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Active Learning Approach for Students in Precalculus and Calculus Classes

Aleksei Talonov
University of Nevada, Las vegas, alex.talonov@unlv.edu

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Active Learning Approach for Students in Precalculus and Calculus Classes,

Aleksei Talonov, PhD, Department of Mathematical Sciences

UNLV

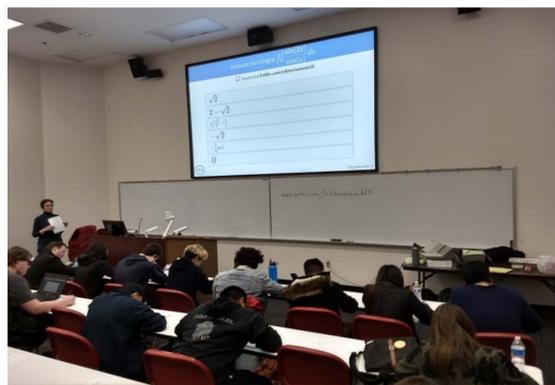## Best Teaching Practices Expo 2020

The practice and the need it addresses

Evidence this practice benefits UNLV Students

Resources and where to find them

How other UNLV teachers might adopt this practice

Teaching Practice and the needs it addresses

We would like to present practices of using Web-based audience response systems to enhance interactive learning activities in Mathematics classroom. We mostly concentrated our attention on PreCalculus classes which have had traditionally low success rates and retention. During the last couple of years, we developed a set of course specific materials in the form of lecture notes and in-class and out-of-class assignments. Each major assignment is accompanied by clear and coherent guidelines explaining what kind of skills will be attained by practicing this assignment, how it can be done, what amount of time can it reasonably take, when is it due, and where to get help. Speaking of technology, in our practice we use online homework systems (WebAssign or Willey Plus), video materials, and Web-based audience response systems.

Evidence it benefits students

Enhancing a class with technology helps students to be better engaged with the concepts covered, better communicate with the instructor and their peers, check their understanding of the concepts and quickly get a feedback.
As a result, more students are now able to pass these courses in their first attempt. Students indicated that they started to enjoy doing mathematics after they saw that they can succeed. The most important thing is the fact that student become more confident and motivated.

Precalculus II (A+B+C)/Total
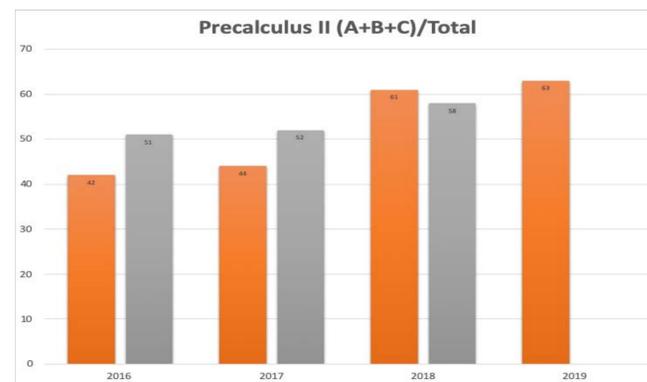
Survey Results. "If you have difficulties solving a math problem, what do you do?"

Spring 2019

Fall 2019
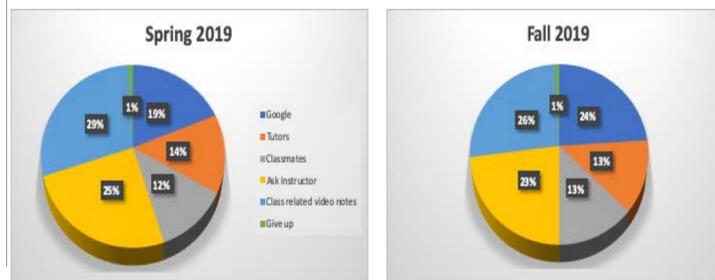
Feasibility, Resources and where to find them

Online homework system (WebAssign).
Active Learning (WebCampus)
Help Sessions before mid term exams.
The web-based audience response system (PollEverywhere)

PollEverywhere

Kahoot!

Socrative

Slido

Those web-based audience response systems let you embed interactive activities directly into your presentation. The audience responds on the web or via SMS texting on their phones.

How other instructors might adopt this practice

Our teaching practices are universal and can be easily implemented across the disciplines. The instructor can determine what will work better for the specific course.

References
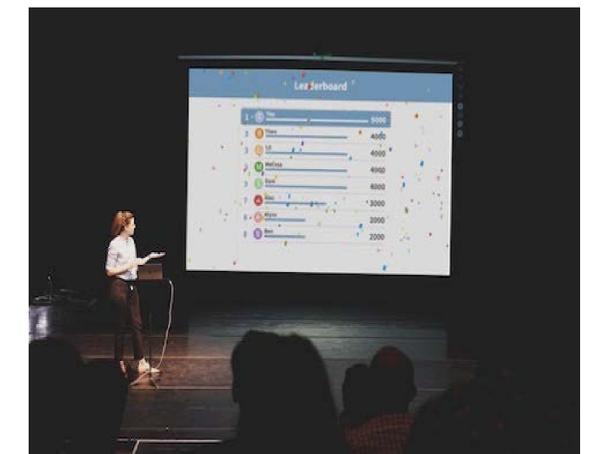
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2. Benjamin Braun. et al. (2014,2015) Active learning in Mathematics, Part I,II The challenge of defining active learning &) Levels of Cognitive Demand.
3. Katlyn Cox, Viktoria Savatorova, Aleksei Talonov. Development Strategies to Maximize Learning and Minimize Failure in Precalculus Classes. MAA Southern California-Nevada Fall Meeting, October, 2019.

UNLV University of Nevada, Las Vegas