

PRINCIPLES OF SELECTING SOFTWARE AND MEDIA FOR TEACHING SCIENCE

SELECTING QUALITY SOFTWARE AND MEDIA (Chiappetta & Koballa Jr., 2006, p. 258)

First, reflect on the course you will be teaching

1. Identify the key facts, concepts, principles, laws, theories and other understandings and skills you want students to master.
2. Identify the aspects of nature, the nature of science, and technology you want the students to explore.
3. Determine from the developer's literature the purpose of the software/media.

Second, decide whether the purpose of the software/media matches your instructional purposes

PURPOSES OF APPLICATIONS OF COMPUTERS AND ELECTRONIC TECHNOLOGIES (Chiappetta & Koballa Jr., 2006, p. 258)

Exploring/Familiarizing/Discovering

- Internet browsers
- Simulation software
- On-line data collection
- Reference software
- Microcomputer-based labs (MBLs)

Analyzing

- Graphing Software
- Databases
- On-line data collection/processing
- Statistical Programs
- Spreadsheet software

Composing/Synthesizing

- Word processing software
- Multimedia authoring programs
- Concept mapping and webbing programs

Communicating

- Presentation software
- Email
- Computer-generated graphics
- Listservs
- World Wide Web

**CAN RESEARCH COMPARE ONE TYPE OF INSTRUCTIONAL DELIVERY
MEDIUM AGAINST ANOTHER? TYPICAL PITFALLS OF THIS RESEARCH
(Weller, 1996, pp. 462-463; Clark, 1983, 1994)**

- Examples of media-comparison studies: a) software vs. a teacher, b) simulation vs. micromputer-based laboratory, c) microworld vs. simulation, d) computer-assisted instruction vs. teacher (1970s, 1980s), e) television vs. teacher (1960s), f) radio vs. teacher (1950s).
- Flaws in media-comparison studies: A media-comparison study is always vulnerable to compelling rival hypotheses concerning the possible uncontrolled effects of instructional method and novelty.
- Example of a flawed study: A media-comparison study claims savings of considerable teaching time that is caused by the medium (say, a simulation). Compelling rival hypothesis: greater effort (say, 1000 hours) was invested in the newer media program than in more conventional presentations of the same material.

REFERENCES

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