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THE EFFECT OF ACTIVE LEARNING VIDEOS ON ORGANIC CHEMISTRY LEARNING

Joyce Su

Case Western Reserve University, USA

A challenge that many students face when learning organic chemistry involves balancing concept learning and concept application in problem-solving. Too often, students lean towards rote memorization and binge learning to learn organic chemistry without understanding the concepts behind them. This leads to lower retention of information and limited ability of the students to efficiently progress further in their organic chemistry education. In this project, we offer supplemental video resources as a tool for students to learn and apply organic chemistry one concept at a time. The videos differ from simple concept review in that they integrate active learning exercises. Video length generally ranges from three to ten minutes and follow a basic template of concept introduction, connection to previously learned topics, followed by a concept check where students are asked to pause the video and solve the displayed problem based off of previous and newly acquired knowledge. The videos continue the pattern of concept coverage followed by application exercises, allowing students to

interact with and use the concepts instead of passively absorbing material. After each problem, a short explanation is given where concept utilization is emphasized. The goal is to increase student knowledge retention and learning by supplying additional online resources that allow the student to actively engage in the material. Student participation in the study was selected on a voluntary basis from the Organic Chemistry II course. Participation involved watching a set number of videos per week as per course schedule, followed by an online survey. Short written assignments addressed students' conceptual and practical understanding from the videos. Small groups met periodically to discuss content progress and the effects of video utilization during the semester-long course, with discussion centered around the student's ability to connect concepts, as well as inquiry into the video's role in student learning.

JXS1209@case.edu