Constructivism, ZPD

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Logistics

- Piazza for questions / help
- svn for turning in assignments

Event-Driven Programming

- scratch.mit.edu
- Scratch account is:
- CS209_#
  - # is your student ID % 1037
  - Password is cnetid@uchicago.edu
- If you added late,
  - Qi: CS209_1
  - Jeremy: CS209_2
  - Fonseca: CS209_0

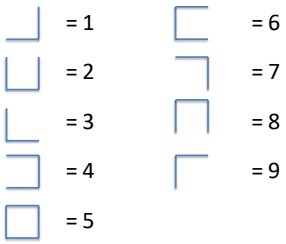
Constructivism

Constructivism

- All knowledge is interpreted through the lens of what is already known.
- New information causes us to add, modify, or discard old or new information.
- This is a very active, reflective process.
- The role of a teacher is to understand what students already know so the new knowledge can be properly fit with prior knowledge.

Counteracting this view:

Designing Curriculum: Theory: Constructivism



Designing Curriculum: Theory: Constructivism

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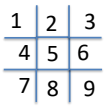


Designing Curriculum: Theory: Constructivism

The individual matters

- Their previous knowledge provides a **lens** through which new knowledge is understood.
- Different students may interpret the new information differently depending on their previous knowledge.
- "The world is round."
  - Sphere?
  - Pancake?

Guided Reciprocal Peer Questioning

- Share with your neighbor some examples of constructivism in your education: 8 min
- Each person generates two or three thought-provoking questions about the material: 5 min
- Discuss those questions & identify any questions for class discussion: 5 min
- Class Discussion: 15 min
- Write down your questions & answers (I will give them back next class)

Generic Questions

- What are the strengths and weaknesses of…
- How does … affect … ?
- Explain how … helped you learn.

- What you are turning in:
- List of questions with discussion notes for each
- You may turn in as group or individual – your choice

Zone of Proximal Development: ZPD

Zone of Proximal Development: ZPD

- The Goldilocks view of problem challenge
  - Too hard – student gets frustrated, learns little because material is out of reach
  - Too easy – student gets bored and isn't being given material that will teach
  - Just right – student learns
- Challenge:
  - As student learns, that zone changes!

Scaffolding

Scaffolding

- What are the elements necessary to be considered scaffolding?

Scaffolding

- What are the elements necessary to be considered scaffolding?
  - A learning goal
  - Scaffolds provided to help learning occur
  - Scaffolds are removed later so student can do task themselves

Scaffolding

Scratch Activity

- Where was the Constructivism?
- Where was the Scaffolding?

Scratch Activity

- Where was the Constructivism?
  - Building on your existing programming knowledge
- Where was the Scaffolding?
  - Worksheet to familiarize you with environment
  - Simpler environment before going to Java

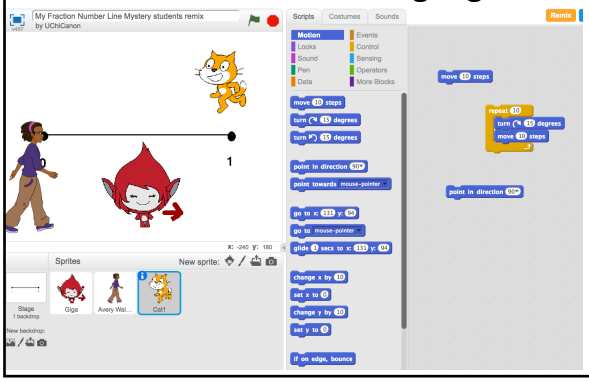
Discussion Activity

- Where was the Constructivism?
- Where was the Scaffolding?

Discussion Activity

- Where was the Constructivism?
  - Having you share examples because you are more similar to each other than I am to you
  - Taking advantage of that lens to generate questions for class discussion
- Where was the Scaffolding?
  - Sentence starters to seed possible questions

Scratch as a First Language



Scratch as a First Language

- Where was the Constructivism?
- Where was the Scaffolding?

Scratch as a First Language

- Where was the Constructivism?
  - Uses instructions closer to kid daily life
- Where was the Scaffolding?
  - Less typing
  - Don't need to remember commands

Guided Reciprocal Peer Questioning

- Share your educational stories about scaffolding / ZPD with your group with respect to scaffolding: 8 min
- Each person generates two or three thought-provoking questions about the material: 5 min
- Discuss those questions: 8 min
- Class discussion: 15 min
- Turn in your questions & answers (I will give them back next class)

Generic Questions

- What are the strengths and weaknesses of…
- How does … affect … ?
- Explain how … helped you learn.

Scaffolding Discussion

- What were the most effective scaffolding techniques you learned about / experienced?
- What were the most fun scaffolding techniques you learned about / experienced?
- Why/how were they successful