

## JoVE Video Improves Student Performance: The Video Efficacy Study Results

joVE



TERC

## Study: Up to 100% increase in student performance in science classes after watching JoVE video

Students who watch a JoVE video demonstrating scientific concepts and methods before a laboratory class perform as much as **two times better** than students who only use traditional text handouts, according to a recent independent study.

The study was conducted by TERC, a non-profit education research organization based in Cambridge, Massachusetts, and involved 346 students at Clemson and DeSales Universities. The IRB-approved study's goal was to determine what impact watching a JoVE video ahead of their science laboratory classes had on the students' performance and confidence.

The results showed watching a video for as little as 5 minutes had a significant and lasting impact on the students: those who watched videos **scored as much as 100% higher** than students who didn't, and **65-95% of students** felt they understood the concepts better and were more confident after watching the video. In several cases, students who watched the video **performed better even after both groups conducted the lab**. The results became more pronounced as topics became more complex, showing just how valuable visualizing science through video is in education.

### Study Details

#### Methodology:

- Professors at both universities selected two JoVE Science Education videos that mapped well with a lab they taught in the Fall 2017 semester.
- Students were tested before start of study to measure confidence and previous knowledge in lab subject matter to create a baseline.
- During study, video group watched videos two times before class and read pre-lab handout, while control group only read the handout.
- Both groups were given tests before conducting the lab to measure comprehension of the concepts and techniques, and then tested again after the lab on the same questions.

#### Results:

At **DeSales University**, 94 students in four sections of a Pre-med Molecular Biology course participated in the study. Most were sophomores, and 25% were Biology majors. Each section was taught by the same



JoVE videos stand out for their brevity. The students' attention is short, and lab time is precious ...

The JoVE videos covered the most important parts of the lab, and left out the needless detail. It kept the students' attention, and it shows in their results.

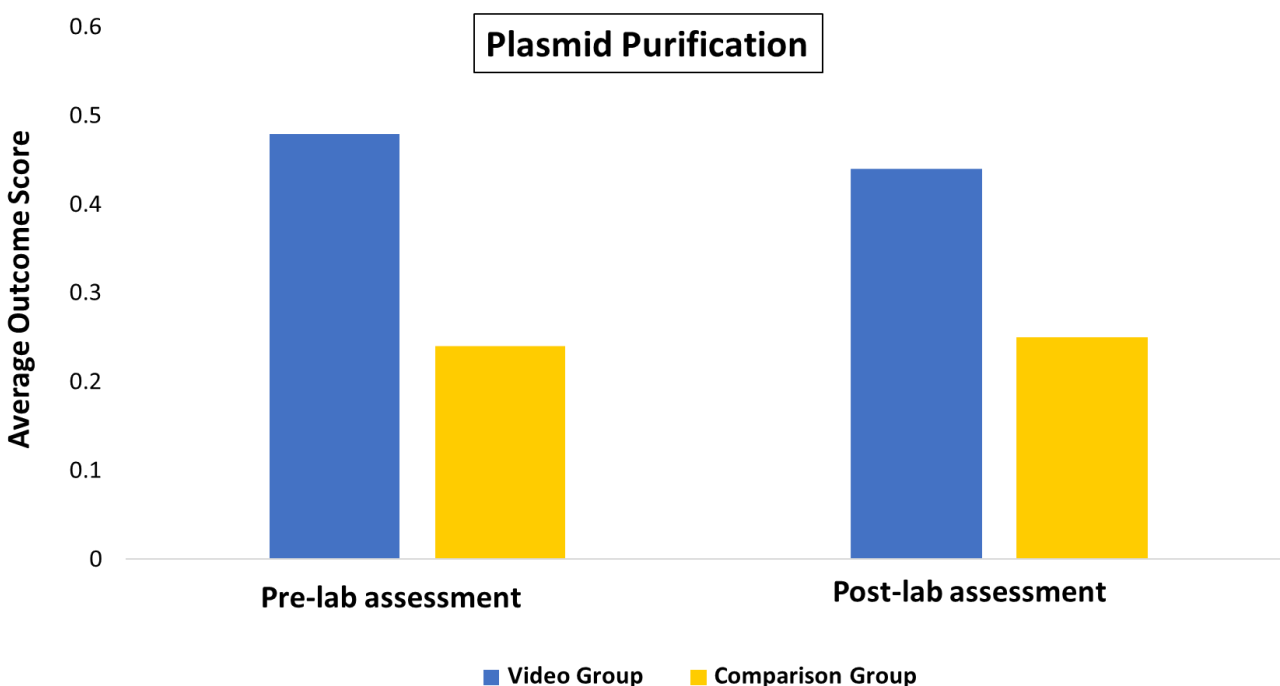


professor.

The study examined the effect of JoVE videos on student performance in two labs:

- **Plasmid purification:** Students watched the first 5:55 of this video ahead of class to prepare for a lab on DNA and Enzymes.

Performance: The video group scored 100% higher - performed twice as well - on the pre-lab test compared to the control group, and then 76% higher on the test after both groups had conducted the lab.

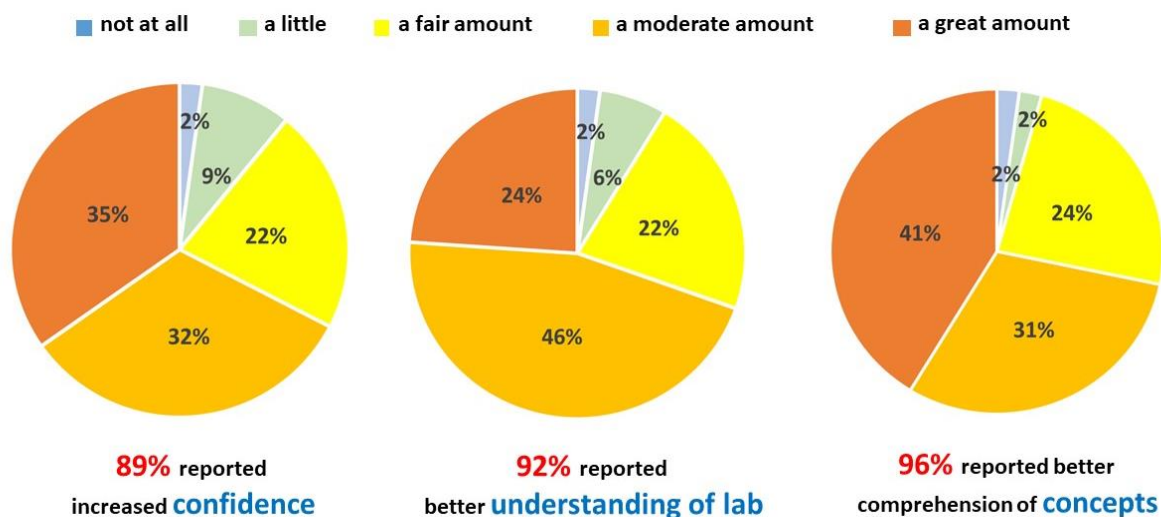


Confidence: 78% of students who watched the video felt more confident conducting the lab, 80% felt they understood the lab techniques better, and 85% felt the video had taught them key concepts about the topic.

- **Separating Protein with SDS Page:** Students watched the first 5:45 of this video ahead of class to prepare for a lab on GFP Protein Denaturation.

Performance: The video group scored 42% higher on the pre-lab test compared to the control group, and then 16% higher on the post-lab test after both groups had conducted the lab.

Confidence: 89% of students who watched the video felt more confident conducting the lab, 92% felt they understood the lab techniques better, and 96% felt the video had taught them key concepts.



SDS PAGE

At **Clemson University**, 252 students in an Intro to Biology course participated; none were science majors, and they ranged from freshmen to seniors. There were 14 course sections taught by four different teaching assistants and overseen by the same professor.

Please see the full study report, the **JoVE Video Efficacy Study Report** ([available here](#)) for the full description of the results obtained in the studies at DeSales and Clemson Universities.

## About JoVE

JoVE is the leading producer and publisher of video resources with the mission to increase productivity of research and education in science, medicine and engineering. Established in 2006, JoVE has produced more than 7,000 video articles demonstrating experiments filmed in laboratories at top research institutions and delivered online to millions of scientists, educators and students worldwide. More than 1,000 universities, colleges and biotech companies around the world subscribe to JoVE content. Please visit [www.jove.com](http://www.jove.com) to learn more.