

Regents Professor recognized as pioneer in educational technology

Danielle McNamara started in education as an ESL teacher and is now an international expert in cognitive and learning sciences

By Dolores Tropiano, ASU News
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Reading can transport people around the world — and back and forth in time.

That's what [Danielle McNamara](#) has helped tens of thousands of students do.

McNamara is the executive director and professor of the newly formed [Learning Engineering Institute](#). Her groundbreaking work in cognition, reading comprehension, writing and educational technology has earned her Arizona State University's highest faculty recognition — the distinction of Regents Professor for 2026.

"I was surprised — very surprised," said McNamara, director of the [Science of Learning and Educational Technology, or SoLET, Lab](#). "It's an amazing honor."

McNamara has spent the last 30 years pioneering technologies to support students who struggle with reading and writing — not students who don't know how to read, but those who have difficulty comprehending what they've read; and not students who can't write, but those who struggle to structure and organize their ideas.

Her work has focused primarily on students navigating the pathway from high school into college, but also extends from early readers learning to comprehend to college students learning to make sense of multiple sources of information.

"Students don't struggle to read and write because they are not intelligent," she said. "They often just don't have the background in reading and writing because of where they are from. And they don't have the knowledge to fill in the gaps."

"That's why they are struggling," she said. "And that's why we devised strategy training, where they learn how to use comprehension and writing strategies."

McNamara, a professor in ASU's [Department of Psychology](#), has developed 10 education-related technologies that have been used by researchers, educators and students alike.

Among them is Coh-Metrix, which she co-developed with Art Graesser. The system analyzes texts using more than 100 measures of words, syntax, semantics and text cohesion.

“These technologies are all grounded in theories and rigorous research on learning, cognition and motivation,” said Graesser, a professor in the Department of Psychology and the Institute for Intelligent Systems at the University of Memphis, Tennessee.

The road to becoming a Regents Professor

McNamara is an international expert in cognitive and learning sciences, comprehension, writing, natural language processing, intelligent tutoring and artificial intelligence in education.

She has authored six books on reading comprehension, discourse and writing.

Her path to research was not a direct one but rather a circuitous route where she picked up degrees in linguistics, clinical psychology and cognitive science.

“I always thought that I’d become a clinical psychologist, but I discovered I was not very good at it,” said McNamara, who was born in Kansas and is the daughter of two clinical psychologists. “I really started thinking deeply about the mind and how it works. That’s when I went into cognitive science.”

“My first career after getting my linguistics degree was in teaching English as a second language. This is when I first became interested in education, but I didn’t have formal training in educational sciences per se,” she said.

Her first two grants came from the McDonnell Foundation in 1993 and 1996. The program was called Cognitive Studies for Educational Practice.

“I would say my education on education happened there,” she said. “I was surrounded by young scholars like me and mentored by leaders in the application of cognitive science to educational practice. Across my career, I was constantly moving more and more toward the things I had been interested in from the start, helping learners learn.”

McNamara and her team have developed several intelligent tutoring systems, including iSTART and Writing Pal, to support reading comprehension and writing instruction. Research on these technologies has explored ways to improve student engagement through game-based practice, enhanced adaptability and real-world classroom use.

She has also led the development and testing of multiple natural language processing tools used in learning environments involving essay writing, reading comprehension, second-language learning and creativity.

[Annie Hale](#) says McNamara leads with curiosity, integrity and a relentless focus on evidence-based solutions.

“What stands out most is her ability to translate complex cognitive science into real educational innovations that educators and students can use,” said Hale, who worked with McNamara on various research collaborations and institutional initiatives. “I grow as a scholar every time I work

with Danielle on a project; she pushes my thinking and challenges me to connect theory, evidence and impact.

In 2023, McNamara established the Learning Engineering Institute, which brings together experts in learning sciences, computer science and instructional design to advance learning-focused research and development.

Learning engineering is an emerging field that integrates learning sciences, data science and technology to design, implement and assess effective learning experiences.

In 2024, McNamara received a \$3.5 million grant from the Institute of Education Sciences to explore AI-enabled learning experiences.

The project integrates transdisciplinary and cross-industry collaborations, aligning with ASU's charter and McNamara's approach to research.

"As a member of her team, Danielle is the definition of a Regents Professor," said [Tracy Arner](#), who has worked in the Learning Engineering Institute for five years. "I have witnessed firsthand her visionary leadership as the founding executive director, guiding a cross-enterprise institute dedicated to supporting student success largely through the design, development and evaluation of learning technologies leveraging the principles of learning engineering."

What's next?

McNamara is now focused on scaling technologies to enhance learning.

The goal is to apply the science of learning and artificial intelligence to improve the effectiveness of educational technology at scale.

"We want to leverage transformative learning technologies to provide flexible environments where students can learn and practice in any setting — even while commuting," she said. "And to harness the power of large language models to provide immediate, adaptive feedback across domains and contexts."

"My belief is that learning should be personalized to the learner, the context and their goals," McNamara said. "That's something that can happen in a small classroom or one-on-one — it's been done for thousands of years. But, it's not always possible at scale."

"That is the goal," she said. "To bring personalized learning to thousands of learners, at scale."

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Main image



2026 Regents Professor Danielle McNamara is an expert in cognition, reading comprehension, writing and educational technology. Photo by Armand Saavedra/Arizona State University