Chapter 17

User Developed Applications: Can End Users Assess Quality?

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Organizations rely heavily on applications developed by end users yet lack of experience and training may compromise the ability of end users to make objective judgments about the quality of their applications. This study investigated the ability of end users to assess the quality of applications they develop. The results confirm that there are differences between the system quality assessments of end user developers and independent expert assessors. In particular, the results of this study suggest that end users with little experience may erroneously consider the applications they develop to be of high quality. Some implications of these results are discussed.

INTRODUCTION

User developed applications (UDAs) form a significant proportion of organizational information systems (IS) (McLean, Kappelman, & Thompson, 1993) and the ability to use end user development tools is often a position requirement instead of an individual option (Brancheau & Brown, 1993). The benefits that have been claimed for user development of applications include better access to information and improved quality of information, leading to improved employee productivity and performance. However the realization of these benefits may be put at risk because of problems with information produced by UDAs that may be incorrect in design, inadequately tested, and poorly maintained.

Despite these risks organizations generally undertake little formal evaluation of the quality of applications developed by end users (Panko & Halverson, 1996).

In the majority of organizations the only measures of whether an application is suitable for use are user developers' subjective assessments of their applications. Yet purely subjective, personal evaluations of UDA quality could be at wide variance with actual quality. Lack of experience and training may compromise the ability of end users to make objective judgments about the quality of their applications, but it appears that many end users do lack experience and training in both use of system development tools and in systems development procedures (Cragg & King, 1993).

There has been little empirical research on user development of applications (Shayo, Guthrie, & Igbaria, 1999), and most of what has been undertaken has used user satisfaction as the measure of success because of the lack of objective measures available (Etezadi-Amoli & Farhoomand, 1996). The fact that vital organizational decision making relies on the individual end user's assessment of application effectiveness suggests that more insight is needed into the ability of end users to assess the success of their own applications, and that as well as user satisfaction additional criteria of success should be considered.

Research on the relationship between experience or training and the success of UDAs has been inconclusive. In a meta-analysis of 15 end user satisfaction studies, Mahmood and Burn (1998) found that in the majority of studies greater levels of user developer experience were associated with higher levels of satisfaction. However individual studies vary: Al-Shawaf (1993) did not find any relationship between development experience and user satisfaction, while Amoroso (1986) found that the lower the level of programming skills and report building skills reported the higher was the satisfaction. Janvrin and Morrison (1996) found that their more experienced subjects were less confident that their applications were error free. Crawford (1986) found that higher levels of training were generally associated with lower levels of user satisfaction, while Raymond and Bergeron (1992) found microcomputer training to have a significant effect on satisfaction with decision making, and Nelson and Cheney (1987) concluded that there is generally a positive relationship between computer-related training that a user receives and his or her ability to use the computer resource. Yaverbaum and Nosek (1992) speculated that computer training increases one's expectations of information systems, and hence may actually cause negative perceptions. This may be the case for both training and experience in the UDA domain and may go some way to explaining the lack of conclusive results in the literature.

There have been many calls for the development of more direct and objective measures of UDA effectiveness (Al-Shawaf, 1993; Edberg & Bowman, 1996; Igbaria, 1990; Rivard, Poirier, Raymond, & Bergeron, 1997). There have been some attempts to move away from the use of user satisfaction as the major indicator of UDA success and to adopt a software engineering approach with a focus

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