This paper tests the efficacy of an intervention program in virtual format intended to train studying and self-regulation strategies in university students. The aim of this intervention is to promote a series of strategies which allow students to manage their learning processes in a more proficient and autonomous way. The program has been developed in Moodle format and hosted by the Virtual Campus of the University of Oviedo. The present study had a semi-experimental design, included an experimental group (n=167) and a control one (n=206), and used pretest and posttest measures (self-regulated learning strategies' declarative knowledge, self-regulated learning macro-strategy planning-execution-assessment, self-regulated learning strategies on text, surface and deep learning approaches, and academic achievement). Data suggest that the students enrolled in the training program, comparing with students in the control group, showed a significant improvement in their declarative knowledge, general and on text use of learning strategies, increased their deep approach to learning, decreased their use of a surface approach and, in what concerns to academic achievement, statistically significant differences have been found in favour of the experimental group.