# The Strategic Student Approach for Life-Long Exploration and Learning

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*Abstract*—This article introduces the strategic student metaphor: a student has to learn a number of topics (or tasks) to maximize its mean score, and has to choose strategically how to allocate its time among the topics and/or which learning method to use for a given topic. We show that under which conditions a strategy where time allocation or learning method is chosen from the easier to the more complex topic is optimal. Then, we show an algorithm, based on multi-armed bandit techniques, that allows empirical online evaluation of learning progress and approximates the optimal solution under more general conditions. Finally, we show that the strategic student problem formulation allows to view in a common framework many previous approaches to active and developmental learning.