

Statistical Analysis of change of Student Exam Scores for Analytical Questions Vs Non-Analytical Questions Due to Change of Learning Platform During Covid-19 in Biochemistry CHM341

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Abstract

The consequences of Covid-19 have disproportionately impacted all the areas of life. Education is one of those areas that was dramatically affected by Covid-19, and will endure for years to come. Despite being known to be challenging, teaching and learning Biochemistry have been made even more difficult by sudden switch of learning platform from in-person learning to online learning due to Covid-19. The students in online classes displayed a disability of successfully reasoning their answers. Therefore, this study was carried out in order to understand how switching to remote learning affects students' ability to solve analytical problems. To isolate the effects due to learning modality, it is necessary to address issues such as differences in accessibility, technological literacy, and individual's stress level. To statistically analyze the effects, the students' scores from pre-Covid in-person course and post-Covid remote learning scores were compared in the academic years 2019, 2020, and 2021. Normalized data from six semesters was analyzed to find trends related to the shift in student performance. A set of particular analytical problems was chosen as research questions and included in routine exams. Normalizing the test scores to students' overall performance on mixed-problem exams eliminated the effects of all other factors affecting their performance. This study shows a significant impact on the analytical problem solving of biochemistry students due to sudden change of learning modality, despite the fact that various sources, including the Department of Education, State-wide and City-wide programs, Institution level support programs, eased this transition by providing additional resources and training.

Keywords: Analytical Problems; Biochemistry; Covid-19; Education; Learning Modality