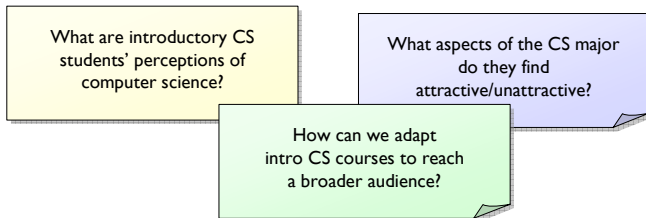


# the secret life of engineering education researchers

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## my research ...or "what this poster is not about"

My research questions are motivated by the growing gender gap in undergraduate computer science, especially because freshman interest in the field is dropping at an alarming rate.



Please see these publications for preliminary findings:

K. Yasuhara & R. Anderson. Talking about entering: Why women and men choose/reject computer science (faculty poster). 36th SIGCSE Technical Symposium on Computer Science Education, 2005.

K. Yasuhara. Choosing computer science: Women at the start of the undergraduate pipeline. *Proceedings of the 2005 ASEE Annual Conference & Exposition*.

K. Yasuhara. Work in progress – Gender and preconceptions of undergraduate computer science. To appear, *Proceedings of the 2005 ASEE/IEEE Frontiers in Education Conference*.

## risk-taking ...or "what this poster is about"

There are many struggles and joys in undertaking engineering education research, especially as a graduate student. Conventional presentations of research focus on theory, methods, data, analyses and implications...but *what's the story behind the story?*

**What struggles do new engineering education researchers face?**

**What strategies do they employ to succeed?**

**What joys motivate them to persist?**

## life before the institute

...or "how my research almost never happened"

- 1998** Completed my Bachelor's degree in computer science and was immediately plunged into the challenges of teaching introductory computer science as a first-year grad student. Ended up loving it!
- 2000** Finished my Master's work in a safe, conventional area of computer science. Almost left the program, more sure than ever of my interests in teaching and learning. Feeling increasingly beaten down by life in a big, research university.
- 2001** New group forms within department to give computer science education a proper, scholarly treatment. My now-advisor surprises me by approving gender/attrition as my dissertation topic.
- 2002** Analyzed a set of computer-science specific studies of gender/attrition studies to fulfill requirements for candidacy. Struggled to find advising, support and time for my research, relying heavily on teaching assistantships and funding from outside the department.
- 2004** Became an Institute Scholar with the CAEE Institute for Scholarship on Engineering Education and got a chance to focus on my work. Collected tons ( $N \approx 350$ ) of survey data and conducted a preliminary set of five interviews, with more planned for this winter.

## the struggles...and strategies

**I'm not a social scientist**, but getting the background I need has been surprisingly easy. Sure, survey design and interview analysis are hard, but there are books on that, and FIE is a great place to get advice. *The real struggles are the ones there aren't books for.*

**Proper care and feeding.** Risky work requires support—not just funding and a desk, but a reliable source of feedback, advice, and encouragement. If you're *really* lucky, you'll find that in one, nice package: Super Advisor! I've learned to find different kinds of support from different people, looking beyond my department and my campus.



Super Advisor:  
one-stop shopping  
for all your  
pre-doctoral  
concerns.

This takes initiative, patience, and discipline. With funding, making time for your own dissertation while working as an RA for another department is a tough balancing act. Teaching your way through a doctorate can be even tougher, if you really care about your students. Reserving a substantial block of time daily is my current strategy.

Sources of feedback, advice, and encouragement can be even harder to come by than funding. I wouldn't survive without my grad colleagues, faculty outside the department, and friends from the ASEE and SIGCSE communities.

**Relax, it's only a dissertation.** For me, graduation is Job One. It's especially important for doctoral research to be *carefully focused and limited in scope*. "How about race/ethnicity?" Yes, in my next study. "How about a multi-institutional study?" After I'm faculty, thank you.

While I hope my findings can inform or even facilitate local change, that sort of impact is not my primary goal. From years of departmental service, I've grown to appreciate that research like mine is one, small piece of the puzzle, especially when cultural change is called for.

## the joys

**Learning across disciplinary boundaries.** Exposure to new methods, theories, and perspectives keeps things exciting and helps the teacher in me keep in touch with the experience of learning new things.

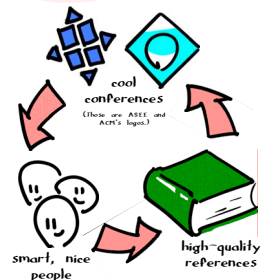
**More data, please.** Qualitative data can be rich, complex, and full of insights waiting to be discovered. Learning how quantitative and qualitative data can complement each other has been fascinating. Caution: Research this fun may be habit-forming.

**Head-heart alignment.** Working on questions I really care about is worth every struggle, especially when it means having...

**...a supportive, friendly community I can call home.**

*Conferences like this are my lifeline.* It's people like Lecia Barker, Kathy Garvin-Doxas, Robin Adams, Cindy Atman, and Joanne Cohoon who inspire and encourage me. Thanks!

Speaking of thanks, this material is based on work supported by the National Science Foundation under Grant No. ESI-0227558, which funds the Center for the Advancement of Engineering Education (CAEE). Any opinions, findings and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the National Science Foundation.



LASTING CHANGE  
 EVIDENCE TO MOTIVATE, INFORM  
 DIPLOMACY  
 POLITICS  
 INFLUENCE  
 INCENTIVES

I'll be ready to check off the others once I'm faculty.