A BIOCHEMISTRY LABORATORY COURSE DESIGNED TO ENHANCE STUDENTS AUTONOMY

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INTRODUCTION: Laboratory sessions are responsible for promoting instrumental skills desirable in biochemistry and biochemistry related careers. They are traditionally based on experimental protocols that lead to the expected results, and students usually have not autonomy to plan and execute their experiments.

GOALS: This work aimed to enhance a traditional biochemistry lab course, applying pre-lab quizzes on protein biochemistry and lab techniques in order to have students better prepared to plan, execute and interpret experiments. This approach also aims to bring the laboratory sessions into an inquiry-based environment capable to improve students' independent capabilities in 2 autonomy domains: learning and communication.

MATERIAL AND METHODS: Online quizzes are delivered one week before each laboratory session, containing questions regarding the experimental techniques and theoretical basis related to them. Laboratory activities are presented in an inquiry-based approach where the first class of each activity is dedicated to plan experiments in order to answer the research questions presented by instructors. Activities are also organized in order to enhance students' autonomy. The first activity is the simplest and more instructor-controlled and the last one is the most complex and less driven, transferring gradually to students the responsibility for their decisions in laboratory, supporting students' autonomy. **RESULTS:** Online quizzes allowed instructors to identify students' difficulties and to timely intervene. Scientific reports presented by students at the end of each activity showed that they performed better on less driven activities in which autonomy support were more complex than in the instructor controlled activities. **CONCLUSIONS:** Scientific reports analysis reveals students capabilities related to different scopes of autonomy, such as: discuss different strategies; find multiple solutions to solve problems; make their own experiment hypothesis and look for literature to support data found. Thus, this approach may have positively supported students' autonomy, encouraging them to think by themselves and to take decisions concerning their experiments.

ACKNOWLEDGEMENTS: We would like to thank São Paulo Research Foundation (FAPESP) for supporting this work.

KEYWORDS: autonomy, flipped classroom, biochemistry laboratory