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Using Classroom Voting to Address Students' Probability Misconceptions

Students often have misconceptions in their probabilistic reasoning—one such misconception is the overuse of the representativeness heuristic, in which one determines that one event is more likely than another event based on how representative the event is of some aspect of its parent population. A research study was conducted to address high school students' overuse of the representativeness heuristic using three groups: (i) a *prediction-and-voting* group in which students were taught a lesson on probability with the use of prediction and classroom voting teaching methods, (ii) a *prediction-only* group where students were taught the lesson using only prediction, and (iii) a *comparison* group in which students were taught without the use of prediction or classroom voting.

Analysis of pre- and post-test data indicates that while all three student groups showed improvement in their use of the representativeness heuristic; the prediction-and-voting group was the only group that did not show a tendency to always answer “equally likely” to probabilistic problems. This indicates that prediction and classroom-voting teaching methods might foster deeper levels of thinking and improved judgment in students, as opposed to indiscriminately applying newly learned ideas.