Experimental Conditions

Created our own Heapsort visualization for which we could vary factors

Who to study?
- CS classes
- Should know basic DS (lists, etc) and simple sorts
- CS2604: too much background? Must catch before they cover heapsort
- CS2704: too little background?
- Freshman courses: Definitely too little background

Need to minimize the number of experiments, since we have access to about 100 students.
- Each “experiment” needs about 10-15 students

Key motivational concern:
- Want to demonstrate that something matters
- Want to have some form of a visualization that has a significant effect as compared to some other form of the visualization
Experiment 1

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<th>#</th>
<th>Sample</th>
<th>Input</th>
<th>Back</th>
<th>Pseudo</th>
<th>Guide</th>
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Results:

- 66 students. 2 outliers excluded (no sorting knowledge)
- Version 1 better (not significant) than others, 3 worse (not significant) on procedural questions
- Versions 3 and 5 better (not significant) than others on conceptual questions

Expert conclusions:

- Didn’t properly testing the effects of giving a sample input
- Neglected to test for user control (previously observed as a key factor)
Experiment 2

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Results

- 44 students
- Procedural: 2 better than 1, 2 much better than 4
- Pseudocode did not seem to help
- Tracked time taken, that did not correlate to performance
- Students with low GPA did well (better than expected)
- Control is confirmed as an important feature

Final conclusions: Full control over a simple visualization with a good input example is effective.
PostDocs

Soft money positions

Supply and Demand

Biology
• Oversupply of researchers
• Lack of alternatives
• Competition for hard money positions
• Requirement for postdoc experience to be competitive
• “Underclass” of “permanent temporary” positions

Computer Science
• Periods of undersupply of faculty
• Industry absorbs most with CS degree, at all levels
• Less culture of postdocs
• Can be a worthwhile training experience