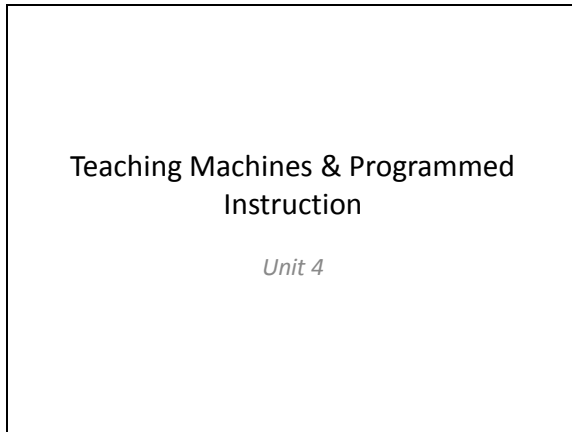
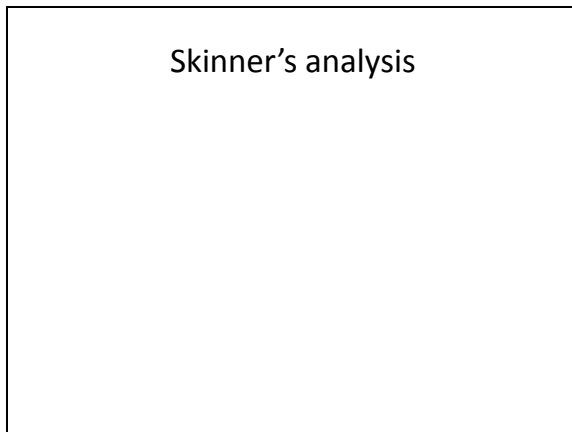


Slide 1



Slide 2



Daughter / increased demand for product (skilled labor)

- Then-recent developments in science
- Critique of educational practices at the time
- Skinner's solution
- Addressing objections

Harm beyond just not learning

Accuracy years later

"Recent" advances makes change possible

Modern classroom research not respected or used

Slide 3

Stimulus Control During Learning

Principle task in educational shaping is to bring desired responses under appropriate stimulus control
How are such complicated verbal repertoire created? What reinforcers are used?

Slide 4

100 Years Ago: Reinforcers used

Escape threat of the birch rod or cane

Slide 5

More recent use of reinforcers

Escape from more minor aversives (teacher's displeasure, criticism / ridicule of classmates, lousy marks, trip to office, parental disapproval)
Shift from one form of aversive control to another
CEO-R

Slide 6

Delay in Reinforcement

“Right” as reinforcer.
Several minutes btwn R & Sr

Slide 7

Lack of Skillful Progression

Shaping progressive approximations →
final complex behavior
Cannot deal w/ individual responses,
thus no rfmt after each step
Blocks of responses

Slide 8

Most serious criticism

Relative infrequency of reinforcement
Recall natural rates

Slide 9

Readiness as an Asylum for both
Teachers and Students

Criticism for inefficiency
Response: Child not “ready” to learn
academic task
Failing students and defensive teachers
/ parents escape blame
“Ages & stages”

Slide 10

Advantages of Developmental
Philosophies

Sometimes kids are stuck at a stage
(not ready). Just wait for kid to become
unstuck (develop)
Parent has no recourse but accept
seemingly thoughtful diagnosis
Never seems to be the case that
teacher was not ready to teach
Benefits of dev. philo. for schools:

- Sound very humane and thoughtful
- Transfers failure from poor teaching
to the kids
- Can use developmental
philosophies to redefine “failure”

Slide 11

Vagueness in Goals and Standards

Skills minimized in favor of vague achievements: educating for democracy, educating the whole child, educating for life, and so on (note Skinner's assessment still true 50+ years later)
Helps us redefine failure. May not have any skills, but supposedly closer to vague goal (unverifiable)
Problem: These philosophies do not suggest improvements in techniques

Slide 12

Sorting Machine Philosophy

Sorting machine philosophy: schools do what the schools choose to do, and if kids fail, it's their own fault.
Historical usefulness (high demand for agricultural and unskilled labor)
Most failed in this system, but that was fine (medical schools).
Schools' purpose was to sort, not create

Slide 13

Demand for Skilled Labor

Philosophy dangerous as demand for skilled labor increases

Slide 14

Math anxiety, etc

Sorting machine philosophy creates needless emotional harm
No justification for misteaching and eroding confidence
Figures and mathematical symbols become standard emotional stimuli
Respondent pairing procedure
Desired stimulus control: symbols evoke mathematical behavior
Actual stimulus control: symbols elicit emotional reactions such as anxiety, guilt, or fear
Kids know that are poor students and dislike academics

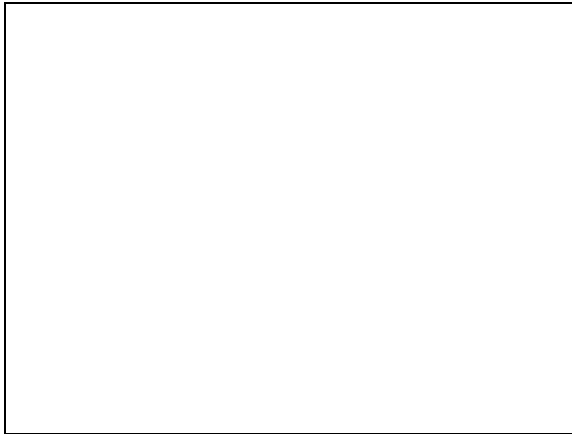
Slide 15

Letter reversals as an example

- b, d, p, q

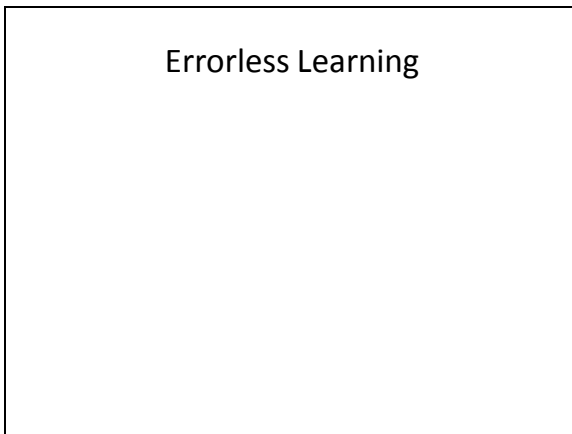
Example of creating poor readers
Typical textbooks are very confusing
Don't explicitly address orientation

Slide 16



Orientation irrelevant to tacting in vast majority of situations

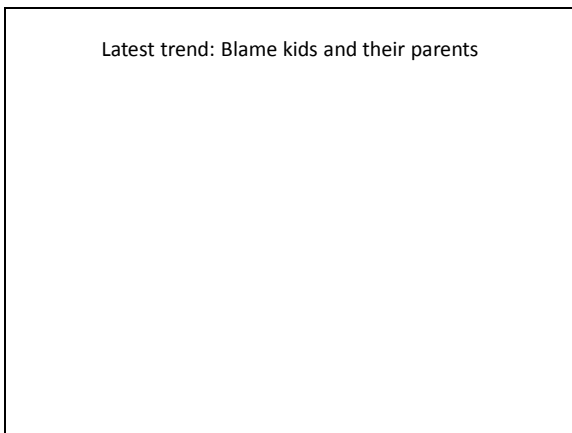
Slide 17



Errorless Learning

DI orthography

Slide 18



Latest trend: Blame kids and their parents

Discrimination: Home environment and socio-economic status
Schools provided setting, ineffective teachers, and extensive administration
All that was needed was for parents to teach kids

Slide 19

School psychologists

1. Child may be misplaced in curriculum, or the curriculum may contain faulty teaching routines
2. Teacher may not be implementing effective teaching and/or behavior management practices
3. The principal and other school administrators may not be implementing effective school management practices
4. The parents may not be providing the home-based support necessary for effective learning
5. The child may have physical and/or psychological problems that may be contributing to the learning problems

All agreed that five factors may play a primary role in school learning or behavior problem.

120 cases each, group size 50

Concluded that referred problem was due to ...

Slide 20

School psychologists

1. Child may be misplaced in curriculum, or the curriculum may contain faulty teaching routines
2. Teacher may not be implementing effective teaching and/or behavior management practices
3. The principal and other school administrators may not be implementing effective school management practices
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Problem defined in ways that cannot be resolved

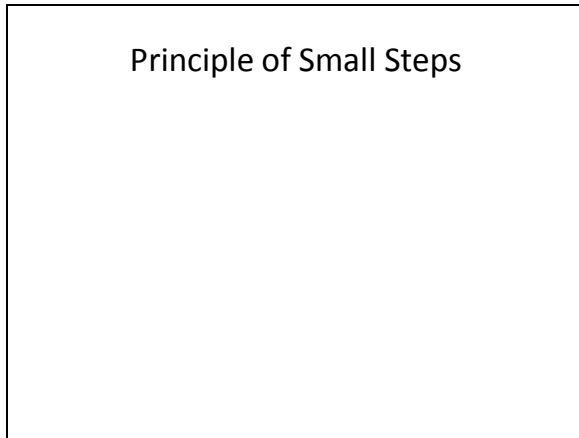
Some do consider systemic (ecological) perspective, but tiny minority considered radicals by individually centered colleagues

Slide 21

Teaching Machines as a Solution

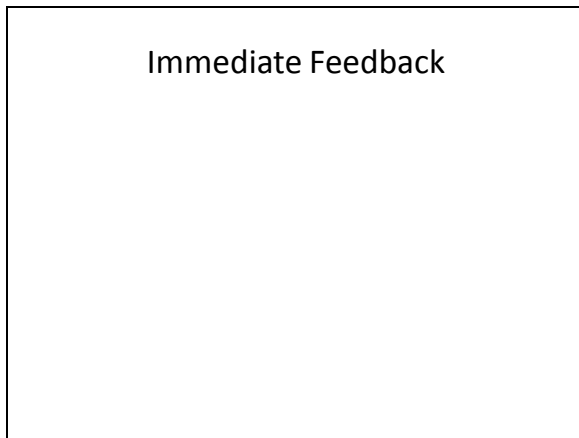
Any other field / demand increased production / laborsaving equipment
Most efficient contingencies of rfmt / personal mediation
Knob / unlike flashcards

Slide 22



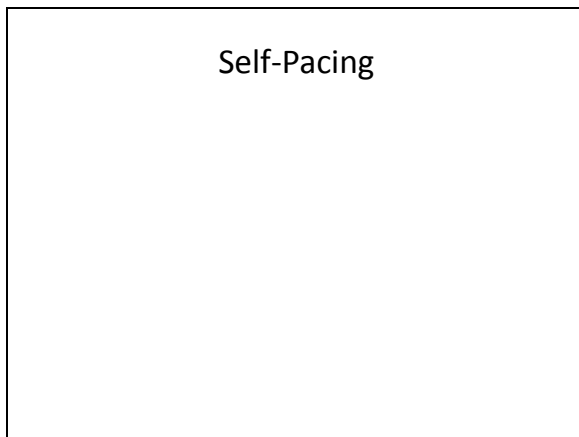
Successive steps / frequency rfmt
Aversive wrong / minimized

Slide 23



Rfmt for right immediate
Correction of wrong immediate
Typical consequence of attention /
inattention deferred
“probably be reinforcing enough”
Can be supplemented

Slide 24



Special sets of problems

Slide 25

Mastery Learning

Slide 26

Enforced Responding

Compose rather than select
Recall / recognize
Plausible wrong answers / strengthen
unwanted

Slide 27

Skillful Progression

Competent / very large number / very
small steps
Rfmt contingent each step
So small that success, but closer to
competence

Slide 28

Much like an effective tutor

Constant interchange
Insist on understanding before proceed
Presents just material ready for
Helps student come up with right answer
Reinforce every correct response

Slide 29

Effective interaction on large scale

Much of effective interaction from one-on-one instruction is lost when instruction is shifted to large groups
Passive receiver
Business training / difficult to form groups (homogeneous or otherwise)
Teachers unavailable (new equipment or technique)

Slide 30

Feedback to designer

Final authority: student (rat is always right)
Feedback to programmer
Trial run quickly reveals
No comparable FB lecturer, textbook writer, or maker of films
Usually impossible to isolate particular sentence, page, sequence
To lets learners fail throughout year and do nothing irresponsible

Slide 31

“Developing the Mind”

Not designed to “develop the mind” or
some other vague “understanding”
Establish behaviors taken as evidence

Slide 32

Program another Mozart / Shakespeare

Rote learning, but creativity
True, no proven formula “genius”
But...

Slide 33

Technological Unemployment

Tiresome labors / not shorten contact
time
More important function than saying
right or wrong

Slide 34

Cost of mechanization

Kitchen

Slide 35

Dependency

No worse than any good teacher
Fading
Final stages of program

Slide 36

Self-Contained

Higher standard

Slide 37

Teaching Machines Today

Computers / basic principles not followed
Program of instruction inside machine, not the machine itself, that taught (confusing technology with technique)

Slide 38

Demise of Teaching Machines

1954 – 1958: IBM
Promised ten machines by 1956, on sale by 1958
Target dates for a completed model were set and postponed
Sent artist to pacify
Life magazine expressed interest, couldn't mention IBM machine
Assigned to different factories
Finally, a single model produced
Sue Meyer tested / clear results / children liked machine and learned quickly
1958 IBM terminated and returned patent
1957-1963: Rheem
"If Rheem wants out in eighteen months, I will stop trying to promote teaching machines."
Defective machines hastily assembled
Repeated failures to deliver working machines
Financial difficulties of Rheem
1963 Skinner and Rheem failed to renew agreements
One more brief company encounter.
"Practical problems soon arose, and I lost interest."

Slide 39

“Build a better mousetrap, and the world will beat a path to your door.”

Experiences with companies had not been encouraging
“Learning” machines / “Hawthorne Effect” / etc
“Waiting to see how the ball bounced”
Waning enthusiasm of executives
Safer investments, see how market responds before committing

Slide 40

Flight from Teaching Machines

Nearly ten years of effort invested. Decades later Skinner wrote: “What had kept them from coming into wider use? Current philosophies of education seemed to be the answer. Schools of education, state and federal departments, administrators, teachers—none of these seemed to believe that better teaching was possible.”
“What is needed in education, is not innovation but a change in the establishment that will permit efficient teaching methods to be used.”

Slide 41

Shifted Emphasis to Programmed
Instruction Textual Materials

More control over production
“...designed for use in a teaching
machine. Where machines are not
available...”

Slide 42

Response Requests &
Scrambling of Answers

Loss of unique features

Slide 43

THE END – Questions?

Next Tuesday (Feb 19th): Exam 4
Next Thursday (Feb 21st): Make-up Exam 1
Make-up exam objectives online

Study session with Megan

Note that there are two exams next week