Researchers explore future of 'postdigital' textbook

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A team of ASU researchers has been awarded an NSF grant to study the "postdigital textbook."

An interdisciplinary team at Arizona State University has been awarded a grant from the National Science Foundation's Cyberlearning and Future Learning Technologies program to conduct research on the future of the textbook.

The project focuses on the "postdigital textbook," a new type of educational technology that combines personalized learning with

community-driven features that encourage collaboration and resource sharing, and emphasize learning as a social process.

"Digital textbooks are here, but they're boring," says Ruth Wylie, assistant director of the Center for Science and the Imagination and assistant research professor in the Mary Lou Fulton Teachers College. "This project is an opportunity to experiment with new models for what a textbook can be that will motivate and even inspire students and teachers."

The principal investigator on the project, titled "Towards Knowledge Curation and Community Building within a Postdigital Textbook," is Erin Walker, an assistant professor in the School of Computing, Informatics and Decision Systems Engineering, one of ASU's Ira A. Fulton Schools of Engineering. The co-investigators are Wylie and Ed Finn, director of the Center for Science and the Imagination and assistant professor in the School of Arts, Media and Engineering and the Department of English.

The project is funded as an Early-concept Grants for Exploratory Research (EAGER) grant, which supports exploratory work in its early stages on previously untested but potentially transformative high-impact research ideas.

"The postdigital textbook goes beyond just digitizing print books or replacing still images with videos," says Wylie. "Instead, it is a tool that helps students curate knowledge and build community with their classmates."

The project is part of an ongoing collaboration among Walker, Wylie and Finn that will eventually lead to the development of working prototypes of postdigital textbooks that can be tested in classroom environments.

The initial phase of the project involves surveying existing research and working with teachers and students to determine what particular behaviors, relationships and goals the postdigital textbook should facilitate to optimize learning.

"The traditional paper textbook is a technology that has been honed and refined over decades," says Walker. "It offers numerous helpful affordances, or student and teacher behaviors that the technology enables and encourages, like taking notes in the margins, highlighting words and phrases, using the index and table of contents to look up key concepts, and so forth.

"The challenge here is to develop a digital textbook that provides new, intuitive affordances without taking away any of the useful and time-tested features that we all take for granted when we use a physical book," she says.

Digital technology enables learning materials in digital textbooks to be precisely tailored to students' needs, interests and learning styles. The postdigital textbook embraces personalization but recognizes that textbooks are effective precisely because they are stable, shared resources that all students can refer to and discuss equally.

"This project is about determining how we need to design textbooks of the future so that they adjust to the strengths and limitations of individuals while also helping students build 21st century skills like working collaboratively in groups and curating and presenting multimedia resources," says Finn.

Provided by Arizona State University