

What Did You Learn?

(And How Did You Learn It?)

BY / ASHLEY RABINOVITCH



YULIA SULLIVAN

Examining the role “executive functions” play in how we navigate new information systems



For some people, adopting a new technology feels like second nature. Whether it is converting from a PC to a Mac or mastering a new programming language, they find the learning process intuitive. Others find it draining and difficult.

“Learning new information systems (IS) has become an unavoidable part of our lives,” Yulia Sullivan, assistant professor of Information Systems and Business Analytics at the Hankamer School of Business, said. “As an IS instructor, I have observed many differences in how individuals respond to the new demands placed on their learning.”

In collaboration with Fred Davis of Texas Tech University and Chang Koh at the University of North Texas, Sullivan recently co-authored the article “Executive Functions and Information Systems Learning,” published in *MIS Quarterly*, which explains these differences using the concept of executive functions.

Sullivan describes executive functions as a set of core mental skills that include working memory, flexible thinking and focused attention. Existing research draws a clear line between executive functions and an individual’s ability to learn new IS systems, but she and her fellow researchers decided to dig deeper by examining the specific role of three dimensions of executive functions:

- 1 **Working memory:** the ability to continuously replace obsolete information with new information in the brain;
- 2 **Shifting:** toggling back and forth between different tasks; and
- 3 **Inhibition:** choosing to ignore irrelevant information or stimuli to focus on a task.

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In both online and offline settings, the researchers established a connection between all dimensions of executive functions and IS learning outcomes.

“This finding is significant in a world where most learning at work involves some sort of IS system,” Sullivan said. “We know that those with high executive functions can learn IS systems easily, but what about those with low executive functions?”

By becoming more aware of the link between executive functions and IS learning, companies can begin to adapt their training processes to the executive functions of individual employees. For example, a company may adjust its training modules to incorporate more memory aids or adjust settings in a way that minimizes interruptions. It may even develop games and exercises to improve executive functions as an integral part of IS learning.

“Ultimately, we aim to understand how people learn, not just what they learn,” Sullivan said. “In doing so, we can help them navigate the complex IS systems that define our modern world.”

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