

Book Reviews

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The three books reviewed in this issue are: *Screen Design Strategies for Computer-Assisted Instruction* by Jesse M. Heines, *Producing Instructional Strategies* by A. J. Romiszowski and *Styles of Learning and Teaching* by Noel Entwistle.

Screen Design Strategies for Computer-Assisted Instruction, by Jesse M. Heines. Bedford, MA: Digital Equipment Corporation, 1984. 154 pages.

Reviewed by Gina Siliauskas

If you are new to CAI courseware design, *Screen Design Strategies for Computer-Assisted Instruction* will be a welcome find. It is probably the only book currently available to provide a concise and well-organized introduction to screen design for CAI applications. There is a growing body of research which indicates that screen display variables can have a critical impact on the viewer's attention, retention, and accuracy of responses. This book is primarily intended to create an awareness of these variables in the instructional designer; it is not, as the author is careful to assert, a "how-to" book.

Author Jesse Heines begins the book by addressing several aspects of the "computer/video medium" which he considers to be of significance to the screen designer. After briefly describing how this medium differs from the traditional print medium, Heines sets out to discuss how picture representation occurs. A good understanding of picture resolution with its limitations is critical to the development of screen lay-out. Picture resolution is explained here in easy-to-understand terms, as are the differences between the basic video display systems available, (i.e., raster scan and stroke vector systems). By presenting this material in such a straight-forward fashion, the author succeeds in directing our attention to technical limitations which have a direct bearing on design decision. As a conclusion to this chapter, several role models for screen design are suggested.

Chapter 2 focuses on the use of "functional areas" of the screen to help structure the material to be displayed. This entails dividing the screen into different areas for presenting different types of information. The selection of locations and shapes for these areas is discussed in relation to standard screen components, which Heines defines as: orientation information, directions, student responses, error messages, and student options. Split-screen design or windowing techniques are not discussed in this chapter or anywhere else in the text, probably because of the relative recency of their development. (A major problem in publishing a text such as this one, which is so dependent on hardware considerations, is the rapid obsolescence of the information presented.) Otherwise, this chapter serves as a useful introduction to display organization, particularly as it includes a description of scrolling and other display clearing techniques.

Despite the author's warning that the book is not on computer graphics, the third chapter, which deals with visual symbols, proves to be somewhat of a disappointment. As

the development of symbols depends on the graphics capabilities of the system used, and there is a notable lack of standardization of these capabilities across systems, I can appreciate the author's dilemma in presenting this chapter. Sketchy assistance, however, is provided in terms of generally applicable design considerations (although the author takes the time to belabor the point that cuteness should be avoided). This section could easily have been improved by the addition of examples of perceptual principles relevant to the design of visual symbols, e.g., closure (closed figures being more readily perceived), unity (a good symbol being characterized by having all parts contained within a single boundary), simplicity (the avoidance of too much detail), etc.

Chapter 4, on the other hand, provides an excellent introduction to the effective use of menus. The major advantage of designing a menu-driven system is the ability to explicitly present to the user a structure for the learning and use of the knowledge required to proceed through the system. The decisions involved in the design of menus, such as choosing the number of options, screen lay-out, user method of indicating choice, and visual representation of the chosen option, are clearly described and illustrated in this chapter, thus providing the novice screen designer with a useful design tool.

Chapter 5, which concentrates on text display, is the most well-developed chapter in the book attesting to the recent surge of research in this area. Pointers are provided on how to use typographical variables such as type style, line length, justification, and break points to improve message readability. Similarly, the use of character attributes which can change the appearance of display units is detailed. These attributes, which include font, boldface, reverse video, underlining, varied text sizes, text rotation, and color, can also greatly enhance the message to be communicated. They must be used wisely, however, and in this connection the author cautions against the use (and over-use) of screen design techniques to compensate for poor writing.

In Chapter 6, Heines turns his attention from specific strategies to the use of screen-oriented text and graphics editors as tools that simplify the design process. The discussion of general screen design issues, such as the need to separate oneself from the actual programming of the CAI program and the necessity for separating display logic from lesson logic, offers some valuable insights into the designer's perspective. The need to design courseware with transportability in mind, a requirement which cannot be over-stressed, is also an important piece of advice for the beginning designer and the author should be commended for emphasizing these points. The value, however, of including a description of text and graphics editors in this chapter is questionable as such details are no doubt better documented in the manuals accompanying the system the user will be accessing.

The final chapter of the book takes a look at CAI style and attempts to provide some guidelines for improving the instructional communication beyond the screen design variables discussed in the previous chapters. The author urges the CAI courseware designer to maximize learner interaction; to use other media in connection with CAI; to take the student population into consideration, including individual differences; and to make use of formative evaluation. These guidelines are certainly valid and worthwhile. My only criticism is that I would have liked to see them fleshed out in terms of concrete examples. Heines may well have sacrificed substance in the interest of brevity, not only here but elsewhere in the text.

One of the difficulties any author of an introductory text faces is the selection of cut-off points for content. When the quality of the writing is as good as Heines', one can only wish for greater elaboration and a more in-depth treatment of the subject. In spite of this objection, my view is that this book does indeed successfully accomplish its goal of sensitizing the reader to the major variables in the field of screen design. *Screen Design Strategies for Computer-Assisted Instruction* is a concise and readable text for the novice courseware designer which has made a timely entry into the market.