

Chapter 23

Reexamining Relative Advantage and Perceived Usefulness: An Empirical Study

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ABSTRACT

Relative advantage and perceived usefulness are often used interchangeably in the literature. In this paper, the authors argue that this limits the understanding of the adoption of ICTs, especially when there are multiple alternatives. To address this issue, the authors reexamine relative advantage in relation to perceived usefulness, providing a re-specification of relative advantage and empirically testing a model that explores the roles of these constructs in explaining and predicting the adoption of a new technology in the presence of an existing one. The results demonstrate that perceived usefulness and relative advantage are related but distinct constructs. In particular, relative advantage fully mediates the effect of perceived usefulness of existing technology on the intention to use a new technology, and partially mediates the effect of perceived usefulness of the new technology on the intention to use it. The findings have important theoretical implications that help investigators better apply these constructs in research, as well as practical implications for ICT promotion strategy.

INTRODUCTION

Information and Communication Technology (ICT) adoption is a topic extensively examined in the IS field. However, most ICT adoption studies seem to focus on the contexts where either only one ICT is available or alternative ICTs are unspecified or ignored (e.g., Agarwal & Karahanna, 2000; Agarwal & Prasad, 1998; Bhattacharjee & Premkumar, 2004). With the fast development of information technologies and fierce competition of IT suppliers in the market, it is not uncommon that organizations provide employees with multiple ICT options to support different aspects of work or fit unique work settings.

Indeed, employees often encounter highly comparable ICT applications that offer similar functionalities or services. For example, Internet browsers such as Internet Explorer and Firefox essentially implement the same set of network protocols and offer matchable user experiences. Google and Yahoo! are popular search engines that provide very similar services (see Appendix I for more examples). In face of multiple ICT options, users often primarily rely on one ICT application to do their jobs, because of the concern over redundant efforts (Choudhury & Karahanna, 2008). Thus, the decision to make is often more of “which one to use”, or “whether an ICT is better”, rather than “whether to adopt or not”.

In this line of arguments, a key construct in the innovation diffusion literature is relative advantage (RA), which emphasizes the comparison of multiple innovations (Rogers, 2003). Nevertheless, RA has been largely treated as identical to another construct, *perceived usefulness* (PU), in IS studies. For example, Moore and Benbasat (1991) declared that “the similarities between these constructs [perceived usefulness and perceived ease of use] and Rogers’ perceived relative advantage and perceived complexity are clear (p. 197)”, implying that they are synonymous. In a similar manner, Adams et al. (1992) stated that relative advantage “can be considered analogous

to usefulness (p. 231)”. Plouffe et al. (2001) made the argument clearer by stating that “the set of constructs used in TAM is essentially a subset of those proposed by PCI (Perceived Characteristics of Innovation) (p. 211)”.

Treating RA as identical to PU could be problematic when explaining and predicting the adoption of an ICT in the contexts where alternative ICTs are present, because one ICT could be perceived useful but still not adopted. Taking push mail on mobile devices as an example, although office workers may believe that it helps enhancing their productivity especially when moving around, it may not be perceived to have remarkable relative advantage over traditional e-mail. Therefore, it is of great importance to distinguish between RA and PU in ICT adoption research, especially in the contexts where there are multiple ICT alternatives.

As an attempt at this task, this study sets out to examine the relationship between RA and PU and explore their roles in ICT adoption both theoretically and empirically. Theoretically, we intend to provide an accurate account of existing conceptualizations and operationalizations of RA and PU in the literature. Empirically, we examine the effects of RA and PU on individuals’ intentions to adopt an ICT in a representative context, the adoption of a pair of comparable ICTs. Particularly, we seek to answer the following two research questions:

RQ1: Will the existence of a comparable technology influence the adoption of a new technology?

RQ2: What is the relationship between Relative Advantage and Perceived Usefulness?

The answers to these two questions will help researchers select appropriate constructs to study ICT adoption in various contexts. Practically, they can offer insights into how to campaign for technology adoption when multiple ICTs are available to potential users.

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