



RESEARCH-BACKED STRATEGIES FOR IMPLEMENTING ACTIVE LEARNING FOR BETTER STUDENT ENGAGEMENT

Facilitated by Dr. Kara McWilliams

Active Learning: a set of techniques that involve student participation and engagement during class time in a way that enables *higher-order thinking* and *cognition*.

The Summary: We found in a meta-analysis of 225 studies based on rigorous criteria that active learning has a positive impact on student outcome, regardless of class size, course level, discipline, or which active learning technique is implemented. The outcomes measured were both cognitive (quantitative, i.e. exam scores), and non-cognitive (non-quantitative, i.e. a student's perception of themselves as good or bad learners).

So why don't all professors implement active learning? We discovered in our research that the blockers to implementing active learning techniques are time, capacity, and training. Our goal in the co-designing and development of Achieve was to directly address these blockers.

Co-Designing and Developing Achieve

Macmillan Learning began the process of developing Achieve by working with instructors and students to understand their semester journeys and where we could most help them. The research behind the design and structure of Achieve came from student focus groups, instructor reviews, and using research methods such as surveying, shadowing, observation, diary studies, and workshops.

Achieve was developed out of Macmillan Learning's legacy tools (such as iClicker, Sapling, and LaunchPad, to name a few), taking a few of their most effective pieces, in order to best facilitate the user's journey throughout class sessions and the semester. Each of these tools in Achieve was built on a learning-science foundation.

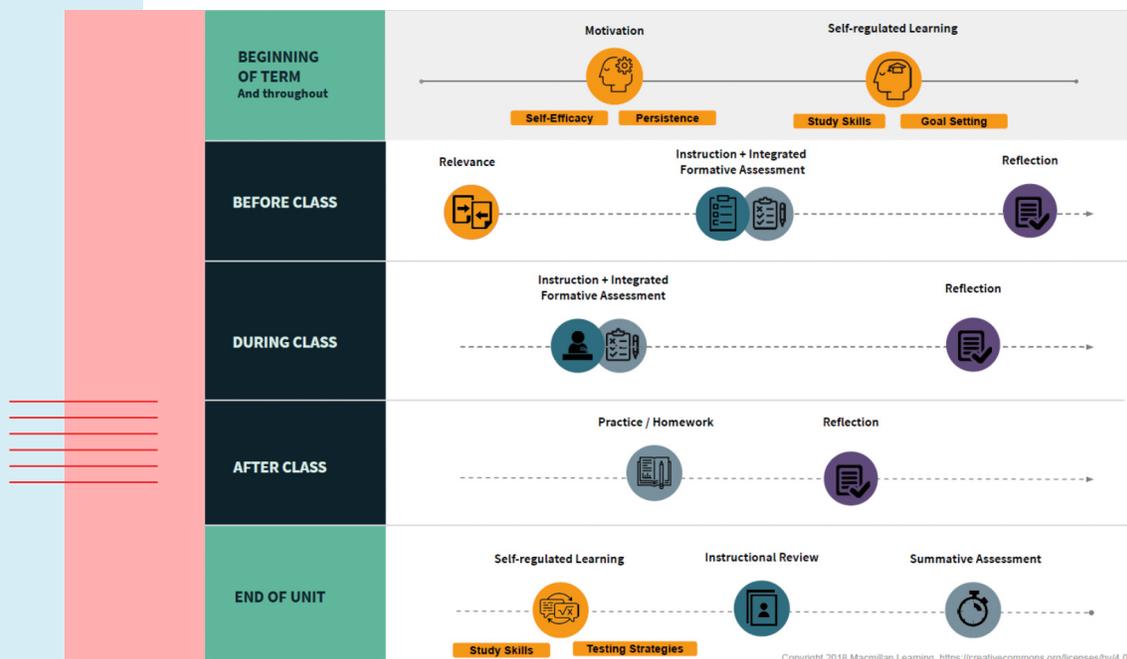
The Active Learning Model:

The Active Learning Model consists of four parts: the beginning of term, followed by a cycle that continues throughout the term with learning elements happening before, during, or after class. “Class” can be understood as face-to-face, online, or hybrid, and meet once or multiple times per week.

This model demonstrates where different teaching techniques should be implemented to get the most active learning experience for students. For example, motivation and self-regulated learning are most effective when implemented throughout the term, whereas relevance discussions are best held before class, and reflections are best at any point in the class session.

With the Active Learning Model in mind, Macmillan Learning began the process of developing Achieve through research-based and empirically validated strategies for all instructors.

Pre-Class Activities remove the time blocker to implementing active learning techniques by preparing students before class. Assigning students brief tutorials with associated reinforcement questions before class promotes reading, transference of core concepts, and prepares students to actively participate during the class period. This method does not change the pedagogical approach to class, and we found that pre-class activities were easily implemented by instructors of all comfort levels with active learning, and it frees up time for higher-order thinking during class time. Achieve also includes an analytics dashboard that students and instructors can view before class to see which concepts are being understood or not so that these areas can be addressed during class sessions.





Study: We found that instructors who implemented pre-class activities had better class engagement and had better final exam scores in the course, as well as a positive relationship between the level of engagement students had with pre-class activities and their individual end-of-year scores in the course.

Seamless **iClicker Integration** within Achieve removes the resource blocker for instructors who don't have the capacity to develop resources to use in-class or the time to manage student engagement activities. iClicker is a simple tool for effectively engaging students, and iClicker questions are developed by subject matter experts and included with every discipline in Achieve. We find that our instructors find these tools very easy to use and that they enhance teaching without adding time to preparation.

Study: In a study with eight instructors (four using iClicker, four not using iClicker), we found that the use of iClicker significantly increased end-of-course grades, regardless of which iClicker format was used, or level of academic preparedness and baseline level of motivation. Students who had used iClicker averaged end-of-course grades at 80.47, while students who did not use iClicker averaged end-of-course grades of 74.44.

In-Class Activity Guides remove the training blocker for instructors, since the guides, which integrate directly with iClicker and Achieve, offer step-by-step support on activities. These guides also offer suggested resources for pre-class activities and suggested after-class resources to reinforce learning. These guides offer a comprehensive active learning pedagogy, and the simple and clear instructions make them easy to implement by instructors both new and not new to active learning techniques.

Study: One study showed that three-quarters of our new instructors were okay with trying our new active learning strategies. We also found that 95% of instructors who used active learning in their courses found their students to be engaged or very engaged in a significant amount of their in-class meetings, as opposed to 65% of instructors who did not use active learning in their courses. In addition, 40% of our instructors found that using Achieve resulted in students being more engaged in their course.

Our research shows that students who believed they were more engaged with their courses had higher exam scores, whether their teachers were new to using active learning techniques or not. **In conclusion**, whether you are new to active learning or have used engagement techniques before, our research shows that Active Learning with iClicker and Achieve will benefit your students.

Edited by: Jacqueline Rosenbaum