

Open Active Textbooks

Despite increased awareness of Open Education Resources (OER) and their considerable cost savings for students, adoption in U.S. higher education remains limited. Faculty surveys show that the barriers to adoption, in introductory courses, center on issues of access and availability, and the perceived quality and content of OER¹. In addition, reports show that employers are having difficulty recruiting due to a skills gap, which are both technical and *soft* in nature².

The Department of Education awarded \$2.5M to Arizona State University (ASU), for a three year period starting mid-2019, to develop Open Active Textbooks – increasing active learning with newly develop and curated existing OER, bringing superior pedagogy as demonstrated by learning sciences research – to save students money and improve their employability. This program represents a novel partnership between three of the largest community college systems in the U.S. (Ivy Tech Community College, Maricopa Community Colleges, Miami Dade College), enrolling almost 400,000 students a year and an existing and growing consortium of colleges: the Inspark Teaching Network. The project is led by the Center for Education Through eXploration (ETX) at ASU, which has pioneered innovative active learning.

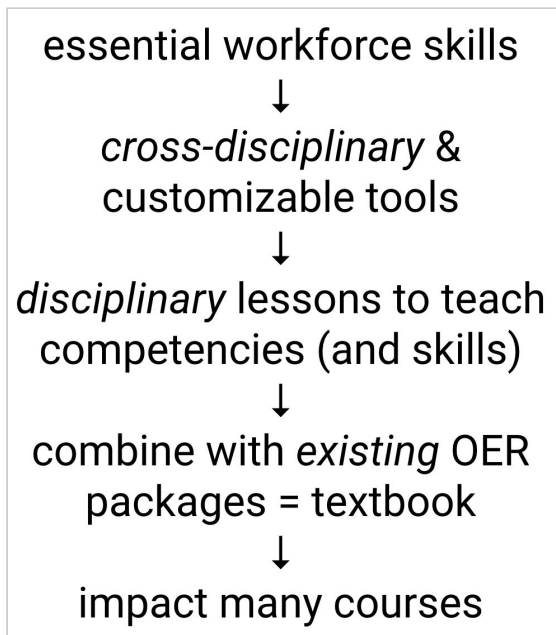
Open Active Textbooks leverages a prior \$4.5M investment by the Bill and Melinda Gates Foundation, kickstarting Inspark, from which the planned work derives. As a digital community of over 60 colleges and universities, Inspark has reached over 60,000 students in a four year period with low-cost state-of-the-art interactive and adaptive STEM textbook-replacement courseware. In addition, this program will enhance and draw expertise from the highly successful Maricopa Millions OER project, which has saved students over \$18M in the last five years. This successful design heritage ensures a path to maximizing student cost savings while improving learning outcomes.

The curricular lodestar of the program is the need to better prepare students for the workforce. To that end, our development efforts focus on creation of a suite of new OER

¹ Seaman and Seaman, 2017, <https://www.onlinelearningsurvey.com/reports/openingthetextbook2017.pdf>

² The Skills Gap 2019, <https://www.shrm.org/hr-today/trends-and-forecasting/research-and-surveys/Pages/Skills-Gap-2019.aspx>

interactive digital tools that enhance the mastery of essential workforce skills that cut across disciplinary content areas. The skills include written and oral communication, reasoning with data, computer and digital literacy, etc. The specific skills are defined in consultation with a Workforce Advisory Board, along with the three partner colleges.



These new essential skills tools are highly customizable and are paired with disciplinary lessons and existing curated OER to be used as textbook replacements. High impact courses to target with existing curated OER have been chosen as the outcome of a Pathways Analysis, which examined curriculum gaps and opportunities, textbook costs, tools and technology, career pathways, and enrollment numbers. The tools and lessons can be used, and even adapted using an innovative courseware development platform, to reach an even larger number of courses and programs.

The Active OER developed as part of the program will follow an innovative model of digital learning design developed by ETX who have collaborated for nearly a decade with leading edtech platform companies to address the challenge of online active learning in STEM. The ETX Model blends interactive digital learning tools (such as simulations and virtual field trips), with intelligent tutoring systems and integrated assessment to promote active pedagogy. This model informed the development of the existing Inspark courseware. The new program brings this expertise to bear on essential workforce skills in associate degree pathways.

The combination of customizable OER teaching essential workforce skills, using a proven model of learning design, all delivered using an innovative courseware platform across a large-scale existing network of institutions, provides a powerful solution to the intertwined challenges of OER adoption. Open Active Textbooks will increase access and address the perceived quality of OER, while improving the employability of students in an ever-changing workforce.