

Promoting Student Success Using Supplemental Instruction

College instructors often plan coursework under the assumption that students possess reading, note-taking, and study skills. When the harsh reality of attrition manifests, we point to the lack of college readiness as the culprit. This problem is more evident in difficult college science classes. Studies show that attrition rates for Anatomy and Physiology students at community colleges nationally are close to 50 percent.* The fail rates for students who remain enrolled often approach 50 percent, as well. How do we bridge this achievement gap and find activities and resources that help our students become better learners?

Science educators agree that multiple approaches to learning are necessary to improve overall science achievement. This includes collaborative support involving communities of learners. Collaboration between students is an important part of their cognitive apprenticeship and prepares them to work within the scientific discipline, where collaboration is the key to advancement.

We turned to supplemental instruction (SI) to create an opportunity for collaboration among students. SI is a high-impact academic support program that offers regularly scheduled, out-of-class review sessions to all students enrolled in the designated course. In addition to the learning outcomes of the selected biology courses, SI was added to attain the following goals:

- (1) Improve learning and student success by discovering and practicing alternative ways of studying.
- (2) Improve student performances by facilitating active, collaborative learning with peers who have successfully mastered course material.
- (3) Increase retention of crucial material through practicing critical thinking augmented by developing metacognition.

One of the main distinctions of SI is that it targets the entire course and is available to all students, whereas regular tutoring is for individual students on particular assignments. Another benefit of SI is that students at all levels work together to improve their content understanding.

THE PROJECT

This project began in collaboration with faculty, the tutoring center, and administration to determine the logistics and best approaches. Faculty was tasked with identifying potential SI leaders. After those students agreed to participate, the tutoring manager provided training, covering topics such as learning theory and instructional strategies. SI leaders transformed from students to student facilitators.

SI leaders were required to attend all class sessions, take notes, read all assigned material, and conduct 50-minute sessions each week. In addition, they were required to meet with the course instructor weekly. SI leaders were compensated from the tutoring center budget at a rate comparable to work-study programs. Through the process of leading SI sessions and helping their peers, SI leaders also developed invaluable leadership skills, improved their own performance in academic courses, and honed critical-thinking skills.

SI sessions were offered directly after lectures and labs. They began on the first day of the semester, allowing SI student leaders to set the tone and begin building the learning community immediately. Students were able to compare notes, discuss misconceptions, develop organizational tools, integrate course content, and study course concepts collaboratively.

RESULTS

Our data showed that 58 percent of students who attended eight or more SI sessions earned a C or better in the course. Another four percent who attended one or two sessions also attained a C or better in the course, for a total of 63 percent success rate for SI attendees. A fail rate of 25 percent was recorded for students who did not attend any SI sessions alongside eight percent of students who attended three or four SI sessions. The fail rates for sections of Anatomy and Physiology not supported by SI ranged from 45-55 percent at Waubensee Community College.

Students who attended SI sessions said:

- "I absolutely loved SI. The materials were incredibly insightful and helped with my course knowledge and understanding."
- "Seeing the material again with guidance helped me figure out what I needed to study and gather a clearer understanding of the concepts for the lab exam."

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- “Our SI instructor was helpful and patient with us. Coming back to school as a nontraditional student was challenging for me. My SI instructor took time to show me different ways of learning and maintaining the information. Her pictures helped me visualize concepts during the exam.”

Gaps in fundamental scientific knowledge often lead students to fall behind in tough courses such as Anatomy and Physiology. They struggle to build new concepts when the basics feel out of reach. Bridging these gaps using collaborative study skills and interacting with trained SI leaders and members of their cohort group increases the probability of students successfully negotiating the course content. Many students reported that SI groups helped them delve into concepts taught in class, identify areas that needed to be strengthened, and work on study skills to master those concepts. SI leaders reported an increased interest in continuing their science education and exploring healthcare careers. SI allowed faculty to expand on course concepts because students were up to speed and engaged in the content. The time invested in SI was invaluable in light of its many rewards for faculty, SI leaders, and, most importantly, students.

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