Computers in Education

Social Implications of Computers

Pop Quiz!

- *What's the most important effect computers have had on education so far?*

Multiple Choice Tests

- *The **intent** of computer grading of tests was*
  - *to eliminate a bit of drudgery for teachers*
  - *to enable large-scale standardized testing*
- ***Unintended consequences** of computer grading of tests have included*
  - *profoundly changing the epistemology (what is knowledge?) of schools to emphasize factual knowledge over ability to analyze texts, creativity, etc.*
  - *fueling a change in national education policy so that test scores are the sole or primary means of evaluating schools and teachers as well as students.*
    - *... thereby giving rise to widespread cheating by **teachers!***

Very early days: Plato, 1960

- *"[I]t established key on-line concepts: forums, message boards, online testing, e-mail, chat rooms, picture languages, instant messaging, remote screen sharing, and multi-player games." (Wikipedia)*
- *"[Donald] Bitzer, regarded as the Father of PLATO, succeeded because of his rejection of modern educational thinking, and returning to a basic drill-based educational system; his team improved existing systems by allowing students to bypass lessons already learned." (Wikipedia)*
- *"[T]he PLATO system was re-designed, between 1963 and 1969; PLATO III allowed 'anyone' to design new lesson modules using their TUTOR programming language, conceived in 1967 by biology graduate student Paul Tenczar." (Wikipedia)*

Early days: BASIC on 8-bit micros

- *Very little educational software*
- *Primitive word processing*
- *Nothing packaged with the computer except BASIC interpreter, so kids were taught programming by default.*

- *1990s-2010: "All the software is already written, so why teach programming?" Instead, "computer literacy" classes teaching Word and Google.*

- *2010-now: NSF-driven effort to attract more students, especially women and minorities, to computer science.*
  - *BJC is part of that effort*
  - *2013: code.org brings teaching programming to the mainstream*

Judah Schwartz's Continuum

TOOLS *MICROWORLDS* *TUTORS*

Word processor	*Interactive geometry*	*Drill*
Browser	*Physics simulation*	*CAI*
Programming language	*Database (e.g., atlas)*	*CMI*

Okay, a word about MOOCs

- *Pro:*
  - *Way better than nothing for people stuck in Podunk.*
  - *Learn from the best lecturers.*
  - *Encourage learning for its own sake (vs. credentialling).*
- *Con:*
  - *Overemphasis on lectures (and maybe homework) over discussion and a community of learners.*
  - *Encourage universities to think of courses as cash cows.*
  - *Not so good at credentialling.*