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- Keller was the strongest advocate of PSI, aka the Keller Plan or the Keller Method
- “Goodbye, Teacher...” (1968)
- 1973: only 10 years after prototype / 5 years first heard of: 300 papers, articles, and research reports
- 1979: 3000 publications
- Influence on my courses

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- Reward rather than penalize

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- PSI is better established in educational system in Brazil than here in the states

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- 1964: Coup d'état
- Suspension of civil rights
- Widespread disappearance, torture, and exile of many politicians, university students, writers, etc
- University of Brasilia: Resignation or dismissal of more than 200 teachers

Slides 6-7

- Intellectual grandchildren
- Popularity of Skinnerian behaviorism traceable almost entirely to Keller's visits

Slides 8-9

- Underlying assumption / few students will (or can) meet objectives
- Final scores: bell curve
- For class of 18: A (2), B (4), C (6), D (4), E (2)
- Expectations under this system

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- Originally designed college classroom
- Elementary / middle / high / business
- 1979: 5000 PSI courses

Slides 11-15

- Small-step sequenced materials
- Repeated testing of specified instructional objectives
- Lecture is not for delivery of course content
- Textual materials
- Course assistants who tutor and assess
 - Personalizes instruction

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- Full understanding later / usually dependent
- Master units at different rates
- Lecturing prevents self-pacing, which then hinders mastery
- Thus reliance textual
- Mastery also entails clearly stated instructional objectives & criterion-referenced assessments

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- Grading
 - Under optimal conditions
 - Compromise

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- With total self-pacing, many will not finish
- Advanced courses require some understanding
- More important concepts early / organize into repeat spiral
- Totally finished before (student motivation increases)
- Allow only two attempts on any one day

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- Competing obligations
- PSI course completion rates
 - Incentive systems
 - Teaching students time-management skills
 - Contingency contracting
 - Students establish self-imposed deadlines

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- When ready, complete test on unit

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- To provide mastery requirement, alternative but equivalent versions of test must be developed
- Also recommend systematic review (review tests or items)
- If unsuccessful after three attempts, then...

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- After assessment, meet proctor (grading, feedback, discussion, tutoring)
 - If meet
 - If not
- Retake as many times as necessary without penalty (note: not replicating this aspect for this unit)
- Cycle repeats with student moves at their own pace
- Kulik review: “Evidence tends to show that small units and frequent quizzes are more effective in stimulating student achievement than large units and less frequent quizzes”

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- Some feel inconsistent with PSI philosophy (if mastered, why exam needed?)
- Keller himself said probably wise to give final
- Rocking the boat
- Answer inevitable challenge of whether or not all those As represent real quality

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- Fifteen week (18 typical: range of 15-20)
- Unit covers about a week's work
- Normally require 15-20 minutes answer / 5 minutes grade
- Longer tests mean waiting lines
- PSI teachers cover little less (hence five class periods for unit 7, instead of usual three)
- Traditional teacher and pride at full syllabus
- Unreasonable if truly expect learn everything
- Covers about 4/5 of normal

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- External / internal
- External: no longer taking course
- Internal: instructor evaluate unit 1 / if pass, become proctor for colleagues / constantly changing group of proctors / must be rewarded, class every test day / points, grades, mastery
- Grading proctors: principle job is decrease gap of understanding between student and teacher / check on test responses that clearly hit or miss target / restate questions / clarify points on which well informed or direct students to certain readings / should not give lectures / 1:10 ratio
- Testing proctors: doesn't actually further instruction / administrative and record-keeping

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- Ephemeral events / can't access / instructor pacing
- Lectures were to be motivational, rather than source of course content / students not permitted to attend lectures unless mastered previous
- Opportunity to learn exciting things not included in course units

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- About 2000 PSI studies conducted. Students in PSI courses learn better, remember longer, and like it more
- Percentage improvement on final exam scores: immediate of 8%, retention of 14%
- Taveggia (1976): Early studies examined data from over 350 reports comparing methods and media of instruction 1924-1965. "The unequivocal conclusion to emerge from this reanalysis of research was that there is no demonstrable difference between the measured college teaching methods (e.g., lecture, group discussion, tutorial, etc.) or media (e.g., face-to-face instruction, educational television)."
- Critic of educational research, unassociated with PSI, who liked demonstrating the nothing one does makes a difference
- Kulik (1976): 400 PSI articles, only 2 favored traditional

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- Student satisfactions also favors PSI (75% to 90%)
- Estimates of student workload were found to be similar in PSI and traditional classes (note about 4/5 rule)

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- Initial development time / planning & organization (“the role of the teacher is not lessened under PSI; it has only been given a different form”)
- Academic progress and advancement governed by student performance rather than calendar
- Difficult to adapt self-pacing and mastery-based model to traditional academic calendar

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- Keller: “The use of a programmed text, a teaching machine, or some sort of computer aid within such a course is entirely possible and may be quite desirable.”
- Relatively minor roles are given in Keller plan to lectures, which could be eliminated entirely without serious damage
- CBI may be less threatening and more acceptable than PSI

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- CAPSI at University of Manitoba
- Uses students from same class who had passed a given unit as peer reviewers
- Required students to demonstrate mastery on every single question on test, otherwise “restudy”
- Restudy: Retake unit after period of time has passed
- Computers allow access 24 hours a day, 7 days a week
- Do not have to go to central location for testing
- By end of course 90% of tests are being peer reviewed
- 87% of peer feedback was free of error

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- Linguistic abilities of computers / assessment / feedback
- Thus, human proctors are necessary

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- Single instructor alone limited in personalized feedback that can be given
- In large CAPSI classes, students continue to receive rapid and frequent feedback

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- Incentives for students to prepare answers, write tests, and review other students' answer
- Point system translatable into grades
- Point penalty if assigned and fail to review by deadline
- Reassigned to another reviewer, instructor, or teaching assistant

Slides 36-39

- Scanning program
- Time limit
- Heavily weighted supervised exams, separate from PSI portion
- Test questions designed at the higher thinking levels (concept testing and applications)
- Possibility of requesting tests until contains only questions that student can answer:
 - Minimum time requirement in-between
 - Most important concepts recur

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- Appeal process as a check against assignment of “restudy” results when “pass” is warranted

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- Whole language and discovery learning

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- One of the most serious problems with education: Who do you believe?
- Advocates often operate from same base of information and data sets, yet offer dramatically different solutions
- New Zealand a popular reference point: New Zealand uses whole language & New Zealand has one of the highest literacy rates in the world

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- Learning to read will happen if you just immerse kids in language / go over text ad nauseam
- Learning is too artificial if organized (hierarchy of skills should not be used)
- Better and more natural to immerse

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- Whole swimming approach

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- Babies acquire language through actually using it, not practicing separate parts and then assembling (what language is babbling)
 - Written language is language
 - Babies acquire language through actually using, not practice of parts
 - Oral language is learned incidentally
 - Therefore, reading is best learned incidentally

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- Little use of material to direct teach reading or writing
- Whole language relies heavily on literature or print used for appropriate purposes
- Cake-mix direction used to really making cake

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- The presumed importance of meaningful contexts

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- Goodmans: "Early in our miscue research, we concluded that a story is easier to read than a page, a page easier than a paragraph, a paragraph easier than a sentence, a sentence easier than a word, and a word easier than a letter. Our research continues to support this conclusion and we believe it to be true."

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- Whole-language avoids hierarchical approaches
- Contradicts common sense to start with easier and build to harder
- Whole-language points out that there are no natural hierarchies
 - i.e. hierarchies are unnatural and therefore bad
 - no natural way to build cars, so let's throw parts together and hope for the best

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- “My kids just love books. Of course, they can't read, but they love them.”

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- Literature often gets a free pass from evaluation committees
- General rule in education is that approaches are adopted based on philosophy, not facts