

Programming games prevents cognitive decline in elderly people

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The study in Brazil involved a control group and a third group of people who learned to play video games. Credit: Fabio Ota/ISGame

Information technology can be a powerful tool for preserving the cognitive functions of people over 60 years of age. This proposition was the basis of Fabio Ota's initiative to test the benefits of teaching game programming techniques to a group of 46 people over the age of 60, with the aim of fostering logical reasoning and preventing cognitive decline.

Ota conceived a digital inclusion project for the elderly in 2001. The idea of using game programming to stimulate cognition in [older people](#) began taking shape in 2014 when he established the International School of Game (ISGame), and began teaching [game development](#) to [young people](#). In 2015, he organized a course for 14 [people](#) over the age of 50.

In the [research project](#), subjects developed games using 2-D software that didn't require coding. "The challenge begins with planning of the various levels of the game," says Ota, CEO of ISGame. "It continues with development of the storyline and choosing the objects to be used in each game level until the end product is ready." This set of tasks requires both creativity and logical reasoning, he adds.

The study lasted nine months and was completed in February 2017. In addition to the group of older people charged with developing the game, the research project involved a control group (15 people) and a group of players (14 people) who learned to play video games.

The average age across all groups was 65. Most participants had a university degree, and there were no statistically significant differences in terms of family structure, health or financial status, among other criteria used to construct the sample population.

Several well-known tests measured and compared the performances of the three groups, including the Mini-Mental State Examination (MMSE), Trail Making Test (TMT) and Scenery Picture Memory Test (SPMT). The parameters evaluated included spatial and temporal orientation, immediate and evocation memory, language (naming), repetition, comprehension, writing and copy drawing.

"After the course, the group of game developers performed significantly better than the control and player groups," Ota says, referring to indicators of mental health, quality of life, cognition and functional capacity. Some participants recognized the improvement. In interviews with the researchers, they mentioned "better concentration," "more coordination," "improved memory," "mental agility," "creativity" and "sociability."

In fact, socialization was a secondary aim of the project. The idea was to provide an environment during the course that would encourage the group to take on ordinary everyday tasks and challenges and bolster their self-esteem. "At the end of the course, they invited their children and grandchildren to try out the games they had developed," Ota explains. "It was surprising to see grandparents teaching grandchildren how to go through the [game](#) levels."

"Having confirmed the effectiveness of the methodology, we're expanding the number of courses for older people. At present, we have 40 participants in Campinas and 40 in São Paulo. And, we're about to conclude an important partnership that will enable us to admit 250 more people."

Provided by FAPESP

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