
Appendix B

Research Seminar

As part of the FINAL BRACElet workshop

"Eliciting Some of the Different Types of Reasoning Skills Used by the Novice Programmer"

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ABSTRACT

I will discuss my recent BRACElet-related empirical and theoretical work.

The empirical work is a longitudinal research study, of the development of novice programmers in their first semester of programming. In the third week of semester, almost half of our sample of students could not answer a code comprehension "explain in plain English" question, for code consisting of just three assignment statements, which swapped the values in two variables. We regard code that swaps the values of two variables as the "Hello World" of SOLO relational reasoning. That is, swapping two variables is the simplest case of where a programming student can manifest a SOLO relational response. Our results demonstrate that the problems many students face with understanding code begin very early, on relatively trivial code. Our longitudinal data demonstrates that many of these students continue to have a problem with understanding and writing code throughout the rest of a thirteen week semester.

The theoretical work interprets the results from the entire BRACElet project from a neo-Piagetian perspective. In such a neo-Piagetian framework, many of the previously puzzling observations about novice programmers can be seen as the behaviours to expect as a novice moves from pre-operational reasoning, to concrete operational reasoning, before reaching formal operational reasoning. I will concentrate on the relatively unexplored relationship between concrete operational reasoning and programming, and suggest some ways that this form of reasoning could be explored in the future.

Date: 10th September 2010 at 11am

Place: WT202 Level 2 AUT Tower

All Welcome !