Study explores how technology can help prompt positive memories for people with depression

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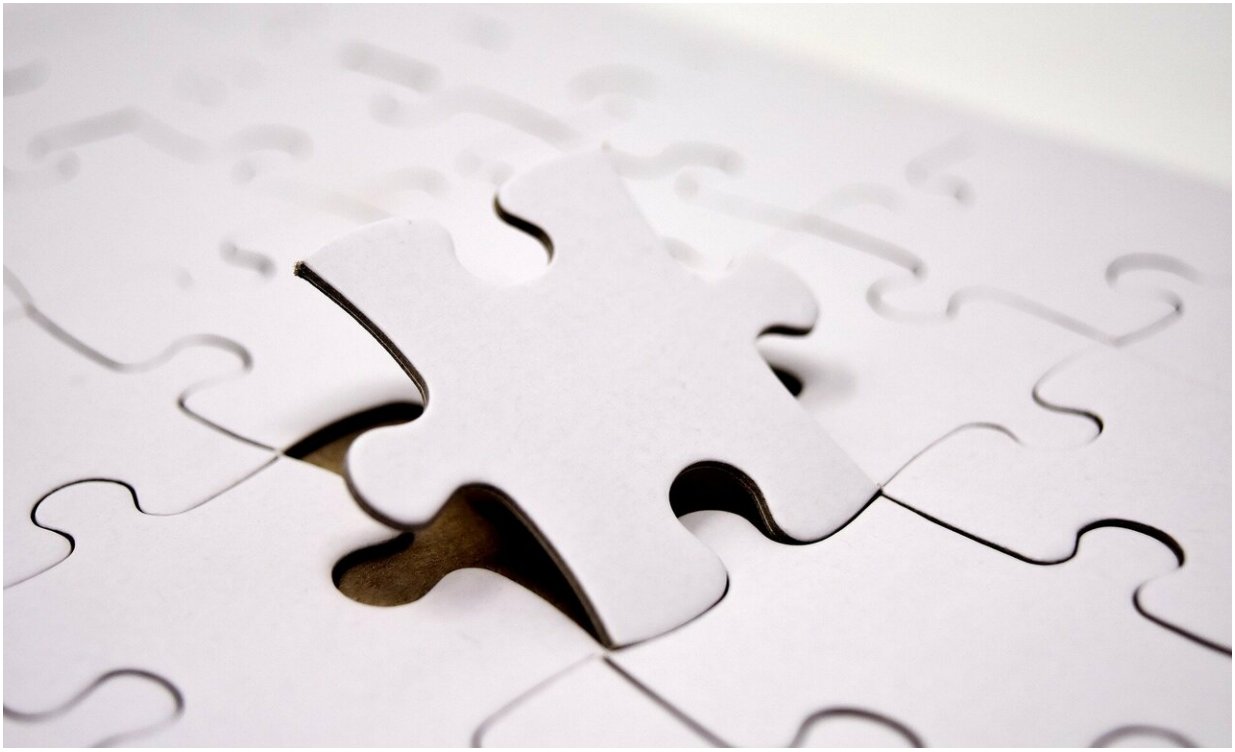

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Researchers have provided a crucial first step towards understanding how computing technology could be used to help people with depression remember happy memories.

Improving the recall of positive memories is a method used by clinical experts treating memory impairments of people with depression. This is, among other things, to help offset a bias towards negative thinking.

However, there are currently few technologies that have been designed specifically to support people experiencing memory impairments associated with depression.

A team of human-computer interaction researchers from Lancaster University and Trinity College Dublin, have through in-depth interviews with experts in neuropsychology and cognitive behavioural therapies, found that most existing technologies related to supporting memory impairments are focused on 'episodic' impairments, which are closely associated with conditions such as dementia.

The researchers explored three memory impairments in depression: negative bias, over-generalisation, and reduced positivity.

"Memory impairments in depression are fundamentally different," said Corina Sas, Professor of Digital Health at Lancaster university and one of the researchers on the project. "Their effect is not felt through the loss of episodic memories, but rather difficulties in retrieving these memories among memories of general events and periods within their lifetime.

"People living with depression not only benefit less from the types of cues usually explored in existing memory technology research, but such cues can also be counterproductive."

The researchers identified several areas of opportunity for where technology could help.

These include:

- The use of 'biosensors', which could help inform technologies as to the current mind-set of the user.
- Technology that can actively prompt users with positive memories to counteract negative thoughts.
- Positive memory banks, which help people actively capture positive memories often by anticipating and planning for positive events.
- Technologies that enable the active curation of positive memories.

"Novel technologies that can adapt the retrieval of positive memories to the current emotional state of the user will be important," said Professor Sas.

"We can imagine technologies that prompt people to identify and retrieve positive memories as counterexamples for when people are ruminating over negative thoughts. This can help support a more balanced perspective on life, and help increase the accessibility and value of positive memories."

The study aims to inform specialists working in the 'Human-Computer Interaction' field about the limitations of existing memory technologies and factors to consider when designing new technologies to help people with depression. "These methods could be integrated into a range of different mental health technologies," said Gavin Doherty, Associate Professor at Trinity College Dublin, and co-founder of SilverCloud Health—a health technology company.

The research, which is detailed in the paper 'Exploring and Designing for Memory Impairments in Depression', will be presented at the CHI2019 academic conference to be held in Glasgow in May. The work was supported by AffecTech: Personal Technologies for Affective Health, Marie Sklodowska-Curie Innovative Training Network funded by the

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