

ABSTRACT

Treatment disparities in treating cognitive diseases are a complex problem that exists in low- and middle-income countries. However, high-income countries are also not free from this social problem. With only 20-50% of dementia patients in high-income countries recorded and identified in primary care. As the global population increases, the prevalence of cognitive diseases such as dementia also increases. WHO (World Health Organization) anticipates that by 2050 there will be twice as many old people. Therefore, early diagnosis and early intervention are important mechanisms by which treatment gaps can be closed.

Coming from that study and research, then this project using games for the elderly with the problem in cognitive function and observing about the impact that game gave to the elderly that playing games. For this project we used three games and two sensors for observing the cognitive on the elderly. The three games that we made are puzzle games with different gameplay mechanic, and they are Tetris Amazing, Flip Memory, and Solve IT. The games developed with Unity Engine as the game engine, and for the sensors we used two module sensors, Then the sensors we use are HR to observe heart rate, and EMG to observe changes in power or finger strength values in the elderly.

For this project we used nine respondents for playing the games. The method that we used for this project are the respondent would play the game for 30 days consistently, and we would take data with the sensors for five times, the first data we took in the first day before the elderly playing the games, and the second data we took when the elderly first time playing the games, the third data we took when the elderly played the games for 20 days, the fourth data we took when the elderly played games for 30 days, and the last data we took after the elderly not playing the game for 10 days after 30 days playing. In this project the author used nine respondents to play the game. The method we use in this project is that the respondent will play the game for 30 days continuously, and the writer will collect data five times, the first data we take on the first day where the respondent has not

played the game, then the second data is taken on the first day the respondent plays game, the third data was taken when the respondent played the game for 20 days, the fourth data was taken when the respondent had played the game for 30 days, and the fourth data was played after the respondent finished playing the game for 30 days, and did not play it again for 10 days. The results we got from our measurements were that 5 out of nine respondents showed some improvement in motor skills so they could adapt to modern gadgets, then only 2 out of nine respondents showed indications of anxiety from heart rate values that exceeded 90 BPM in two sessions, and for From the medical side, respondents were tested using the MMSE and the data obtained was that eight of the nine respondents showed an increase in scores, as well as improvements in cognitive abilities..

Keyword: Games, Sensors, Elderly, Cognitive, Monitoring