Underlying reasons for different learning approaches in statistics in Italy

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As well documented in different educational contexts, psychology students are not primarily interested in statistics, they dislike anything mathematical, have low self-efficacy and a negative attitude toward statistics, they experience stress and anxiety when dealing with the subject. As a consequence they have a poor performance at the final exam, and they sometime did not pass it. In order to solve the problems encountered by psychology students in statistics and to promote their achievement, the relevance of learning approach to the study of statistics was investigated.
The Italian version of the Approaches and Study Skills Inventory for Students (ASSIST) was used to gain insight about learning approach characteristics that might influence psychology students' achievement in introductory statistics courses. The aim of the present study is twofold. First, to provide evidence of the factorial structure of the Italian version of the scale and its reliability. Second, to investigated if students' learning approach could predict the achievement in statistics.
Participants consisted of 530 psychology students attending introductory statistics courses. Concerning the psychometric properties of the Italian version of the ASSIST, exploratory factor analyses revealed that the scale has a three-factor structure (Deep, Strategic and Surface subscales) consistent with the original version. Cronbach's alphas for the three scales indicated high reliability. The analysis reveals that students have significantly higher scores on the Deep and Strategic scales compared to the Surface scales. Achievement was measured using the mid-course assignment score, the final exam grade, and the exam failures. By and large, results showed that achievement (mid-course scores and final grades) was positively related to the strategic approach, i.e., students whose interest in content is driven by assessment demands and they use whatever learning strategy will maximize their chances of success. Additionally, students with higher strategic approach were less likely to fail at the exam. Due to the course characteristics (a compulsory course at the first year) the strategic approach turn to be the more suitable. Findings are discussed by analyzing the necessity to increase a deep approach to the study of statistics as well as the necessity to decrease the surface approach.

Key Words: Statistics education; Psychology students; approach to learning; achievement.