NOTE: This is an amalgamation of our workshop outlines, with notes to you – the Chicago researchers.

Alice Professional Development
(targets teachers with no prior programming experience)
Spring 2012

Seven weeks, 2-hours per week (Wed 4:30-6:30).
Goals:

- Introduce basic concepts in Alice programming language (though really we barely got to if statements. Didn't get loops or arrays).
- Demonstrate peer instruction pedagogical approach
- Build community among teachers

Summer Pedagogy Workshop 2012 – 3 days. Held once for 4 teachers and another time for 5 teachers. The reading for Day 1 is Brown, Collins, and Duguid – Situated Cognition and the Culture of Learning. The Abstraction Transition Taxonomy Guide is a short version of the taxonomy proposed in:

The abstraction transition taxonomy: developing desired learning outcomes through the lens of situated cognition
Quintin Cutts, Sarah Esper, Marlena Fecho, Stephen R. Foster, Beth Simon

September 2012 **ICER '12:** Proceedings of the ninth annual international conference on International computing education research

"Video" refers to exercises where we viewed and did something with video recorded in Beth's class at UCSD – generally regarding how clicker questions and peer discussions are run.

Day 1:

Time	Topic
9:00-9:20	Welcome, Overview of Learning Outcomes for next 3 days
9:20-10:00	Round Robin: What's your general context? What is your context for your CS Principles class next year?
10:00-10:50	What is the mission of this course? What is it not? a) Review of AP Principles: Computational Thinking Practices b) Beth's Pedagogical Structure for Engaging Students in Developing Computational Thinking Practices
10:50-11:00	BREAK
11:00-12:00	Situated Cognition Reading Review in Context of CS Principles Activity: a) How does this complement, reflect, extend, expand your teaching practices?

	b) What concerns do you have about supporting "cognitive apprenticeship" in your classroom?
12:00-1:00	Anatomy of Running a Clicker Question Goal: Focus on the kinds of ways in which computing people can and do analyze situations Activity: Video Review one clicker "session" What did you see happening that you liked? Didn't like? What kinds of conversation do you hope to get happening? Avoid?

Homework for Day 2:

1) **Create a clicker question on if statements** (use provided scaffold). Could be a simple one, in a loop, nested if statement, based on a demo, etc.

   A large set of clicker questions are provided for you. Nominally you don't need to write any of your own. But you may want to adapt for your students, add extras, etc. But even if you don't do that, going through the process of writing a clicker question is very helpful for thinking about how you will be guiding the discussion of clicker questions in class.

2) **Read the Abstraction Transition Taxonomy Guide. "Rate" some sample clicker questions. Do you like some types better than others?**

   Computing educators have tried to use Bloom's taxonomy in regard to programming questions. We think it's REALLY hard. Instead, we found that the specific "cognitive apprentice" tasks regarding programming that we wanted to foster in students involved problems expressed in three levels. Clicker question stems are at one level and the answer options are often at another level – requiring students to "transition" between levels of abstraction.

Day 2:

Time	Topic
8:30-9:30	Share created if statement clicker questions: What kind of discussion were you wanting students to have? What "AT" category is it? Abstraction Transition Taxonomy: How do the categories of questions compare to a) how you have usually taught programming or b) how you teach another subject?
9:30-9:50	Video from Day 1: How does a clicker question "go"
9:50-10:30	100% correct doesn't exist in Software Engineering: How will you help students acculturate to this different reality? Beth Role Play: How to play the "master" who isn't supposed to know it all Brainstorm: What techniques can you use to respond to student questions? Student frustrations?
10:30-10:40	BREAK
10:40-11:00	Share your experience: What to do with the advanced student
11:00-11:45	Role Play: How to respond to students in class-wide discussion (video of actual student words)
11:45-12:30	iClicker Software Session: Downloading, "installing", using in class, igrader and setting up your roster. Hands on practice running a clicker question.

Homework for Day 3:

1) **Skim Technology and Society Assignments**, Rubrics, and Sample Student Work. Tomorrow we will brainstorm other ideas you have.
2) Overview of Course and Connecting One "Lesson" to Beth's Computational Thinking Practices (reduced set). <<Print out of lecture?>>

Day 3:

Time	Topic
8:30-9:30	Timeline Planning with some sample "core ideas" for a specific concept
9:30-10:15	Review of Sasha's 4 threads: Specific Curriculum, Structure of Pedagogical Tools, Planned Pedagogical Interactions, Real Time Pedagogical Decisions
10:15-10:30	BREAK
10:30-11:00	Community Support and Communication: what works for YOU. Planning ongoing work.
11:00-11:30	Logistics, Details, Expectations and Opportunities: Books, Clickers, Surveys, IRB, Honorarium. Brainstorm: How can we get you kudos and make your students look good!
11:30-12:30	Getting your class website/moodle ready Other preparatory items