional biology education. Game-Based Learning (GBL) can be effectively applied by following the phases of planning, designing, creating, testing, deploying, evaluating, and iterating. By producing a game prototype called Immune System, is assists student to educate and solves the lack of interactivity. Students can learn about the immune system in particular by using interactive features and graphic representations. The project's main result is was produced from System Usability Scale (SUS) questionnaire along with background questionnaire. The game manages to score 79.26 in SUS scale which landed on ‘Good’ phase. To conclude, the use of game-based learning education can assist other students in having more enjoyable ways of studying, which can increase their memory abilities and learning. Future work for the project is to improve the gameplay with animation and additional topic related with immune system.

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