Children Learning Computer Science Concepts via Alice Game-Programming

Linda Werner, UC Santa Cruz
Shannon Campe, ETR Associates
Jill Denner, ETR Associates

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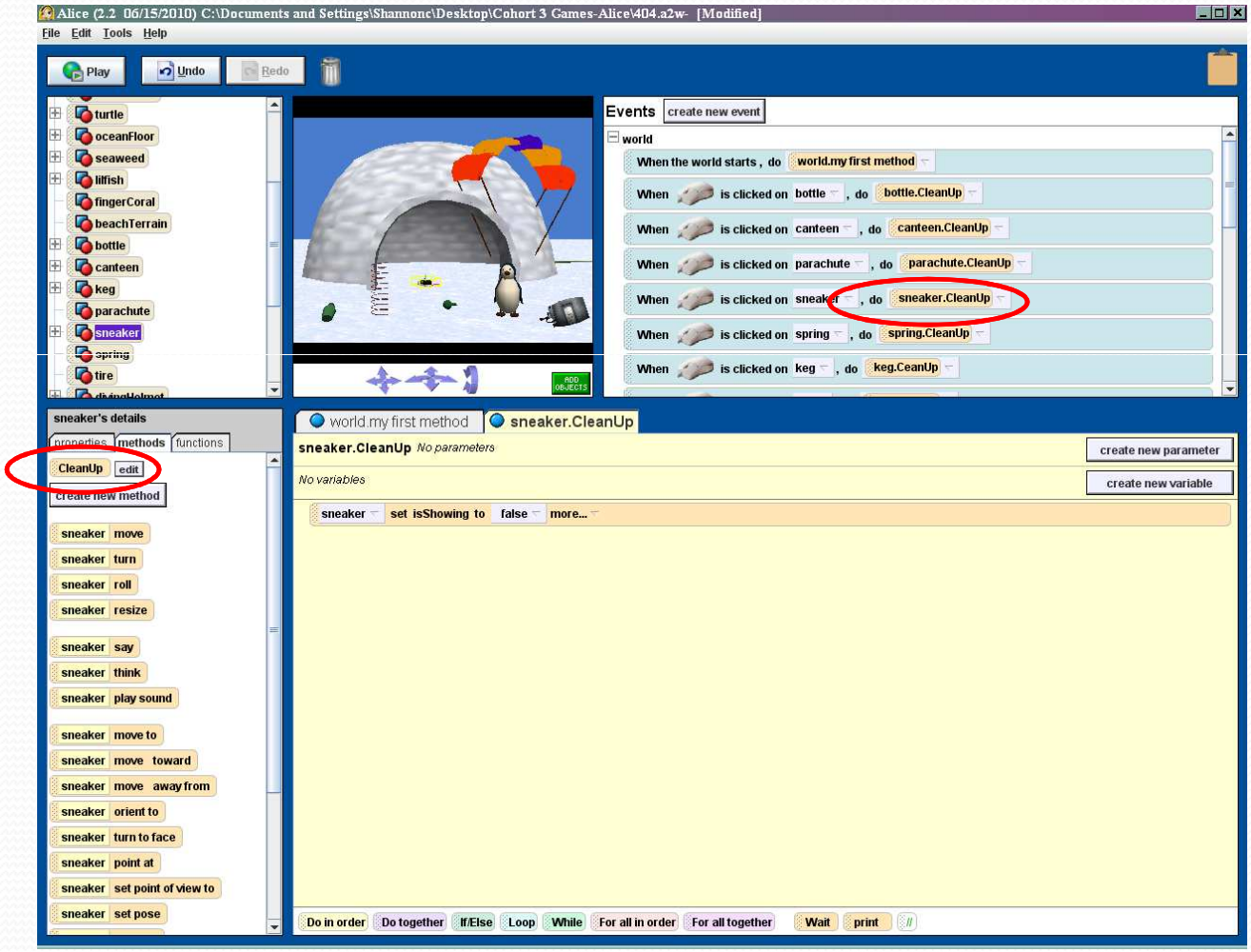
Project Overview

- 325 middle school students
- Elective technology classes
- Solo or programming pairs
- Storytelling Alice/Alice 2.2
- ~20 hours
- 7-10 hours
  programming games

Game Analysis Process

- 231 games
- “Reachable” code
- Executed with “no failure”
- Most were successful!
- Non-automated analysis
- Analyzed twice

Reachable with no failure



Construct Categories

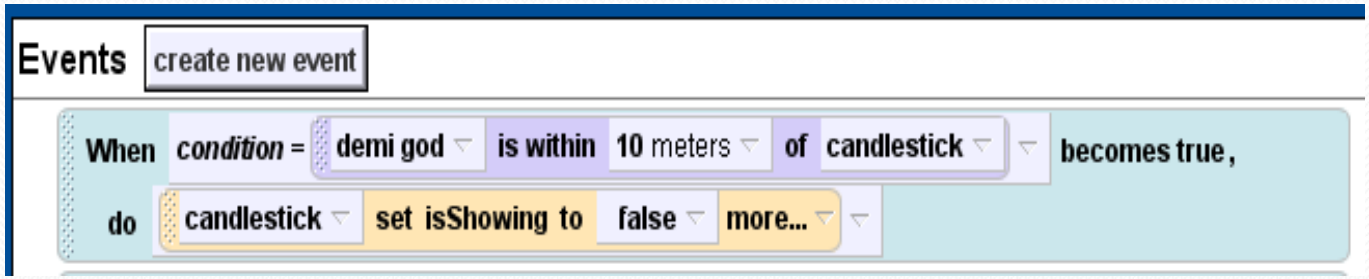
- Methods
- Parameters
- Functions
- Variables (list & non-list)

- If/Else
- Loops
- Do in order; Do together

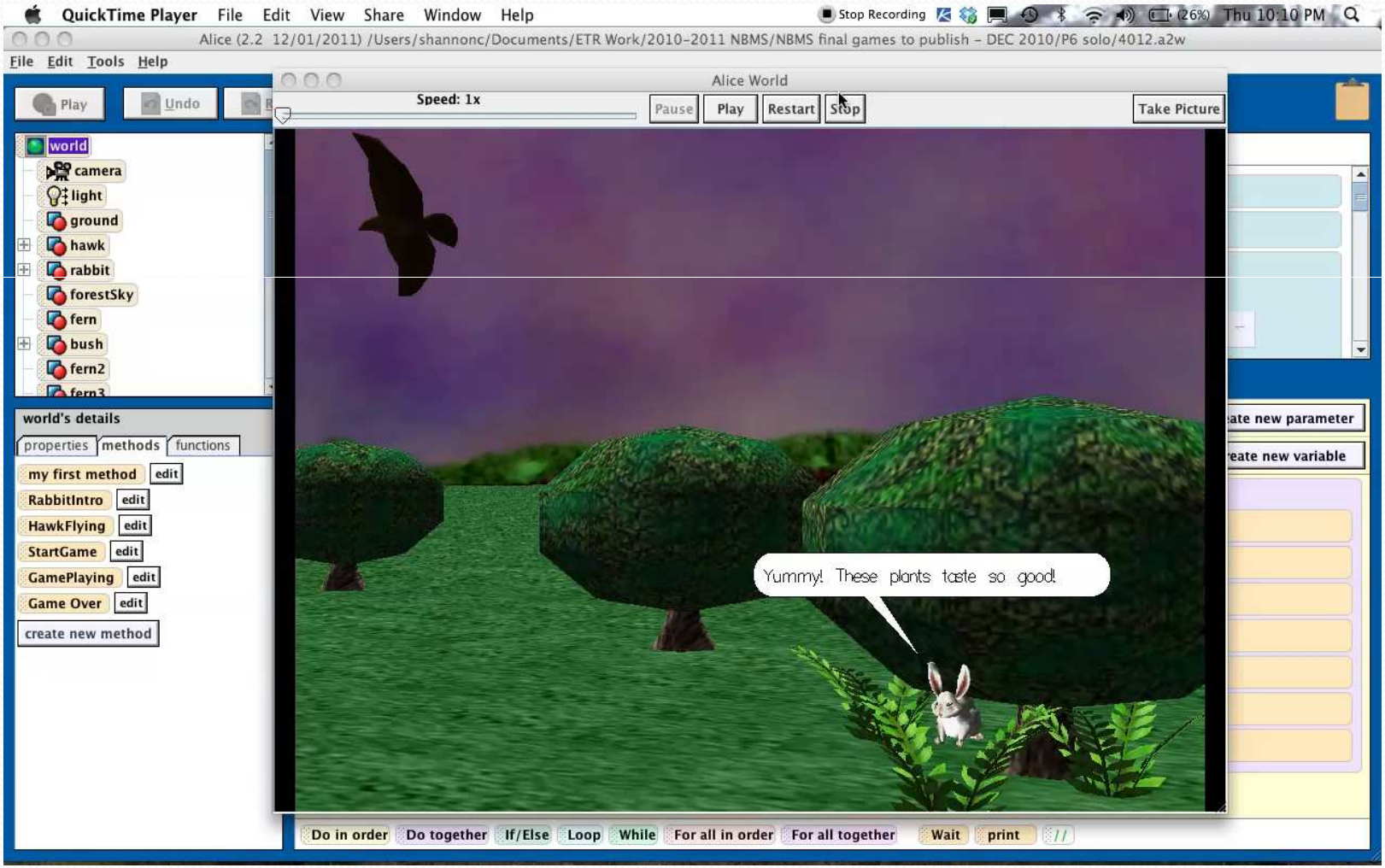
- Event Handlers

Methods & Functions

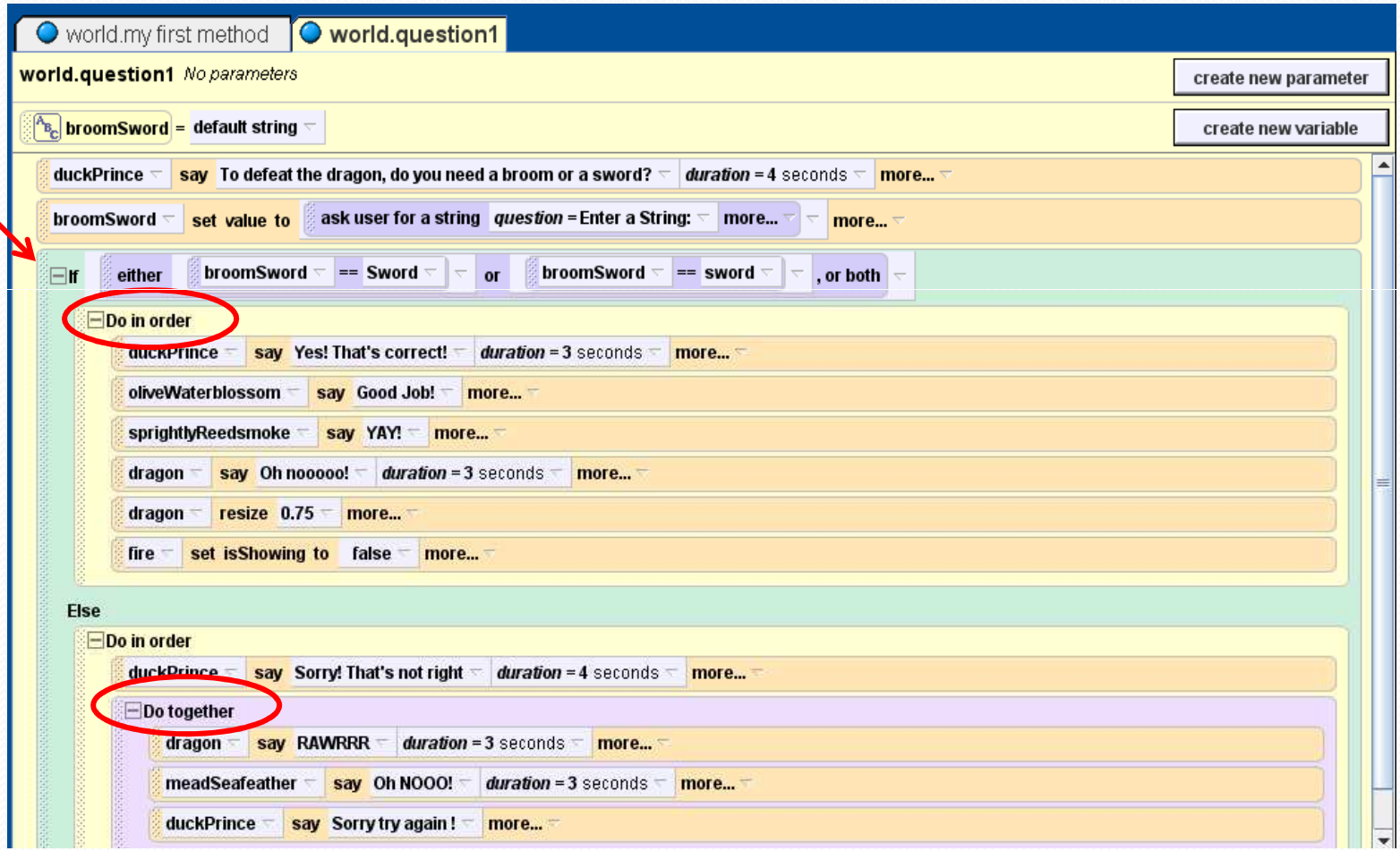
- All used built-in methods
- 71% created their own methods
- 46% used functions (mostly for collision detection)



Collision Detection
"Bunny Run"

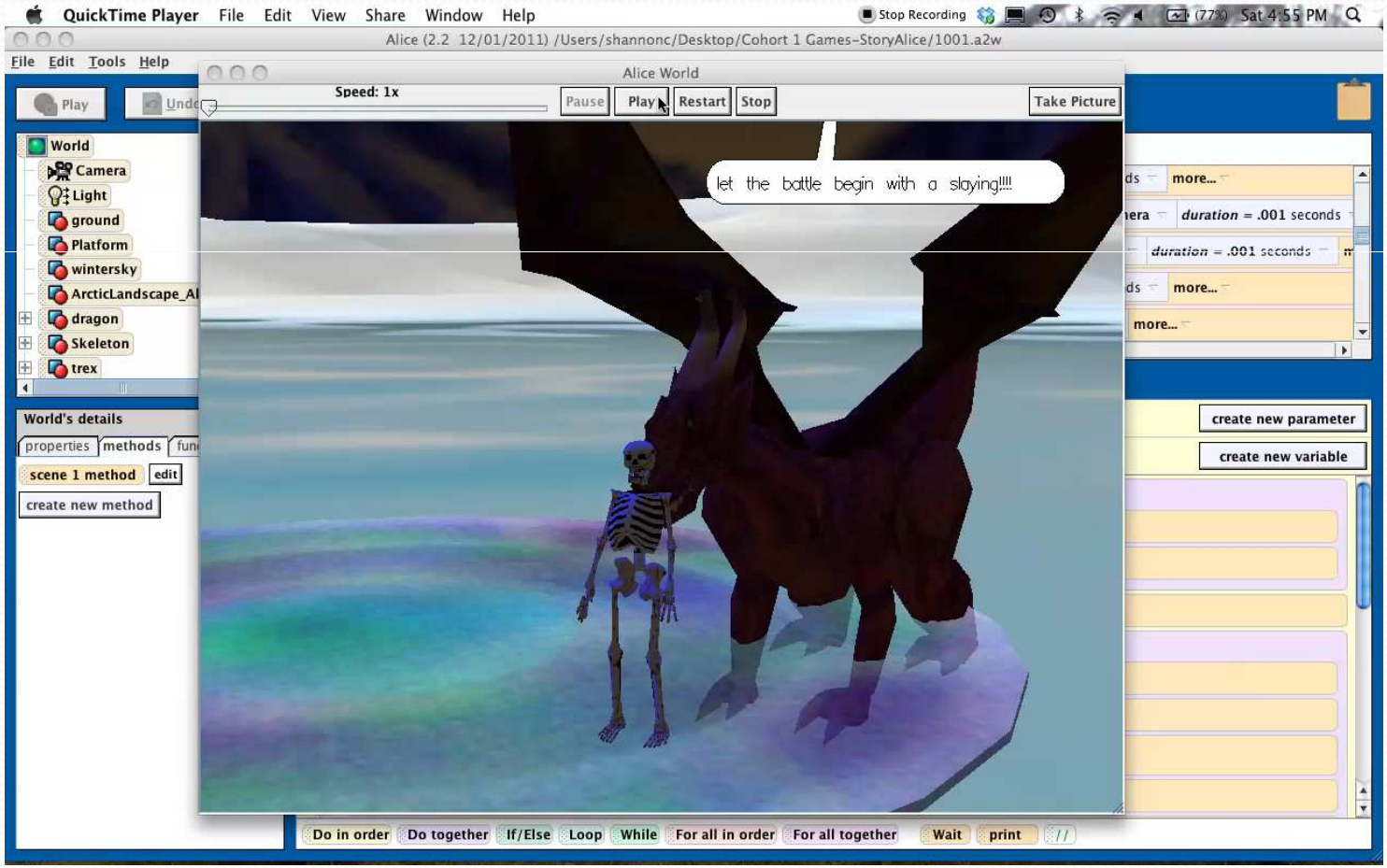


If/Else, Do together, Do in order



Events-driven game

“Battle for Victory”

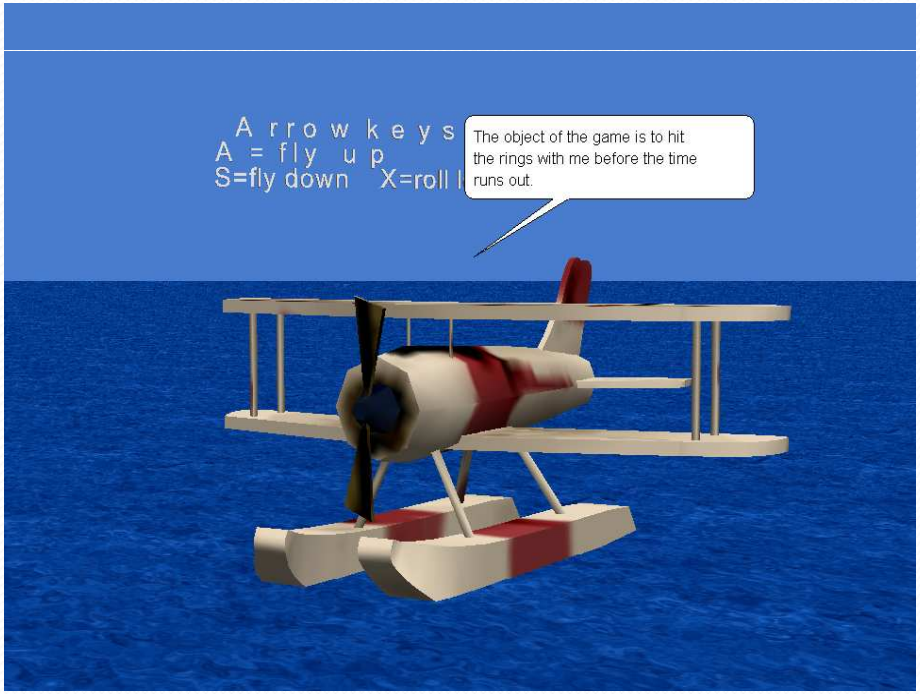


Why some constructs more than others?

- Easier to learn and execute in Alice?
- The curriculum focused more on certain types of games and constructs
- It makes a “good game?”

More Analysis

- Patterns
- Mechanics or “types” of games
- Content
- Curriculum



For more information

- Shannon Campe: shannonc@etr.org
- Linda Werner: linda@soe.ucsc.edu
- Student games at:
  psweb.etr.org/igame/demo/index.cfm

Project Advisors: Steve Cooper, Yasmin Kafai, Barbara Ericson, David Webb, Brigid Barron