Panel:
Experiment Design for Pilot Programs in Teaching Computer Science

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ABSTRACT

We often conceive of new teaching ideas, which we may implement. But we are often at a loss as to how we measure the success of the innovation. Proposed Solution: We should more often consider the use of formal experiment design and development processes. The Panel will discuss this area in the context of a proposed framework and its application to two specific experiments, which are abstracted below: Proposed Experiment #1, Hypothesis: Specific complementary training in problem solving techniques will enhance teaching and learning in programming courses. Problem Statement: This has been a subject of a continuing formal empirical analysis at our school, but have we recognized all areas which may impact our results? Proposed Solution: The use of formal experiment design and development processes on an iterative basis will increase the reliabilty of analysis. Proposed Experiment #2 Hypothesis: The use of ALICE will enhance teaching and learning in pre-programming courses introducing logic, problem solving, and design. Problem Statement: This is a new, untested teaching initiative, but we do not yet know how we will analyze the outcomes. Are we ready for full formal design? Proposed Solution: The use of experiment design guidelines will help us to fit the pilot project to the existing environment, and to make a decision about the degree of formality required. The Panel will present recommendations about the framework for experimenting and piloting as it applies to the proposed pedagogic ideas. Discussion, questions, and answers with the audience will be encouraged.