

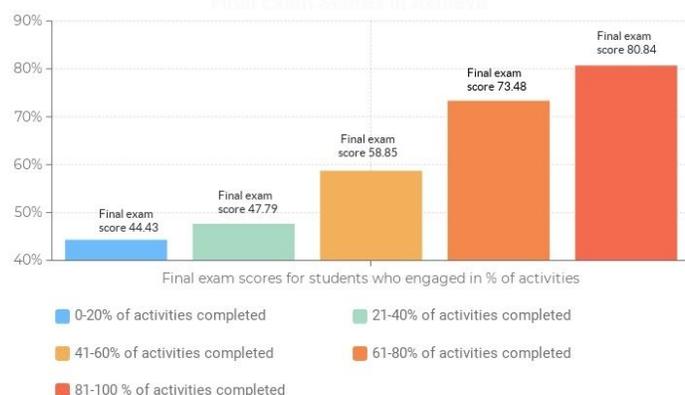
**Educational challenge:** Advances in the learning sciences combined with the fast evolution of powerful digital technologies and a more seamless user experience have the potential to transform higher education. There is a large body of research demonstrating that learning science principles such as self-regulation, formative assessment, and active learning support the development of lifelong learners (Bell & Kozlowski, 2008). Digital tools offer content, resources, and assessments that are personalized, adaptive, and relevant. (Cook et. al, 2013). Despite a host of digital learning tools available, there is a lack of rigorous and relevant evidence researching effectiveness which has led to false starts and frustrations of what to use and how to use it to best effect to improve student success.

**Solution:** [Achieve](#) is a digital learning solution developed by Macmillan Learning for higher-education courses that enables the facilitation of learning in the way that most enhances an instructor's class, whether it's traditional, online, blended, or a fully "flipped" classroom. Achieve was conceived around [six learning design principles](#):

1. **Develop Learner Motivation.** When students are highly motivated, they are able to tackle challenging problems and strive to accomplish goals that will improve their abilities.
2. **Provide Personalized and Adaptive Experiences.** Personalization and adaptation of instruction and assessment offers positive effects for all learners, no matter their culture, background, or level of motivation.
3. **Target Cognitive and Memory Elements.** To enhance learner cognition and transfer, we support learning objectives, which describe "the intended change in knowledge" and can enable a mastery approach which has positive impacts on conceptual learning, attitudes toward learning, and performance.
4. **Build on Well-Constructed Learning Models.** Being cognitively engaged stimulates learning that "sticks." Active learning (including project-and problem-based learning) leads to the growth of complex reasoning skills, critical-thinking processes, engagement, self directed learning, exam performance, motivation, and autonomy.
5. **Create Interactive and Constructive Opportunities.** The development of critical thinking skills and higher-order learning benefit from collaborative learning, and lead to intellectual development.
6. **Enable Metacognition and Self-Regulation.** These are critical for academic success.

**Learning impact outcomes:** Data were collected for a mixed-methods analysis. Students and instructors completed surveys at the beginning and end of the semester, instructors completed weekly implementation logs, and instructor interviews were conducted mid-semester. Product usage data were extracted from the Achieve platform on a weekly basis and at the end of study, and student course records (quiz, test, exam grades, attendance, etc.) were shared by instructors at the end of the semester. Data were matched across sources, and descriptive and empirical analyses were conducted.

Valid final exam score data were available for 1,703 students; scores ranged from 0.00 to 104.40 with an average score of 74.92 (SD = 20.12) When the correlation between student engagement in Achieve (calculated by the total number of assigned activities engaged in/total number of assigned activities) and student final exam scores were calculated — a significant correlation was found of .54 ( $p < .0001$ ).



Given that the inclusion of student level of engagement in Achieve emerged as significant, we can conclude that use of Achieve is predictive of academic performance in the student's course. Also, [the more assigned activities that a student engages in](#), the higher they can expect their final exam score to be, regardless of their level of academic preparedness coming into the course. For every ten percent increase in a student's engagement in assigned activities, they can [expect a 5.7 percentage point increase](#) on their final exam score.

**Return on investment:** The return on the investment of using Achieve is three-fold (1) it creates efficiencies for instructors in that our research shows that it saves them time preparing for and managing their courses and the data they are provided allows them to use their course time more effectively because they can target areas where there is a lack of comprehension; (2) it supports student success because our research shows it fills remedial gaps that less academically prepared students have and; (3) it creates economic efficiencies at the institution level by reducing D, F, W rates and therefore graduating more successful students more quickly.