

Chapter XXIX

K–12 Educators as Instructional Designers

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ABSTRACT

This chapter will describe the realities of K-12 classroom practice and how this compares to common tenets in the field of instructional design. Specifically, the chapter will describe how trends towards the use of information and communication technologies in classrooms might be made more advantageous through the use of an instructional design approach. The chapter will include an introduction to the field and history of instructional design, an overview of current teacher preparation as it relates to designing instruction, and how a systematic instructional design perspective might differ. The chapter will conclude with a description of how changes in teacher preparation and access to the appropriate tools could facilitate increases in student achievement.

INTRODUCTION

Ask a K-12 teacher to identify his or her profession and one of the responses you will likely *not* hear is instructional designer. In reality, instructional designer is likely a better description of the emerging responsibilities of the 21st-century educator. While educators and instructional designers agree on many prin-

ciples and share common goals, they have long enjoyed a separate existence (Rose, 2002).

A growing need exists to introduce educators to the field and principles of instructional design within the emerging context of the technology-infused curriculum. The convergence of the following trends point to this need: (a) better access to powerful learning application development tools, (b) greater dependence upon

Web-based learning, (c) a need to promote the technological literacy of students and teachers, and (d) a greater emphasis on accountability.

The first part of this chapter will begin with a review of the current landscape of K-12 education followed by an introduction to the field and history of instructional design. The second part of the chapter will: (a) provide an overview of current teacher preparation (and to some degree, current practice); (b) contrast this with how a systemic instructional design perspective might guide practice; and (c) provide a description of how this progression could be achieved in terms of teacher preparation and access to the appropriate tools.

CHANGING LANDSCAPE

Technology in Schools

The advances in educational technology over the past 15 years are tremendous. From a technological standpoint, the processing power available today, for relatively low cost, represents the unthinkable only a few years ago. In terms of software, the tools available are much more user friendly and significantly more reliable. From a communications standpoint, few people recognized the dramatic significance of high-speed Internet connections in terms of access to educational opportunities. Science classrooms have benefited enormously from powerful simulations and increased access to real scientific databases (e.g., Centers for Disease Control). However, these advances have had little impact on many of today's classrooms. In observations of two technology-rich Silicon Valley high schools, Peck, Cuban, and Kirkpatrick (2002) reported that:

Teacher use of technology during our random observations was the exception

rather than the rule. Of the 35 teachers we saw on random days, 23 in social studies, science, English, math, and foreign language had a familiar teaching repertoire—lecture, review of homework, recitation, and whole-group instruction—that eschewed any use of electronic technology. (p. 49)

Of course identifying *non-users* implies that there are a number of *users*. In fact, in a significant number of classrooms, the technology *is* changing the way many teachers prepare for, plan, and deliver instruction. In a study of three teachers at a school where each student had a laptop, Windschitl and Sahl (2002) found that the technology could serve as a *catalyst* for changing professional practice. That catalyst is becoming more and more prevalent in classrooms. This can be seen in the growth of the Internet-connected classroom (Kleiner & Lewis, 2003) and the popularity of either equipping or requiring students to have notebook or handheld computers (e.g., Windschitl & Stall, 2002; Lowther, Ross, & Morrison, 2003; Edwards, 2003; Kleiner & Lewis, 2003).

Teachers as Instructional Materials Designers and Adopters

Advances in technology have brought powerful tools to the desktops of educators. Once only the purview of large publishing companies, the development and dissemination of quality instructional materials now is well within the technological reach of anybody with a modestly equipped personal computer. Teachers are also receiving professional development opportunities related to technology more frequently. Of the U.S. schools with Internet connections (99% in 2002), 87% reported that they had offered professional development activities to their teachers in the past 12 months (Kleiner & Lewis, 2003). A substantial amount of this

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