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This digest is based on TRENDS IN EDUCATIONAL TECHNOLOGY 1991, by Donald
P. Ely.

A content analysis was performed to determine the trends in the field of educational
technology for the period October 1, 1990 through September 30, 1991. Sources for the
analysis included five leading professional journals in educational technology; papers
given at annual conventions of three professional associations; dissertations from five
universities that have a high level of doctoral productivity; and the educational
technology documents that have been entered into the ERIC database. The analysis
was complemented by the examination of supplementary documents to confirm the
trends indicated in the content analysis.

TThis digest features selected trends identified in the study. For a full discussion of the
study methodology and findings, the reader is referred to the source noted above.

TREND: THE CREATION OF TECHNOLOGY-BASED TEACHING/LEARNING

PRODUCTS IS BASED LARGELY UPON INSTRUCTIONAL DESIGN AND
DEVELOPMENT

PRINCIPLES.Over 15% of the teaching/learning materials reviewed in this year's study
were concerned with design and development. Several subheadings related to design
and development include message design, product development, individual differences,
and course development. Needs assessment and task analysis were less conspicuous,
and models and theories in support of specific design and development approaches are
prominent in the literature. Appearing with increased frequency is the term
"constructivism": that idea that the learner, rather than the teacher, develops (or
"constructs") knowledge. Arguments for and against the concept have been presented
in the literature. Finally, it is evident that research on screen design is influencing the
development of teaching/learning products using computers.

TREND: EVALUATION HAS TAKEN ON GREATER IMPORTANCE AS THE CONCEPT

OF PERFORMANCE TECHNOLOGY HAS BEEN FURTHER DEVELOPED.The

descriptor "performance technology" is being used more frequently, especially in the business-industry-government context, to refer to effective instructional design and delivery. Performance technology is based on the conviction that there are training procedures that can guarantee learning, i.e., "performance," and that there are data, derived from careful evaluation, that demonstrate the effectiveness of a given design. Integral to this concept is process evaluation. Another aspect of evaluation in the 1991 literature is product evaluation, which is the assessment of instructional materials that may have potential uses in other settings. Although evaluation has typically been seen as peripheral to the educational technology field, it is now becoming integral to the instructional design process, and, as such, an essential element in the field.

TREND: DISTANCE EDUCATION IS EVIDENT AT ALMOST EVERY EDUCATIONAL

LEVEL IN ALMOST EVERY SECTOR.It has been recently estimated that 25%-50% of the nation's students are reached by distance learning technology (School Technology News, 1991). Over 1,500 school districts in 47 states are participating in distance education through the following technologies: satellite, audiographics, microwave, coaxial cable, computer, and fiber optics (Garnette and Withrow, 1990). Many distance education programs offer complete courses with the teacher in a remote location, although some students use this approach to supplement classroom instruction. The delivery of instruction is generally via telecommunications and computer hardware and software, and learners work both independently and in small groups. State policies regarding distance education are evolving. For example, Iowa is investing $50 million in a statewide telecommunications infrastructure. Other state programs of note are in Kentucky, Oklahoma, Michigan, Minnesota, Texas and Virginia. It has been observed that there is probably no other single trend that encompasses the theory and practice of educational technology better than distance education.

TREND: COMPUTERS ARE PERVASIVE IN THE SCHOOLS. VIRTUALLY EVERY

SCHOOL IN THE U.S. HAS MICROCOMPUTERS.In its annual survey of the numbers of computers in schools, Quality Education Data this year reported results from 83,283 elementary and secondary public schools in the United States. Microcomputer density (the number of students per computer) was 20:1 in 1990-1991, a reduction from 125:1 in 1983-1984. In fact, the percentage of U.S. schools with microcomputers has increased over the past 10 years until it reached 98% in 1990-1991 (Quality Education Data, 1991). A report from the United States Department of Commerce, Bureau of the Census reported that among children 3-17 years of age, 46% used a computer at home and/or at school, a rise from 30% in 1982 (Kominski, 1991). Sheingold and Hadley (1990) observed that computer software has been integrated into classroom practice in

the following manner: (1) text processing tools (95%); (2) instructional software (89%); (3) analytic and information tools (87%); (4) programming and operating systems (84%); (5) games and simulations (81%); and (6) graphics and operating tools (81%). It is noted that one of the next steps in determining the role of the computer in education will be to examine the use of computers in teaching and learning in terms of social, vocational, pedagogic, and catalytic rationales.

TREND: TELECOMMUNICATIONS IS THE LINK THAT IS CONNECTING

EDUCATION TO THE WORLD.Telecommunications, the technology of communication by electronic transmission, is being used to establish new connections between educators and students. The term "interactive" is commonly found in relation to telecommunications. Distance education applications, as discussed above, use such interactive telecommunications technologies as electronic mail, computer conferences, and two-way audio and video conferences. Networking is the dominant trend within telecommunications; in 1991, Congress passed the High-Performance Computing Act, which authorizes the creation of the National Research and Education Network (NREN), America's "information superhighway." The educational use of television, through cable, satellite, or videotape, reached new heights in 1991. The most popular classroom use of television was for current affairs programs, followed by literature, performing arts, and history. Access to cable programs was increased through the national Cable in the Classroom project. States are becoming the organizing units for delivery of telecommunications technology. For example, the Massachusetts Corporation for Educational Telecommunications (CET) operates the Mass LearnPike, and the Kentucky Educational Network links all public schools through satellite.

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