
Overview

• This chapter discusses how three different learning theories are both recreated and shaped by technologies and how these tools might expand instructional design.
  o Theories of learning and pedagogy both shape the technology and instantiate them (p. 43)
  o Technology widens the range of instructional designs

The Relative Roles of Content, Pedagogy Assessment, and Technology in Learning

• Technology is described as “instrumental”—1.) the tools make the job easier 2) the result is of higher quality than possible without the tools.
• Technology is a way to support the learning and the learner in an already established pattern of curriculum, pedagogy, & assessment
  o Technology can support anyone one of those three aspects of “schooling” (as conceptualized above)

Instructional Design Base developed by Dabbagh (2006) → theories of how people learn in turn inform pedagogical and design decisions

• Listed three learning theories: Objectivism/Behaviorism; Cognitivism/Pragmatism; Constructivism/Interpretivism
• Learning theory → instructional design decisions → tool decisions
• Defining tools by the learning theory they best represent
  o Behaviorist Instructional tools: CAI
    • Factual knowledge and recipe-like procedures are learned really well.
    • Drawback: apathy can ensue
  o Cognitivist Instructional Technologies :Andes
    • Provides three kinds of help—focus on processes
    • Disciplinary specific knowledge; especially with “well-defined content and skills, materials with a few correct ways of accomplishing tasks (p. 50)”
    • Not good for learning to write an evocative essay
  o Constructivist Instructional Technologies; Jasper Woodbury mathematics curriculum
    • Focus on individual creating meaning; realistic situations
      • Students still learn simpler skills in the context of a complex task → not as in Behaviorist approach which rewards only the simple skills
      • Drawbacks: not the most efficient way to teach fixed content and skills (i.e. multiplication tables)
  o Research on all three types show student improvement and learning in some situations, for some students, for some content. Each one offer affordances that follow from the theory, as each technology type offers constraints that follow from the theory
    • Behaviorist: learn facts; apathy ensues
• Costructivist: learn disciplinary knowledge; slightly more complex processes; higher effectiveness in reading than Behaviorist technology; still doesn’t address complexity
• Cognitivist addresses motivation and complexity; facts and simple processes are inefficiently learned

Dede is constantly reiterating that the situations, the learners, the goal of the instruction, timeframe, and resources all influence the instructional design decisions (as much as the learning theory).

The Controversies:
Listed the perennial controversies that surround technology integrations: is learning via media worse than face to face? Do media influence learning? Can some media undercut the purposes of education? Reconceptualizing Media as Empowering Diversity in Learning; Investments in Instruction ICT infrastructures
• In all of these discussions of the controversies it remains constant that the effectiveness of the media/technology depends the purpose and implementation of the tool

The Solution
“No educational ICT is universally good; and the best way to invest in instructional technologies is an instrumental approach that analyzes the natures of the curriculum, students, and teachers to select the appropriate tools, applications, media, and environments (p. 59).”

Personal Reflection
There are many good reasons to memorize facts and know procedures. Processes can also be understood as schema that can be applied across many situations and domains. Learning that encompasses a student’s individual exploration of a topic increases motivation and retention. Each theory has a purpose, and in each application of theory, (and the technology which reflects that theory) learning results in different ways in various levels of complexity. The continual search for the one right answer obscures the real learning that can occur with the thoughtful application of these technologies to the teaching context.

One aspect of this conversation I wonder about is the element of risk that is undertaken by the teacher in implementing the technology. As with any tool, it may not function as intended and to rest one’s entire learning strategy on a tool is frankly terrifying. While any techie teacher will tell you that they wisely develop back-up plans for when the technology fails, to ask teachers without the skills or confidence to troubleshoot or re-adjust is fraught. This was one aspect of the article that I found lacking: a discussion of the natural repositioning of the teacher when the learning is more dependent on their choice of tool (obviously the choice is grounded in the professional knowledge of the teacher). It is surely the same dilemma many have experienced as the privileged skill is shared or replaced by some new technology. Teachers are increasingly repositioned as co-learners, curators, troubleshooters. This is a shift that needs to be honored and recognized in these discussions.