Chapter III

Testing the Technology-to-Performance Chain Model

D. Sandy Staples, Queen's University, Canada

Peter B. Seddon, The University of Melbourne, Australia

ABSTRACT

Goodhue and Thompson (1995) proposed the Technology-to-Performance Chain (TPC) model in 1995 to help end-users and organizations understand and make more effective use of information technology. The TPC model combines insights from research on user attitudes as predictors of utilization and insights from research on task-technology fit as a predictor of performance. In this chapter, the TPC model was tested in two settings— voluntary use and mandatory use. In both settings, strong support was found for the impact of task-technology fit on performance as well as on attitudes and beliefs about use. Social norms also had a significant impact on utilization in the mandatory use setting. Beliefs about use only had a significant impact on utilization in the voluntary use setting. Overall, the results found support for the predictive power of the TPC model; however, the results show that the relationships among the constructs in the model will vary, depending on whether or not the users have a choice to use the system.

INTRODUCTION

The purpose of the study reported in this chapter was to test the TPC proposed by Goodhue and Thompson (1995) in their 1995 paper published in *MIS Quarterly*. The TPC model seeks to predict the impact of an information system on an individual user's performance. One of the main objectives of information systems research is to help end users and organizations make more effective use of information technology. Understanding and measuring the success of investments in information systems is important to both researchers and practitioners. Practitioners naturally want to learn about ways to make their investments more effective and ways to improve their decision making about which investments to make. Researchers desire to build and test theories that explain and predict performance. The TPC model potentially helps us do that; however, it has not been tested fully. Contributing to the understanding of the predictive validity of the TPC is our goal in this chapter.

Goodhue and Thompson's (1995) TPC model (see Figure 1) combined insights from research on user attitudes as predictors of utilization and insights from research on task-technology fit as a predictor of performance. Past research on user attitudes as predictors of utilization is largely based on theories of attitudes and behavior (Fishbein & Ajzen, 1975; Triandis, 1980). Aspects of information technology lead to user attitudes about the system, and these attitudes, along with social norms and other situational factors, lead to utilization. Task-technology fit theory suggests that information systems affect performance, depending on the fit or correspondence between the task requirements of the users and the functionality of the system. Task-technology fit theory also suggests that the impact on performance depends on the fit between individual characteristics of the users and functionality of the system. The basic argument of the model is that for an information technology to have a positive impact on individual performance, the technology must fit with the tasks it is supposed to support, and it has to be used (Goodhue & Thompson, 1995).

Goodhue (1995) and Goodhue and Thompson (1995) tested part of the TPC model (see the dotted paths in Figure 1). They found support for the link between task-technology fit and performance impacts, as well as some support for the proposed antecedents of task-technology fit. They did not test the linkages proposed in their model between task-technology fit and the precursors of utilization, which is one of the main objectives of our chapter. Our chapter builds on Goodhue's work and adds to it by investigating additional links in the TPC that have not been explored previously. Although the impact of task-technology fit has been investigated by several researchers in various settings (Dishaw & Strong, 1998a, 1998b; Ferratt & Vlahos, 1998; Goodhue, Klein, & March, 2000; Goodhue, Littlefield, & Straub, 1997; Kanellis, Lycett, & Paul, 1999; Lim & Benbasat, 2000; Pendharkar, Rodger, & Khosrwopour, 2001; Shirani, Tafti, & Affisco, 1999), no one of whom we are aware has tested directly the proposed TPC model.

Related Content

The Travel Machine: Combining Information Design/Visualization with Persuasion Design to Change Behavior
Aaron Marcus (2014). *Research and Design Innovations for Mobile User Experience (pp. 22-46).*
www.irma-international.org/chapter/the-travel-machine/80362

The Effect of Use, Overuse, and Appeal of Mobile Game App on Add-Ons Purchases and Players Recruitment
Carmen Camarero, Rebeca San José, Nadia Jiménezand Sonia San-Martín (2021). *Journal of Organizational and End User Computing (pp. 59-84).*
www.irma-international.org/article/the-effect-of-use-overuse-and-appeal-of-mobile-game-app-on-add-ons-purchases-and-players-recruitment/269374

Website Retailing: Electronic Supply Chain Replenishment
Lori N.K. Leonardand Timothy Paul Cronan (2004). *Advanced Topics in End User Computing, Volume 3 (pp. 52-68).*
www.irma-international.org/chapter/website-retailing-electronic-supply-chain/4457

A Lightweight Three-Factor Anonymous Authentication Scheme With Privacy Protection for Personalized Healthcare Applications
Mengxia Shuai, Nenghai Yu, Hongxia Wang, Ling Xiongand Yue Li (2021). *Journal of Organizational and End User Computing (pp. 1-18).*
www.irma-international.org/article/a-lightweight-three-factor-anonymous-authentication-scheme-with-privacy-protection-for-personalized-healthcare-applications/276373

Super Users and Local Developers: The Organization of End-User Development in an Accounting Company
H. H. Asand (2008). *End-User Computing: Concepts, Methodologies, Tools, and Applications (pp. 1793-1811).*
www.irma-international.org/chapter/super-users-local-developers/18287