Effect of Active Pre-Learning Activities on Humans and Machines

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Abstract

There are numerous studies that show that the more students actively participate in class, the more they learn. Despite ample evidence, education still relies on lecturers or professors. Although active learning to increase learners' engagement has recently been introduced in a variety of methods, quantitative and empirical experiments are lacking. In this study, we conducted two experiments in order to empirically confirm the effect of active learning on learning performance. We compared humans and machines to investigate that active learning is more effective than passive learning. In Experiment 1, we compared watching a lecture, the passive form of learning with having a discussion, the active form of learning. Comparing students' learning performance of each condition, results of the present study showed higher performance in active learning. In the additional experiment that imitated the human learning frameworks in machines, the active learning framework performed better than the passive learning framework. Through the results of humans experiment and validation of machines experiment, we found that active learning have crucial effect on learning performance.