

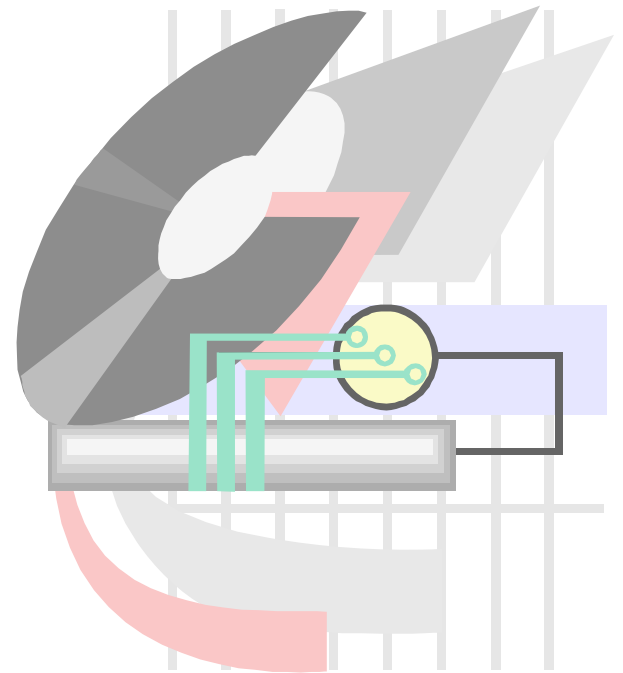


Integrating Educational Technology into Teaching

Chapter 4

Integrating Instructional Software into Teaching & Learning

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INSTRUCTIONAL SOFTWARE

Programs developed for the sole purpose of delivering instruction or supporting learning activities





Instructional Software Classifications

- Drill & Practice
- Tutorial
- Simulation
- Instructional Games
- Problem-Solving
- ILS: Combination of Above
- Programming Languages: Logo



DRILL AND PRACTICE

Three criteria for well-designed programs



- Control over presentation
- Appropriate feedback
- Answer reinforcement



DRILL AND PRACTICE

Three benefits compared to paper exercises



- Immediate feedback
- Motivational
- Saves teacher time



DRILL AND PRACTICE

Two classroom applications



- To supplement or replace worksheets
- To assist in preparing for objective tests



DRILL AND PRACTICE

Some guidelines for using drill & practice



- Set time limits
- Assign individually
- Use learning stations



TUTORIALS

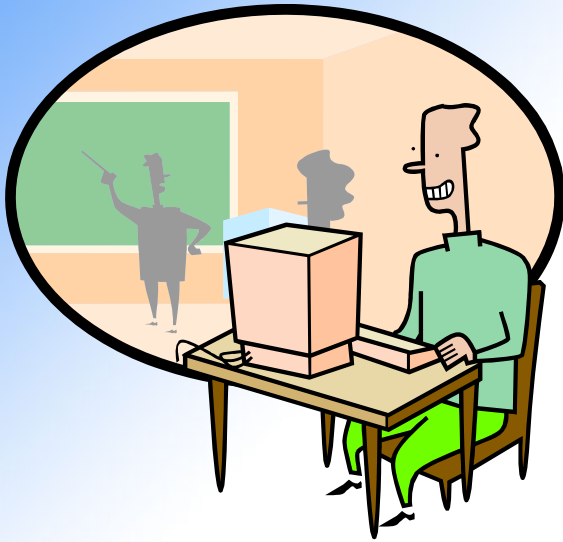
Four criteria for well-designed programs

- Extensive interaction
- Through user control
- Appropriate & comprehensive sequencing
- Adequate answer-judging & feedback



TUTORIALS

Three ways to use tutorials



- Self-paced reviews
- Alternative learning strategies
- When teachers are not available



SIMULATIONS

Four types of simulations



- Physical
- Process
- Procedural
- Situational



SIMULATIONS

Benefits of using simulations



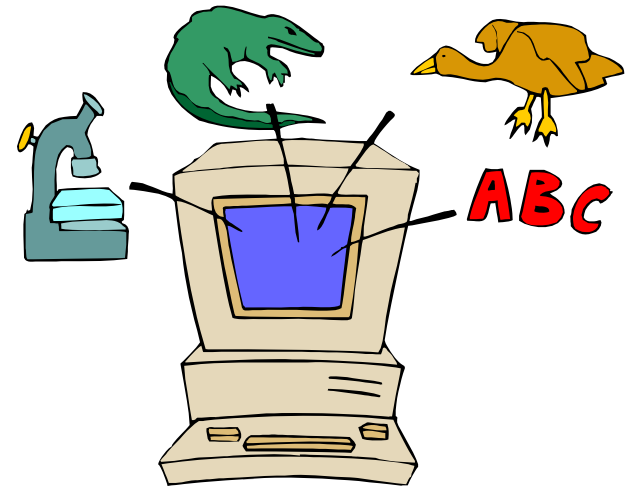
- Compress time
- Slow down processes
- Get students involved
- Make experimentation safe



SIMULATIONS

Additional benefits of using simulations

- Make the impossible possible
- Save resources
- Repeat with variations
- Make situations controllable





SIMULATIONS

Ways to use simulations

- Lab experiments
- Replacement or supplement to role playing
- Replacement or supplement to field trips
- Introducing a new topic
- Fostering exploration
- Encouraging cooperation & group work



INSTRUCTIONAL GAMES

Game Characteristics



- Game rules
- Elements of competition & challenge
- Amusing or entertaining formats



INSTRUCTIONAL GAMES

Three ways to use games

- In place of worksheets and exercises
- To foster cooperation and group work
- As a reward



PROBLEM SOLVING

Two views on fostering problem solving



- As component skills that can be taught
- Inquiry approach



PROBLEM SOLVING

Two types of courseware

- Specific to content area
- General content-free skills





PROBLEM SOLVING

Benefits of using problem solving

- Motivates students to solve problems
- Keeps knowledge from becoming inert





Integrated Learning Systems

Components

- Courseware
- Management System





Integrated Learning Systems

ILS Characteristics

- Lessons tied to specified instructional objectives
- Lessons integrated into the standard curriculum





Integrated Learning Systems

ILS Characteristics

- Comprehensive courseware spans several grade levels
- Student performance management system

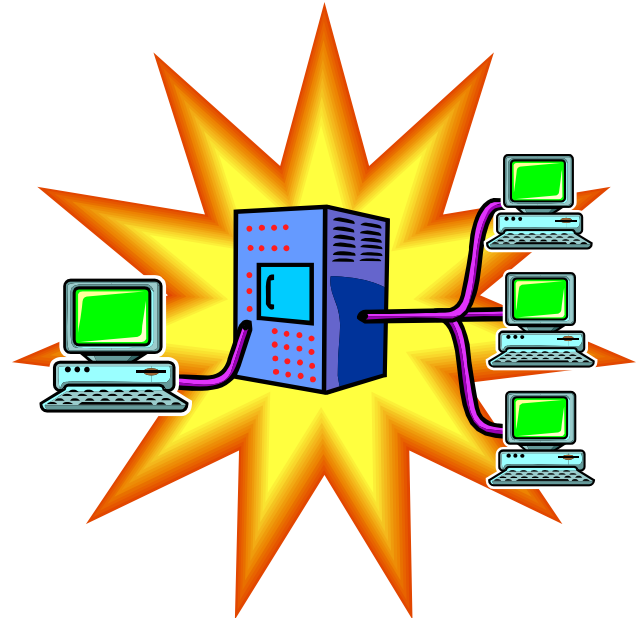




Integrated Learning Systems

Three ways to use ILS

- Remediation
- Mainstream delivery system
- Rich resource environments





Courseware Evaluation

Recommended Sequence

- Begin with an identified need
- Locate titles
- Complete hands-on reviews
- Collect student reviews



Courseware Evaluation

Criteria

- Instructional Design & Pedagogical Soundness
- Content
- User Flexibility
- Technical Soundness

