



The relationship between learning approaches and students' achievements in statistics units in Argentina

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Learning approaches refer to the strategies students adopt in order to learn and why they choose them. A deep strategy is based on a critical analysis of new ideas related to prior knowledge leading to long-term concept retention, which may be used in solving problems in unusual situations. Conversely, a surface approach is characterized by a tacit acceptance of information leading to material rote-learning in an unrelated manner. This strategy leads to short-term material retention. Moreover, students can adopt a strategic approach by focusing their learning mainly on achieving good grades. In this study, we analyzed the responses given by students to a modified version of the ASSIST (Approaches and Study Skills Inventory for Students). These students were from a General Statistics Course at the Agricultural School of the University of Buenos Aires. We estimated scores for each type of strategy based on the respective factors of the confirmatory factor analysis. In this study, we analyzed the relationship between these strategy scores and the grades students obtained at the end of the course. Students have to take a second Statistics course (Statistical models) in which their basic statistical concepts are assessed through a short pre-test on the first day of the course. The students who had completed the ASSIST Inventory were identified by the ID number, therefore we were able to relate their strategy scores with the basic concepts they retained two years later. Higher scores in the deep strategy were related to higher grades obtained both at the end of the General Statistics course and in the pre-test. Conversely, higher scores in the superficial strategy were related to lower grades obtained both at the end of the General Statistics course and in the pre-test. The students who adopted the strategic approach obtained intermediate scores. Based on these results, we may validate the modified version of the ASSIST Inventory, as well as the assessment made in both courses.

Keywords: ASSIST, basic statistical concepts, factor scores