

Chapter 8

End User Types: An Instrument to Classify Users Based on the User Cube

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ABSTRACT

Contemporary end users are more knowledgeable about computing technologies than the end users of the early '80s. However, many researchers still use the end user classification scheme proposed by Rockart and Flannery (1983) more than two decades ago. This scheme is inadequate to classify contemporary end users since it is based mainly on their knowledge and ignores other crucial dimensions such as control. Cotterman and Kumar (1989) proposed a user cube to classify end users based on the development, operation, and control dimensions of end user computing (EUC). Using this cube, users can be classified into eight distinct groups. In this research, a 10-item instrument is proposed to operationalize the user cube. Such an instrument would help managers to identify the status of EUC in their firms and to take appropriate action. Based on the data collected from 292 end users, the instrument was tested for construct, convergent, and discriminant validities. Researchers can use this instrument to study the interaction between constructs such as development and control with end user computing satisfaction (EUCS).

INTRODUCTION

End user computing (EUC) has been around since the late 1970s. Contemporary end users are more knowledgeable about computing technologies than

ever before. They develop not only simple applications such as spreadsheets, but also sophisticated *graphical user interface* (GUI)-based applications and dynamic Web applications with back-end database connectivity. There is no dearth of EUC

research in the information systems literature. Research in this area ranges from benefits of user computing (Rivard & Huff, 1984; Brancheau, Vogel, & Wetherbe, 1985; Lee, 1986; Leitheiser & Wetherbe, 1986; Davis & Bostrom, 1993) to risks (Alavi & Weiss, 1986) and problems (Guimaraes, 1999) associated with user-developed applications. However, in the fundamental area of end user classification, more research is required. Most existing studies classify end users based on Rockart and Flannery's (1983) classification scheme. This scheme primarily uses end user computing knowledge as a base for classification and ignores other dimensions associated with the contemporary EUC environment such as control.

EUC became widespread due to users relying less on centralized information technology (IT) departments for their computing needs. In other words, personal computers allowed users to exert control over their own information needs. In current EUC environments, users play different roles, such as developers of applications and controllers of the EUC environment. In spite of active involvement of end users in organizational computing, they are not yet well understood. This often leads to inefficient management of EUC, poorly designed training programs, and decreased productivity, among other effects. Since the concept of EUC begins with end users, researchers need to understand the various constructs associated with them, such as development, operation, and control. These constructs may help to better understand end user computing satisfaction and productivity. Rockart and Flannery's (1983) scheme does not reflect the different characteristics of contemporary end users. Cotterman and Kumar (1989) presented a user cube and classified users into eight distinct types based on three dimensions represented by users—developer, operator, and controller. This quantitative approach to end user classification has been largely ignored by researchers. Hence, an attempt has been made in this article *to operationalize the user cube*. The instrument presented in this article classifies end users into eight different

types and represents a means of quantifying the EUC 'culture' in an organization. The benefit to organizations in understanding the extent and type of their EUC use is in informing and guiding the types of support infrastructure and tools provided to its users.

PRIOR END-USER CLASSIFICATION SCHEMES

Prior EUC research has provided different end user typologies. McLean (1979) divided users into two main categories, namely: the *data processing professional* (DPP) and the *data processing user* (DPU). DPPs develop application programs for use by others and are thus typical IT personnel. DPUs are end users who are further divided by McLean into *DP amateurs* (DPAs) and *non-DP-trained users* (NTUs). The DPAs develop applications for their own use while the NTUs use applications written by others. Rockart and Flannery (1983) presented a fine-grained classification of end users that is widely accepted and used by IS researchers. The different end user groups they identify are:

- **Non-programming end users:** do not program or use report generators. Access to computerized data is through a limited, menu-driven environment or a strictly followed set of procedures. Examples include data entry personnel.
- **Command-level users:** perform simple inquiries, often with a few simple calculations such as summation, and generate unique reports for their own purposes. An example would be shop-floor supervisors who generate staffing reports for each shift.
- **End user programmers:** utilize both command and procedural languages directly for their own personal information needs. They develop their own applications, some of which are used by other end users. An

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