

Learning to Learn Calculus: Equipping Students with Nonacademic and Behavioral Skills

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Every year, millions of students begin post-secondary education in the hopes of furthering their education. However, research shows that being college eligible is not the same as being college ready, and students struggle with the rigors of higher education. While it is typical to associate success in college with various acquired academic skills, there are numerous nonacademic factors that can determine whether a student will graduate (Capuno et al., 2019; Conley, 2008; Robbins et al., 2006; Tinto, 2017). To help students acclimate to college life and academics, universities and colleges have created student life skills (SLS) courses which focus on nonacademic skills and learning strategies. While research has shown that SLS courses provide some benefits to students, these courses often attend to general concepts and skills without considering their application. Therefore, researchers recommend combining SLS course content with discipline specific content for it to be more beneficial for students (Boaler et al., 2022; Cho & Karp, 2013; Reilly, 2014; Wingate, 2007).

One discipline that could highly benefit from incorporating SLS content into the curriculum is mathematics, as certain mathematics courses in higher education are considered gateway courses to advanced coursework. Learning to learn mathematics is multifaceted, and combining SLS content with mathematics specific content can help students succeed in their mathematics courses and complete their degree in a timely manner. In this poster session I will discuss how I created a special Learning to Learn Business Calculus workshop focused on nonacademic and mathematics strategy skills, the different components of the workshop, and the findings of the research study which measured its effectiveness and usefulness (from the student perspective) as an educational intervention. I will explain how I facilitated the intervention at a large R1 university and discuss how the different activities are connected to non-academic and mathematics strategy skills topics such as metacognition, growth mindset, calculus test-taking strategies, procrastination, mathematics anxiety, and more (I will also provide a QR code where activities can be found). The findings showed the workshop had a positive impact on student outcomes (mathematics anxiety, self-efficacy, and academic achievements) and students found the workshop useful for both personal and academic reasons. The poster will present the findings and discuss their implications for future research and educational practices.

As the integration of nonacademic and strategy skills directly into discipline-specific courses is infrequent and receives limited attention in the field of education, this presentation serves as an opportunity for the audience to become acquainted with a method that enables instructors to incorporate these skills into their curriculum. By harnessing this tool, educators could potentially enhance short- and long-term student retention rates, thereby contributing to a more successful academic experience. This, in turn, would likely lead to improved satisfaction and overall positive experiences for both teachers and students within these critical courses. By attending this session, participants can be exposed to a unique and innovative teaching strategy and get tools and advice to apply it to their own courses. Furthermore, the audience can be exposed to a mixed methods education research study which can be replicated if they wish to measure the effectiveness or usefulness of facilitating this type of intervention at their own institution.

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