Discussion About AAPT/PERC Summer 2007 Part I

Wednesday, September 05

2007

Dyan – AAPT & PERC NOTES

- Stabilization Model (Sherry Savrda, Seminole CC)
  - Students models stabilize/destabilize, hard to measure
- Drawing Diagrams (Andrew Heckler)
  - Different levels of understanding
    - Drawing a diagram often hindered process
- Concept Cluster (David Meltzer)
  - Concepts aren't just linked, but clusters are linked
    - Know, don't know, sort-of know
      - Can a "gray region" cluster have a strong link?!

Jackie

- Several people looking at the effect of demo/question ordering
  - Adam Feil /Jose Mestre (eye-tracking)
  - Lei Bao (switching effect)
- But we need *some* theory of stability/coherence (hammer)
  - Like theories version
  - Framework theory- Vosniadou
  - P-prims
  - Thaler and Smith (1994)
- TA training

Mojgan -- List of sessions

1. Interactive lecture demonstrations 2. Many ways doing physics 3. Adventures is science illiteracy 4. PER session 5. Physics of automobile racing 6. PER session	1. David Hammer 2. Art and physics 3. High speed photos 4. Milikan Award 5. Racing as a metaphor 6. NSF funds 7.Teacher preparation
1. Cosmic/human Evolution 2. PERC Posters: Colorado, TA, Tensors	1. Dual coding and n-coding 2. Paper review

AAPT/PERC - Mamolo

On Cognitive Science

- validation of instructional strategies
  (e.g. wait time, collaborative learning)

On Instruction

- formative assessment using rubrics
  (e.g. Rutgers: http://paer.rutgers.edu/ScientificAbilities/)
- role of affect (motivation) on student performance
  (e.g. Harvard: FICSS - Factors Influencing College Science Success)

On Teacher Preparation

- pedagogical content knowledge
  (e.g. ASU: in-field vs out-field teachers)
- physics departments and future physics secondary teachers
  (e.g. University of Northern Colorado)

Spartak Kalita – AAPT 2007

AAPT posters – Visualizing Tensors (Syr), Understanding the Nature of Ambiguity in Students' Reasoning (UM)

AAPT talks - Educational Technology Demonstration Session

- ***new developments in Vpython, Schuylkill , Physlets (another session)***

Problem Solving Session - Spatial Reasoning (CSUSan Marcos)

Curriculum Change Session – Multiple Analogies (Colorado), Medical Physics Option at SCSU

New Technologies Session – Transfer from Physics to Technology (NYCityC)

PERC Posters - Design and non-design labs: does transfer occur? & From Physics To Biology (Rutgers)

Re-conceiving how teachers teach, and how students learn physics with analogies (OH-IL)

Fran -- AAPT Discussion

"concept can be considered arbitrary circumscribed portion of an interlinked array of knowledge elements" – Meltzer

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Ontology – "what kind of things there are…"

Brian Ross – Abstractions, principles are difficult

Prior knowledge used – analogy; categorization

Categorization may initially mislead students – usual, neutral and inappropriate problem types or categorizations

(Chi et al., 1981) → Experts often categorize by structure type

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Timothy Nokes → Use of prior examples helps with near transfer, not far (Bassok & Holyoak, 1989; VanLehn 1998)

Upcoming Deadline!

Monday, September 10

Completed PERC Manuscript incorporating reviewers' comments

(Please send to Kim for proof-reading by Thursday afternoon)

Special PER Seminars Fall 2007

- 11:00AM, Thurs, Sept. 20 — Zdeslav Hrepic, Fort Hays State Univ.
- 11:00AM, Tues, Oct. 09 — Raj Chaudhary, Christopher Newport Univ.
- 11:00AM, Tues, Oct. 30/Nov. 5 — Rebecca Lindell, Southern Illinois Univ. Edwardsville