Chapter X
A Study of the Relationship between PEOU and PU in Technology Acceptance in E-Learning

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ABSTRACT

In models to study technology acceptance, the empirically validated path from perceived ease of use (PEOU) to perceived usefulness (PU) is usually rationalized by the argument that the less effort it is required to use a technology, the more useful the technology is. This argument is rather generic to fully account for the relationship between PEOU and PU. In this study we examine the effects of the common antecedents of PEOU and PU on their relationship. We first extensively reviewed the literature to identify the common antecedents of PEOU and PU. We then conducted a survey of users' acceptance of some common e-learning forums such as ICQ, WebCT, and MSN. Based on variance analysis we found that user-interface design (UID) explains 43% of the relationship between PEOU and PU, and that learners consider UID very important in deciding whether to accept an e-learning forum for their learning and communication. This chapter contributes to research by identifying the factors that account for the relationship between PEOU and PU, and provides e-learning developers with managerial insights on how to leverage UID for business success.

INTRODUCTION

In technology acceptance studies, there is a theoretical linkage between perceived ease of use (PEOU) and perceived usefulness (PU). It is usually argued that the ease of use of a system (i.e., a technology) will induce people to use the system more easily, and hence will make the system more useful (Davis, 1989; Szajna, 1996; Thong et al. 2002; Venkatesh and Davis, 2000). Davis et al. (1989) performed a study on a word processing program - WriteOne, and found that PEOU affects PU directly based on a regression analysis with a standardized coefficient of 0.23** and a R^2 of 0.05. They argued that PEOU is a direct determinant of PU, since all others being equal, the less effort it is required to use a system, the more useful the system is. However, this argument is too generic to fully account for the mechanism behind the relationship. There is evidence in other studies that the impact of PEOU on PU may vary and depend on the technology under study. Based on their proposed extended technology acceptance model (TAM2), Venkatesh and Davis (2000) found that the impact of PEOU on PU varies slightly among different systems after users have extensive experience in using them, namely 0.28** for a scheduling system, 0.34** for a Windows-based financial system, 0.35** for a Windows-based customer account management system, and 0.35** for a stock management system. Thong et al. (2002) found that the impact of PEOU on PU is 0.41** for a digital library system.

This chapter attempts to explain the theoretical linkage between PEOU and PU by making use of the construct user-interface design (UID), a common antecedent of both PU and PEOU. A good interface design will definitely make a system easier for users to use (Liang, 1987; Hay et al. 2004; Chimera and Shneiderman, 1993; Lederer et al. 2000; Thong et al. 2002); moreover, it will also make better navigation of different system functions (Davis et al. 1989; Parikh and Verma, 2002). In this regard, UID is an antecedent of

both PU and PEOU and is expected to explain the significant effect of PEOU on PU.

The objectives of this study are twofold: (i) to study the theoretical link between PEOU and PU in technology acceptance, and (ii) to study the influence of UID on the relationship between PEOU and PU. Using two theoretical models, namely (i) the original TAM, and (ii) a TAM-based model augmented with UID as an antecedent of both PU and PEOU, we investigate the role of UID in technology acceptance, through which we attempt to account for the theoretical linkage between PEOU on PU.

This chapter is organized as follows. We first re-formulate the technology acceptance model (TAM) by incorporating UID as an antecedent of both PEOU and PU. We discuss the methodology in the second section. We present the research findings and discussions of the role of UID in TAM in the third section. In the final section we conclude the study and suggest directions for future research.

THEORETICAL FRAMEWORK

Most past studies on technology acceptance were based on TAM, and substantial theoretical and empirical supports have accumulated in favour of TAM (Davis, 1989; Davis et al. 1989). The two fundamental constructs in TAM are PEOU and PU. PEOU deals with how easy it is to learn and use a system (Davis, 1989), while PU focuses on whether the user believes that the system would enhance his/her performance (Davis, 1989). First, people tend to use or not to use a system or a technology based on the extent they believe it will help them perform their job better. Second, even if potential users believe that a given system is useful, they may, at the same time, feel that the system is too hard to use and that the performance benefits of usage are outweighed by the effort of learning and using the system. All else being equal, the easier it is to interact with a system, the

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