

OpenStax developing textbooks that deliver personalized lessons

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Rice University-based publisher OpenStax is embarking on a \$9 million effort to develop free, digital textbooks capable of delivering personalized lessons to high school students.

Rice University-based nonprofit OpenStax, which has already provided free textbooks to hundreds of thousands of college students, today announced a \$9 million effort to develop free, digital textbooks capable of delivering personalized lessons to high school students.

OpenStax officials said the pioneering K-12 education project, which is

funded by a grant from the Laura and John Arnold Foundation (LJAF), will use the same kind of technology that Google, Amazon and Netflix rely upon to deliver personalized search, retail and entertainment choices.

OpenStax's latest project is unique in more than one respect. It marks the nonprofit's first venture in the K-12 educational space as well as its first effort to enhance books technologically to improve education outcomes in addition to educational access.

"We can improve outcomes in a number of ways," Baraniuk said. "We can help teachers and administrators by tapping into metrics that they already collect—like which kind of homework and test questions a student tends to get correct or incorrect—as well as things that only the book would notice—like which examples a student clicks on, how long she stays on a particular illustration or which sections she goes back to reread."

Baraniuk said the technology will pinpoint areas where [students](#) need more assistance, and it will react by delivering specific content to reinforce concepts in those areas. The personalized books will deliver tailored lessons that allow individual students to learn at their own pace. For fast learners, lessons might be streamlined and compact; for a struggling student, lessons might include supplemental material and additional learning exercises.

"The technology is already here, in the sense that most of us use it online every day," said Daniel Williamson, OpenStax managing director.

"However, the full potential of this technology has yet to be realized for education. The project will allow us to demonstrate that this technology is effective and can be used in the classroom to improve both students' and teachers' return on effort."

Williamson and Baraniuk said the two-year project calls for OpenStax to create proof-of-concept, fully personalized textbooks for Advanced Placement biology and [high school physics](#). Much of the educational content will be repurposed from two popular OpenStax College titles—Concepts of Biology and College Physics.

"This dynamic [technology](#) has the potential to dramatically improve teaching and learning," LJAF Director of Venture Development Kelli Rhee explained. "Teachers will have a powerful, new tool for customized instruction that will help students master subject material. Progress will be tracked in real time and can be monitored from any location, giving teachers, parents, administrators and students greater insight into academic performance."

Provided by Rice University

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