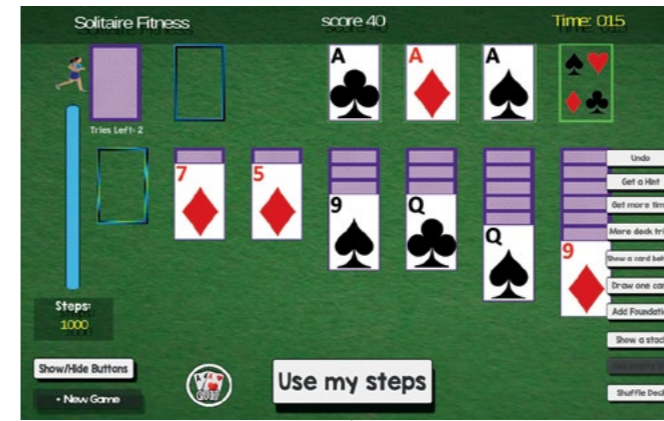




Seniors playing Solitaire Fitness Edition



A screenshot of the game Solitaire Fitness Edition



Some of the superpowers available in the game

Walking for superpowers

A new trial is exploring the use of technology to motivate seniors to exercise, writes SANDY CHEU.

The moment I reached 1,000 steps I knew I unlocked a powerful ability. The ability to skirt the rules in Solitaire. Only this isn't an ordinary version of Solitaire. It is Solitaire Fitness Edition, a modified version of the classic computer card game.

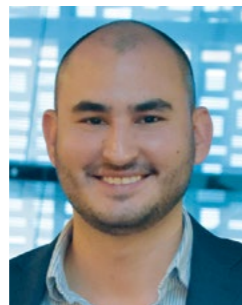
With the ability unlocked, I can now put any card as my first card on an empty space, whereas in traditional Solitaire, it has to be a King. And better yet, I can pick any empty space I want.

This is only one of the many superpowers I can use in the new exergame Solitaire Fitness Edition. Exergames combine exercise and video games. This one explores the concept where the game and exercise occur separately to encourage physical activity in seniors.

The game has been created by a team of developers and researchers at University of Technology Sydney's Games Studio.

Superpowers cost players between 50 and 1,000 steps. For example, getting a hint costs 50 steps and showing the next card in the stack is 150 steps. It costs 300 steps to undo a move while revealing all the cards in the stack sets a player back 400 steps.

The game allows seniors to workout at their own pace in their own time and play the



Jaime Garcia



Valerie Gay

game whenever they wish, says project co-chief investigator Dr Jaime Garcia.

"In this approach, we are trying to make exercise one of the game mechanics. If you go for a walk, we give you money and that money can be used in the game," Garcia tells *Australian Ageing Agenda*.

"If you want to play the game, you must exercise. If you don't walk, you can't play. If you walk a lot, you get a lot more money to play the game, which means you get more addicted to playing the game," says Garcia, a lecturer in game development at UTS.

Playing Solitaire also encourages cognitive activity, says Garcia.

Project Elaine (Elderly, Artificial Intelligence and New Experience), which commenced in March 2020, is trialling the exergame with 10 independently mobile seniors over six weeks.

Trial participants have been given a Fitbit activity tracker to record their steps and a tablet to play Solitaire. It is also possible to play the game on other mobile devices or computers, Garcia says.

In the first stage of the trial seniors record their steps and play the game without rewards. The rewards will be unlocked in the second stage, Garcia says.

"Having more steps will allow you to use more powers and make the game more interesting,"

Garcia says. "We want to try a new approach in the space for games for health and see if it is effective in getting people out of their house and exercising."

Fellow co-chief Associate Professor Valerie Gay says breaking it into two stages allows them to explore which aspects encourage seniors to engage in more exercise.

"We want to know if they walk more just because of the Fitbit, or because of the Fitbit plus the game," Gay tells AAA.

The data collected during the study includes participants' reported number of steps, how long and often they play the game, and the superpowers they use. The Fitbit is not monitored for privacy reasons and to minimise complexity, says Gay from UTS' School of Electrical and Data Engineering.

Participants are trusted to independently self-report their own steps into the game, she says. But they have to use any accumulated steps in the game within a week of taking them.

"If someone goes for a walk and they do 1,000 steps a day for seven days, they have 7,000 steps. But the week after, if they don't exercise at all, those steps will disappear," Garcia says.

This is to encourage seniors to keep walking and

exercising, says Garcia. "You can't accumulate steps forever." Project Elaine builds on Garcia's PhD, which explored the impact of a stepping game on reducing the risk of falls among seniors.

The game, StepKinnection, takes users on a journey to 32 different countries with each country corresponding to a different level of the game. Players have to step on items of fruit as they appear on the screen to collect them and advance through the levels. As the levels increase, players need to step more quickly to be able collect the fruit.

StepKinnection improved participants' reflex, quick-stepping and walking abilities, however, they didn't see the activity as exercise, says Garcia.

On the other hand, Solitaire Fitness Edition has a clear focus on exercise. Depending on the results, they will either improve the game or develop a new one following the same concept, he says.

Additional project members include game developers Natassja Sundara and Georgette Tabor and co-chief investigator Associate Professor Tuck Leong. ■


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