

Virtual world addresses problems of stroke-related communication condition

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Credit: City University London

A study from City, University of London has found that time spent in a virtual world called EVA Park can improve the communication skills of people with aphasia, a communication condition which results in loss of speech and difficulty with communication following a stroke.

The new findings from the study also show that EVA Park users frequently experience laughter and enjoyment, which may help to counter some of the negative emotions strongly associated with stroke, such as depression, which affects up to 60 per cent of people with the condition.

Designed with the support of people with [aphasia](#), EVA Park is a multi-user virtual world which features a variety of realistic, as well as

fantastical settings which provide a safe, pleasant and fun environment within which people with the condition can practice having conversations whilst also interacting with the world.

EVA experience

Exploring the emotional, social and conversational experiences of people with aphasia, in the study, which is published in *ACM Transactions on Accessible Computing*, participants engaged in many different types of conversations during an hour-long session that took place every day over a five-week period. These conversations were primarily with their support worker (a trained speech and language therapist) but also included others with aphasia.

The research analysed observation and interview data collected from 20 people with aphasia who participated in the study. Results revealed a strong association of EVA Park with fun and enjoyment, with numbers of instances of positive affect, as well as high ratings for enjoyment, remaining high over time. Comments from carers corroborated these findings, for example: 'I've noticed I hear a lot of laughter when he's online'. The sheer enjoyment of EVA Park might help to counter known problems with mood and depression.

It was also found that participants valued the relationships that developed with their support workers and other users very highly. This suggests that EVA Park could deliver different models of social rehabilitation, ranging from one-to-one interactions with a therapist or conversation partner to group interventions and possibly peer support. As people with aphasia are known to lose friends post-stroke, with reduced social networks and community integration, these results are particularly positive.

Impact of aphasia

Aphasia can have a significant impact on the lives of people following a stroke, and affects more than 350,000 people in the UK. With 30 per cent of people who survive a stroke affected, people with aphasia have difficulties with using language, and their ability to speak, comprehend speech, read and write may all be impacted. For some people, speech is impossible or limited to a few words, while others may have speech that is fluent but full of errors.

As a result, individuals face exclusion from language-dependent activities and this has implications for many aspects of their emotional and social well-being. People with aphasia report having diminished social networks after their stroke, with loss of friends being a particular problem. This can lead to depression. The condition also has implications for access to digital technology as this relies primarily on language-based communication.

Dr. Julia Galliers, Honorary Senior Visiting Fellow in the School of Mathematics, Computer Science and Engineering and lead author of the study, said:

"Our findings suggest that EVA Park is more than a therapy environment. It brings people together, offering a range of fun activities and conversational opportunities that support language practice, and in so doing, helps mitigate some of the negative emotional consequences of the condition."

"The results have implications for the future development of virtual technologies. "There is a whole community of people who are currently excluded from many digital experiences due to the emphasis on language-based interaction. Yet EVA Park has shown that an engaging multi-user virtual world can be accessible to people with aphasia, offering

enjoyment and social connection. The study also highlights the potential of a virtual setting for delivering clinical interventions to people with aphasia.

"EVA Park is not a game but it is an engaging virtual space, accessible to people with aphasia, that can potentially be used for a wide variety of activities, and as we have shown in the study, addresses some of the language – and possibly emotional – consequences of the condition which affects over 350,000 [people](#) in the UK."

Provided by City University London

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