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## Tools for Memory Retention

Researcher creates online system for memory triggers

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By Marlene Cimon,  
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Dan Cosley has never spent much time thinking about his past. Yet he strongly believes that revisiting one's personal history is a good thing. So it's not surprising that Cosley, a specialist in information science, created an online system specifically designed to help people reminisce.

"We think of reminiscing as something old people do with their grandkids, looking at photo albums, sharing stories and passing on old experiences," says Cosley, assistant professor in the department of information science at Cornell University. "But everybody can use the past to think about who they are."

Cosley's research focus has long been in helping people make sense of and manage information, both individually and as groups. More recently, this has grown to include "leveraging people's current behaviors online, along with social science theory, to produce individual and social goods that otherwise would not have been created," he says.

"When you look at social media, like Facebook or Twitter, people are always putting content into it," he adds. "They like to share and express themselves. It's a way of creating impressions of themselves, and managing their identity."

To reconnect with his past, Cosley, who admits to having a very poor memory and a propensity for remembering only bad things, tried keeping a blog. He wrote it for 11 years, but rarely looked at it. So he began writing programs to remind him of earlier positive experiences, including a system that sends him text messages from his past, which he really liked receiving. The logical next step was to write a similar program for others who seek an effortless way to look back in time.

The result was "Pensieve," a Web site that helps people remember. Pensieve, for non-Harry Potter fans, comes from the fictional artifact that stores memories "and becomes a tool for looking back, and re-experiencing the memories," Cosley says. "You come to better understand the characters by looking at their memories."

The basic version is a Web site, first created in 2008, where users can sign up, create an account and "tell it that you have stuff on other sites, like Twitter, flickr, Picassa, so it can find content about your past," he says. "It asks you things, and sends you emails with generic prompts, or 'memory triggers,' including pictures you've posted on other sites, or questions: do you remember your senior prom? What was your first



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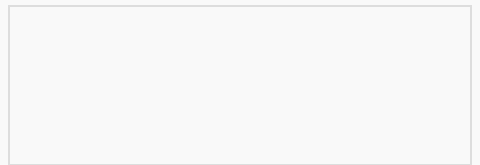
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People use Pensieve's reminders to work through past issues, maintain their relationships with others, and improve their mood overall. "People just feel better," he says. "We used interviews and questionnaires rather than psychology mood scales, but it's very consistent: when we ask people to think about the past using a tool that helps them do that, they find that it's really cool, and they feel good."

Because the Web site is a four year old research prototype, "it doesn't work so well anymore," he says. But it continues to inspire additional studies. Led by his student collaborators, S. Tejaswi Peesapati, Johnathon Schultz, Victoria Sosik and Hao-Chuan Wang, "we did some follow-up research about how culture might affect the way you remember the past, about using location software such as Google Maps to support reflection, and about how useful the stuff you put on Facebook would be down the road in reminiscing," he says.

Cosley is conducting his research under a National Science Foundation Faculty Early Career Development (CAREER) award, which he received in 2009 as part of NSF's American Recovery and Reinvestment Act. The award supports junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research within the context of the mission of their organization. He is receiving about \$500,000 over five years.

He, Sosik, and doctorate student Xuan Zhao also are looking at social experiences of reminiscing by examining how people use Facebook activity to think about their friendships and romantic relationships.

"What does what I put in Facebook tell me about my relationships? What do I not put in social media?" he says. "We talked to people, and asked them to keep a diary about their behaviors online," he says. "We asked people to write down what they decided to put-- and not put--on Facebook about their romantic partners, and what they thought about the stuff their romantic partners put on Facebook."

They found that people use these data in a number of ways. Older photos and messages often help people think about specific moments in their relationships, while looking at how the words they use change over time helps them see the bigger picture.

But parts of the picture are missing, he says. "We found that those with close relationships don't talk to each other on Facebook; they use other media, such as text messages. Mundane things often don't appear, and people tend not to talk about negative things online."

Cosley has concluded that researchers must keep in mind that material that never makes it online is also often important for understanding what is happening in social media. "We like to think that the data we see about people online is really important and revelatory, and that we can build useful models of what people are thinking, and patterns of behavior," he says. "But some of the important stuff never makes it into social media, and you have to think about why that is, and how that affects the data you work with and the conclusions you draw."

Interestingly, the idea of recalling the past now seems to have caught on with other social media. Facebook, for example, now encourages its members to use its new "timeline" feature on their personal pages, and tools like Momento and Timehop are like "better versions of Pensieve," Cosley says. "But Pensieve was the first demonstration application that we could take the past in social media and use it to help people understand

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themselves.

"A lot of people don't sit down to reflect and reminisce, and when they use tools that encourage them to do this, they seem to feel better about themselves," he adds. "Whether it's a momentary reflection that makes you feel good, or more end-of-life stuff, where you are coming to terms with who you are--almost all the outcomes of reminiscing are positive."

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