How Teachers Use Instructional Design in Real Classrooms

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INTRODUCTION

"I've learned how to use the [insert new instructional technology here], so now how do I use it in class?"

From filmstrips and mimeographs, to computer-based simulations and virtual reality, technology seems to dominate teachers' lives as they master the new instructional media for use in their classrooms. Good teaching and learning practices tend to take a back seat while the focus on mastery of the technology reduces teaching into basic presentations and lectures, a format most easily controlled by the instructor. While most pre-K-12 and post-secondary instructors do develop effective courses in which students learn, many would be hard pressed to describe *how* they arrive at certain goals and teaching strategies.

BACKGROUND

The field of instructional design provides sound practices and models that, once modified for use by working teachers, can be used to design effective instruction in any content area (Rogers, 2002). The more difficult issue is helping teachers move beyond the tendency to focus on technology rather than instructional goals. Such focus occurs at lower levels of what can be described as a technology adoption hierarchy (summarized in Table 1): familiarization, utilization, integration, reorganization, and evolution (Hooper & Rieber, 1999).

Somewhere at the integration stage, a "magic line" is crossed and the focus is no longer on the technology but on the teaching and learning. A supporting practical design model can help teacher-designers cross this magic line more efficiently and with a high degree of success.

FUTURE TRENDS

A Modified Instructional Design Model

Prescriptive behavioral models in learning would seem, at first encounter, to be inappropriate in light of the more constructivist practices of current educators. However, most constructivists would concur that one must have solid building blocks or elements before construction of new knowledge can be achieved. Dick and Carey's (1990) original systems design model and subsequent modifications by Gagné, Briggs and Wager (1992) and others offer examples of all of the elements necessary for designing and evaluating effective instruction. What the models lacked, however, was a connection to real classroom teachers: those of us who are really teacher-designers and who must create and develop our courses without benefit of design teams and lengthy pilot tests with target audiences.

Figure 1 is a modification based on several interpretations of the most typical instructional design model (Dick & Carey, 1990). Notice that the five phases of design: analyze, design, develop, implement, and evaluate, are focused not

Table 1. A summary of the technology adoption hierarchy

EVOLUTION	Highest level: is most able to cope with change and has skills to adapt newer technologies as needed or desired in teaching and learning environment.
REORGANIZATION	Re-designs teaching strategies with focus on learning and goals of instruction. Students become more involved in the learning environment.
INTEGRATION	Beginning to accept the technology. Focus soon shifts from learning the technology (and fearing its breakdown) to effective use of the technology in teaching.
UTILIZATION	Basic trial of the new technology. Focus is on finding a use for the technology that may or may not continue, particularly if the technology breaks down.
FAMILIARIZATION	Lowest level of exposure to a technology.

on designing teacher-proof curricula but rather on teacher-designers staying focused on their own environment and learners.

The model helps teachers begin designing with the constraints, issues, community demands, and state and federal mandates in mind before thinking about instructional media or "activities". Once parameters are identified, teacher-designers move into the design phase as they document the overall goals of their course (or, in the case of primary teachers, their school year) while simultaneously considering their learners. What does it mean to be a 3rd grade person? What skills should learners have as they move into 4th grade? What new knowledge is gained in 4th grade to allow learners to become 5th grade students? And so on.

Within this phase, assessments are also considered. Effective design, as well as effective teaching, requires teacher-designers to carefully match goals and objectives to appropriate assessments. Desired types of learning, from basic verbal information to higher order thinking skills (Gagné, Briggs & Wager, 1992) must have matched assessments that allow learners to demonstrate their new skills and abilities. Mismatched goals and assessments are common errors in designing instruction.

Using this model essentially forces us to wait until the development phase to select teaching strategies and instructional media. For those teachers who are struggling to leave the lower levels of the technology adoption hierarchy, this placement will seem uncomfortable. However, starting with the technology and trying to build an instructional environment is, as should be apparent, in essence turning the design process inside out! Once the focus is away from the goals and objectives and the *learners,* any further course development will likely result in a design that falls far short of the intended learning:

I am elated that I had the opportunity to work on curriculum design for the first time the right way and with a group of faculty members who supported my learning. I have watch[ed] part-time faculty members and even seasoned classroom teachers jump into material they are not familiar with, plan day by day, never really having clear objectives and methods of evaluation [in mind]. (A. Vidovic, personal communication, July 30, 2003)

Notice that the development of assessments also crosses this phase of the design. It is critical to select strategies and media that support the goals and objectives as well as allow students to demonstrate their understanding. Using strategies and media that are similar to the assessment situation strengthens the learning. For example, if students were learning to write poetry, a true-false test would be a very inadequate measure of their skills.

Implementation, *teaching*, is the phase of a teacher-designer's true test. It is here that this model is quite different from traditional instructional design models in that teacher-designers rarely have a chance to "try out" a course on a sample of students. Rather, they often have to simply try things and hope it all works well. However, by follow-

Figure 1. Modified instructional design model for teacher-designers. Modifications first introduced in Designing Instruction for Technology-Enhanced Learning*, Rogers, 2002, Idea Group Publishing. Further modifications by Patricia L. Rogers and Catherine E. McCartney, Bemidji State University, for the Online Graduate Program, 2002-2003).*