A Model for Academic Coaching for Success and Inclusive Excellence in Science, Technology, Engineering, and Mathematics Education

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Abstract : Research shows that factors, such as low motivation, preparation, resources, emotional and social integration, and fears of risk-taking, are the most common barriers to access, matriculation, and retention into science, technology, engineering, and mathematics (STEM) disciplines for underrepresented (URM) students. These factors have been shown to impact students' attraction and success in STEM fields. Standardized tests such as the SAT and ACT often used as predictor of success, are not always true predictors of success for African and Hispanic American students. Without an adequate academic support environment, even a high SAT score does not guarantee academic success in science and engineering. This paper proposes a model for Academic Coaching for building success and inclusive excellence in STEM education. Academic coaching is framed as a process of motivating students to be independent learners through relational mentorship, facilitating learning supports inside and outside of the classroom or school environment, and developing problem-solving skills and success attitudes that lead to higher performance in the specific subjects. The model is formulated based on best strategies and practices for enriching Academic Performance Impact skills and motivating students' interests in STEM. A scaled model for measuring the Academic Performance Impact (API) index and STEM is discussed. The study correlates API with state standardized test and shows that the average impact of those skills can be predicted by the Academic Performance Impact (API) index or Academic Preparedness Index.

Keywords : diversity, equity, graduate education, inclusion, inclusive excellence, model
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