A METHODOLOGY FOR EVALUATING TUTORIALS FOR COMPUTER APPLICATION SOFTWARE

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Potential users must learn how to use a computer application tool, or software, in order for the tool to be successfully introduced. Usually the instructions on how to operate the tool are located in a tutorial, which the user must access. Since computer tools are often “personalized” to a specific market, the tutorial for one tool may not be appropriate for all. In other words, tutorials need to be “personalized” to a specific computer tool. Implicit in the above statement is the assumption that candidate tutorials should be evaluated to determine which is the best for a specific tool. This paper reports on a methodology that allows convenient evaluation of candidate tutorials by using the criterion of increased willingness on the part of potential users to use the tool for problem solving. Therefore, the methodology also addresses the problem of unused computer tools.

Many organizations have purchased computer application tools, software. In order for these tools to provide the benefits for which they were acquired, they must be used. Often, however, they are not (Keen, 1980; McKenney & Keen, 1974). While there are many reasons for this problem, they all are represented by three general explanations. They are:

1. Poor design of the tool
2. Low rate of computer literacy among potential users
3. Difficulties with learning to use the tool.

Explanation One includes mismatches between needs of the user and orientation of the tool (Mintzberg, 1976; Alter, 1980; Ives & Olson, 1981), poor technical design of the tool (Wagner, 1981a, 1981b; Mackie, 1980; Robey & Taggart, 1982; Carlson, Grace, & Sutton, 1977), and lack of user and organizational input into the design of the tool (Keen, 1980; Utal, 1982; Jacob & Sprague, 1980). Since CASE methodologies and end-user computing address these shortcomings, this explanation for the problem was not pursued. Explanation Two is a well-documented phenomenon (Bartino, 1984; Mintzberg, 1976; Rockart & Tracey, 1982) that requires long-term...
measures to rectify. Therefore, this explanation was also not pursued. Explanation Three is important (Carey, 1982; Davis, 1979; Nickerson, 1981; Yestingmeier, 1984), amenable to short-term remedies, and has not been adequately examined (Yellen, 1987). Explanation Three will be the focus of this paper.

Good instruction reduces difficulties with learning. Since in-house and outside tutors are becoming less important due to rising costs (Stewart, 1982-1983), traditional classroom instruction was not examined as a technique to deliver good instruction. Rather, the emphasis was on improving the quality of the increasingly popular self-paced tutorial, which contains the instructions on how to operate the tool. This paper will report on a methodology that evaluates the quality of the tutorials being considered for a specific computer tool.

The quality of a tutorial is not necessarily a function of its educational value. Therefore, evaluation criteria traditionally used in educational research (e.g., changes in user performance or changes in user attitude) were deemed inappropriate. The methodology in this paper measures quality using the criterion relevant to the problem, that is, increasing the willingness of potential users to use the computer tool for problem solving.

### Basic Environment

Generally, potential users are introduced to a computer tool in a learning session. When finished with the learning session, these people are expected to use the tool to solve problems. Often, however, they do not. Some because of an inappropriate tutorial, they lose interest in learning during the learning session. Others learn the material contained in the tutorial during the learning session, but believe the tutorial did not facilitate refresher learning that would be needed during a problem solving session. Neither group of users is likely to use the tool for problem solving (Gould & Lewis, 1985; Relles, Sondheimen, & Ingragiola, 1981; Schewe, 1976).

A good tutorial, therefore, must achieve two goals. First, the potential users’ initial resistance toward using the tool (manifested by a lack of interest in learning during the initial exposure) must be overcome. Second, potential users must perceive that the tutorial is not difficult to use for refresher learning during problem solving. In this paper, successfully achieving these two goals for a tutorial is called increasing the willingness of an individual to use a computer tool.

A user’s total willingness to use a computer tool is a function of many things, such as the technical aspects of the tool, its speed, and the individual user’s personal characteristics. This research, however, is only concerned with willingness to use as it pertains to the quality of the tutorial. A high-quality tutorial (e.g., a tutorial that achieves the two goals for tutorials) is either fast, easy to use, correctly displayed, or has whatever the user believes is important for his or her learning needs.

Willingness to use is an attitude in that potential users are disposed to use the tool. Willingness to use is also a behavior in that potential users act on their positive attitude by using the tool for problem solving.

### The Methodology

Since most computer tools, at least theoretically, serve a unique group of users and/or perform a unique set of functions, the tutorial for one tool may not be appropriate for all. In other words, tutorials should be “personalized” to the tool. Candidate tutorials for a specific tool, therefore, need to be evaluated.

The methodology reported in this paper for evaluating the quality of candidate tutorials for a specific computer tool begins by dividing a sample of potential users into a number of groups, equal to the number of candidate tutorials. A set of problems, representative of the problems that the tool can solve, is presented to all the subjects. The subjects record their initial attitude toward using the appropriate computer tool to solve the problems. These attitudes are