



## CENTER FOR TEXTUAL STUDIES AND DIGITAL HUMANITIES

402 - Instructional Design and e-Learning

Spring Semester 2016

Week 13 - Extra

## Control of Learning

Principle 1 - evidence for program control in early stages of learning

	<i>Learner-Controlled</i>	<i>Program-Controlled</i>
Low Metacognitive Skill	20 percent	79 percent
High Metacognitive Skill	60 percent	82 percent

Young, J.D. 1996.

## Control of Learning

Principle 1 - evidence for learner control in later stages of learning

- Lee, S., Lee, Y.H.K. 1991. "Effects of learner-control versus program control strategies on computer-aided learning of chemistry problems: For acquisition or review?" Journal of Educational Psychology 83. PP.491-498.

- computer based lesson in chemistry
- compared learning from program control and learner control
- learning compared during early stages of learning
- program control gave better results during initial learning
- learner control more effective during later stages of test learning

## Control of Learning

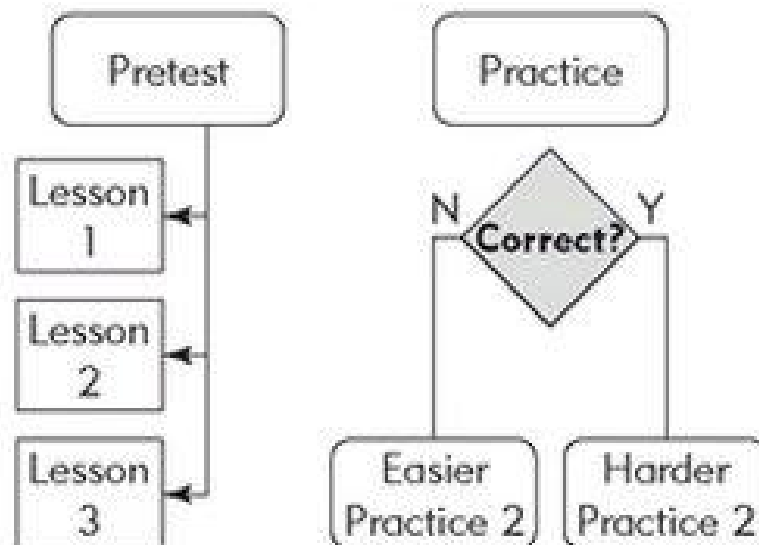
### Principle 2 - default instructional events

- practice as an important instructional method
- preference for learner control
- default navigation option to lead to important instructional elements such as practice
- conscious decision by learner to omit default options
- Shnackenberg, H.L., and Sullivan, H.J. 2000. "Learner control over full and lean computer based instruction under differing ability levels." Educational Technology Research and Development 48. PP.19-35.
- temper consideration of program or learner control relative to target audience
- learner freedom relative to learning is an important consideration for design
- high learner control should often be accompanied by critical aspects as default options

## Control of Learning

### Principle 3 - adaptive control

- program dynamically adjusts lesson content based on evaluation of learner responses
  - better test performance leads to more challenging questions...
  - poor responses may lead to more practice, instruction, easier questions...
- branching learners to different lessons or topics based on results
  - 'static adaptive control'
  - 'dynamic adaptive control'



## Control of Learning

### Principle 3 - dynamic adaptive control and program control

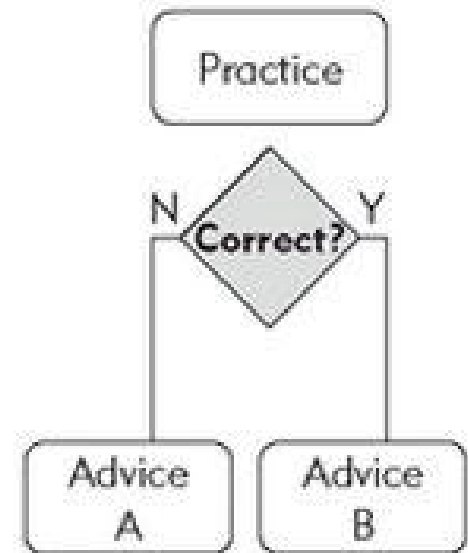
- Salden, R.J.C.M., Paas, F., Broers, N., and Van Merriënboer, J.G. 2004. "mental effort and performance as determinants for the dynamic selection of learning tasks in air traffic control training." *Instructional Science* 32. PP. 153-172.

"dynamic task selection leads to more efficient training than a fixed, predetermined training sequence that is not adjusted to the individual student. Although the fixed condition did attain the same performance score as the dynamic conditions, its costs in terms of time and mental effort to achieve this performance level were substantially higher" P.168.

## Control of Learning

### Principle 3 - adaptive advisement and adaptive control

- advisement is a variation of adaptive control
  - leaves learner control in place
  - may be generic or adaptive
- adaptive assesses learner's needs based on responses



- Bell, B.S., and Kozlowski, S.W.J. 2002. "Adaptive guidance: Enhancing self-regulation, knowledge, and performance in technology-based training." *Personnel Psychology* 55. PP. 267-306.

## Control of Learning

### Principle 3 - adaptive learning with advisement

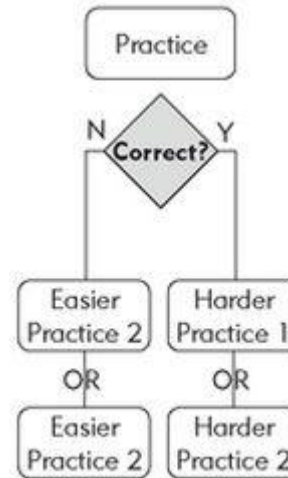
- some advantages to adaptive learning with advisement
  - leads to better learning outcomes than learner control
  - more efficient than program control
  - keep the popular learner control features
- disadvantages include
  - time required to construct and validate decision logic
  - time required to write appropriate recommendations
- careful and valid consideration of cost benefit
  - in terms of critical nature of learning
  - potential savings in learning time



## Control of Learning

### Principle 3 - shared control

- program makes some decisions and leaves others to the learner



- Corbalan, G., Kester, L., and Van Merriënboer, J.J.G. 2006. "Towards a personalized task selection model with shared instructional control." *Instructional Science* 34. PP.399-422.
- can offer some flexible options for a balance of program and learner control
- disadvantage is number of tasks that need to be created

## Control of Learning

### Pacing control

- option to advance through course material or lessons at learner's chosen pace
  - navigation controls, video controls...
- pacing is an important feature that distinguishes asynchronous from synchronous
- consider carefully the design implications
- pay special attention to application of multimedia principles
- Clark, R.C., and Kwinn, A. 2007 "The new virtual classroom" Pfeiffer.

## Building your e-Learning framework

- synchronous and asynchronous activities within a framework
- activities to promote interest, attention, and worth
- motivation and participation levels of the student
- direct correlation with learning?

## Building your e-Learning framework

### Motivation and Icebreakers

- icebreakers at the start of a group e-Learning course
  - fostering community?
- different activities for synchronous and asynchronous
  - classmate interviews
  - initial online games
  - puzzle solving
  - sharing experiences
  - blog posting
  - maintenance of themes and ongoing activities
- different technologies to achieve the result

## Building your e-Learning framework

Independent activities for the learner

- learner activities to complement e-Learning
- asynchronous activities such as
  - independent research and review
  - interview an expert
  - surveys
  - computer simulations and tests