The impact of a course on social and behavioral sciences of learning on science and engineering students

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Metacognition (or 'thinking about thinking') has been identified as an important element of the education of professional engineers and scientists for a number of reasons. First, metacognition is an integral part of the process of problem solving [1], and problem solving is at the heart of the engineer's profession [2]. Second, metacognition is linked to learning; people who are more metacognitive and conscientious in their approaches to learning tend to perform better on assessments [3]–[5]. Finally, metacognition is closely associated with the ability to take what is learned in university and to apply it in real life settings (called 'transfer' in the psychological literature)[6].

Since 2012, EPFL Master students have had the option of taking a course in social and behavioral sciences of learning as part of the Social and Human Sciences strand within their studies. The 6 ECTS credit course provides students with an opportunity to participate in a series of lectures and workshops/experiments on learning. Thereafter, students complete a group research project in which they investigate an aspect of teaching or learning of engineering or science. This student research is then presented to the EPFL community at both a poster event and at the annual faculty retreat. The idea is to create a virtuous learning cycle where students learn how to undertake social research by undertaking realistic projects which in turn provide useful data to teachers and to the wider school community.

In 2016-17 the students were asked to provide qualitative feedback on the course, and their learning from it. This paper presents a brief summary of the results of some of the student research projects, as well as data from the qualitative study of the course impacts.

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