Formal Education: A closer look

- School: What is it good for?
  (remember school cut-off designs?)
  - Cognitive skills and schooling: examples
    o classification
    o memory skills
    o mathematics
    o conservation
      o conservation? another view...
- Question of transfer (Greenfield & Lave)
Classification

Cole et al: age vs. schooling: rural Yucatan villages

% of success

Taxonomic classification
Reclassification

1st grade 3rd grade 6th grade 8th grade Mestizo adults

Importance of understanding the task?
Memory

• Encoding: Learning paired associates (Cole et al)
  • H.S. = 6th > Mestizo 1-6 yrs > 3rd > Mayan adults

• Recall: Clustering as index of organization
  • Mayan adults:
    less than adults w/ at least 7 yrs school
  • Mestizo adults w/ 1-6 yrs school:
    more than unschooled adults
Mathematics

- Saxe: Body-counting system (Papua villages)
- introduction of cash economy required adaptation of system for arithmetic
- villagers who had trouble learning arithmetic strategies were at disadvantage
• Tied to specific experience?

• Zimbabwean & Scottish 4th-6th graders: running a store
  • 84% of Zimbabwean children made profit
  • 45% of Scottish children made profit
- Brief training accelerates aboriginal children’s performance, but still about 3-year lag
- Role of experience? Consistency of results?
Wait...what can we conclude from this?

- Nyiti (1976): Problems with interpretation of cross-cultural studies
  - materials, instructions, meaningfulness of task, experimenter’s fluency and cultural knowledge, even estimation of age!
- conservation in schooled & unschooled 8-14-yr-old Meru children (Tanzania)
But, putting it in context...

conservation of substance
conservation of weight
conservation of volume
What a mess.

So, what can we conclude?

Maybe the question isn’t about schooling. Maybe it is about TRANSFER of experience.
Transfer in Formal and Informal Education

- Greenfield & Lave: transfer of procedural skills:
  - girls in weaving societies are more skilled than U.S. women (experience over age)
  - but: experienced weavers see nuances of familiar patterns, but are worse than schooled boys at unfamiliar pattern

- innovation/stereotypy is tied to mode-of-informal learning (i.e., what is emphasized)

- Street vs. classroom math (Carraher et al): video

- what learning experiences facilitate transfer?
What is schooling about, anyway?

- Cole (2005): Evidence of the first schools: Sumeria (c. 3000 BCE)
  - rows of desks facing a teacher
  - repetitive practice of writing
  - compiling lists (trees, gods, leather items, cattle, personal names)
    - also some letter-writing
- Formal schooling w/ industrialization:
  - age-based grades; sequential curricula
  - designated learning buildings
  - incorporation into larger bureaucratic institutions
  - schooling as instrument of policy and human resource growth
  - gradual extension to new populations (socialization; economic growth)
Formal Education Recap: *What’s it good for, then?*

- Informal education: just teaching by demonstration?"
- How do teachers adjust to students’ abilities?
- Do skills transfer?
- What does schooling provide?
  - Better (meta)memory skills (in some tasks)?
  - Ability to generalize new patterns?
  - Facility with symbol systems?
- Maybe school focuses on symbol-manipulation skills that students can’t readily infer.