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Student-Driven Programming Instruction: A Follow-Up Study

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Abstract

Learning computer programming is typically difficult for newcomers. Demotivation and learned helplessness have received much attention. Besides the subject's intricacy, low in-class participation has been associated with poor student achievement. This paper presents a follow-up, stage 2 study on the novel instructional technique, Student-Driven Probe Instruction (SDPI), to address low in-class participation in programming courses. Instead of the teacher lecturing/explaining content to the class and asking questions, students were shown a snippet of code or other relevant material and given the option to ask questions beforehand. The study was conducted in two stages: stage 1 pilot and stage 2. This paper presents the results of stage 2, while stage 1 operations and results are discussed briefly. The number of questions asked in class, real-time Trello board postings, and emails/Slack conversations with the lecturer were used to track participation. In-class participation showed significant improvement. Average quiz and in-class activity scores showed marginal gains. Results from the end-of-course survey show that students preferred SDPI over the traditional lecture style since it stirred their interest in the content and provided them the confidence to ask questions in class. The study is purely exploratory in nature, and no conclusions can be drawn due to the extremely small sample size of the student population.

Keywords: Class participation, introductory programming, pedagogy, student demotivation.

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