Situated Self-efficacy in Introductory Physics Students

RACHEL HENDERSON, SETH DEVORE, West Virginia University, LYNNETTE MICHALUK, West Virginia University Center for Excellence in STEM Education, JOHN STEWART, West Virginia University — Within the general university environment, students perceived self-efficacy has been widely studied and findings suggest it plays a role in student success. The current research adapted a self-efficacy survey, from the “Self-Efficacy for Learning Performance” subscale of the Motivated Learning Strategies Questionnaire and administered it to the introductory, calculus-based physics classes (N=1005) over the fall 2015 and spring 2016 semesters. This assessment measured students self-efficacy in domains including the physics class, other science and mathematics classes, and their intended future career. The effect of gender was explored with the only significant gender difference (p < .001) existing within the physics domain. A hierarchical linear regression analysis indicated that this gender difference was not explained by a student’s performance which was measured by test average. However, a mediation analysis showed that students overall academic self-efficacy, measured by their math and science self-efficacy, acts as a mediator for the effect of test average on self-efficacy towards the physics class domain. This mediation effect was significant for both female (p < .01) and male students (p < .001); however, it was more pronounced for male students.

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