Research questions

What are introductory CS students’ perceptions of computer science?
What aspects of the CS major do they find attractive/unattractive?
...and how do the answers correlate with gender?

Surveys and interviews with CS1 students

- Setting: CS1 at a large, research university
  - Prerequisite for CS, engineering, and other majors
  - Early and substantial pipeline leakage

- Survey with free-response questions
  - Responses coded to assess frequency of themes (recurrent ideas)
  - Identified themes for detailed exploration in semi-structured interviews (2005 Spring)

- Survey sample (N=205 first- and second-year undergraduates)
  - First week of class
  - 25% F, few underrepresented minority students
  - Less than 20% interested in CS major

- Prior programming experience
  - 65%: with (no gender difference)
  - Significant* gender difference only for extra-curricular/self-taught

Preliminary survey findings

Students’ definitions of “computer science”

- “the knowledge of how programs are created and how they run”
- “study of how to use computers to solve problems and/or do productive work”

What makes CS more interesting

- Gender differences* in themes
  - Creativity: 12% F vs. 3% M
  - Logic/math: 12% F vs. 1% M

What makes CS less interesting

- No significant* gender differences

Finding in context: Research and opinion

- Preliminary findings consistent with literature:
  - Perception that CS = programming [CMU; Cohoon et al.]
  - Creativity attracts women? [Guzdial et al.]
  - Math/logic attracts women? [Cohoon et al.]
  - Stereotype of asocial, sedentary work
  - CSI unreasonably hard for true novices? [Bunderson & Christensen; CMU; Sackrowitz & Parelius]

- Some findings contrast with popular opinion
  - Both genders attracted by applications of computing.
  - Weak tech industry not cited as disinscentive.

Open questions for interviews and beyond

- Which aspects of programming make CS attractive, unattractive?
- What do students think it takes to succeed in CS?
- How do students perceive and respond to competitive climate?
- In what ways do students see programming as a creative activity?
- In the absence of active recruiting of students into CS 1, how do students learn about CS 1 and the CS major?
- ...and, of course, how the above vary with gender.