



Italian University Students' Achievement in Statistics: The Role of Attitudes and Approaches to Learning.

Francesca Chiesi*

University of Florence, Italy – francesca.chiesi@unifi.it

Caterina Primi

University of Florence, Italy – caterina.primi@unifi.it

The aim of the present study was to investigate students' achievement in introductory statistics courses taking into account the relationships between learning approaches and attitudes toward statistics (including the self-confidence in learning statistics component). This research is part of a larger multinational study on learning approaches in statistics which includes students from Australia, Argentina, Finland, Turkey and Vietnam. It was hypothesised that attitudes toward statistics influenced the learning approaches that students adopt, which in turn affected achievement. Students were administered measures assessing their attitudes and learning approaches (i.e., deep, surface and strategic). Achievement was assessed considering students' final grades and the number of exam failures. To analyse these data, a structural equation model (SEM) was applied. The results attested that self attitudes toward statistics had an effect on the learning approaches (i.e., higher the attitudes toward statistics, higher the deep and strategic approaches, and lower the surface approach). Additionally, we found that surface, deep and strategic approaches predicted achievement (i.e., lower the surface approach and higher the deep and strategic ones, higher the achievement and lower the failures). Findings suggest the need to foster positive attitudes toward statistics in order to promote a (deep or strategic) approach to learning which helps in achieving higher grades and avoiding failures

Keywords: learning approaches; achievement; attitudes; SEM.