

# 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: Definatly 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

#	Sample	Input	Back	Pseudo	Guide
1	X				
2		X	X		
3		X	X	X	
4		X	X		X
5		X	X	X	X

## 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

#	Sample	Input	Back	Pseudo	Guide	Control
1		X				X
2	X	X	X			X
3	X	X	X	X	X	X
4		X				

### 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