

Rapid Communication

Measuring the Post-Adoption Customer Perception of Mobile Banking Services

Tai-Kuei Yu, Ph.D.¹ and Kwoting Fang, Ph.D.²

Abstract

With liberalization and internalization in the financial market and progress in information technology, banks face dual competitive pressures to provide service quality and administrative efficiency. That these recent developments are fueled by technology might misleadingly suggest that the adoption of mobile banking is largely based on technological criteria. The purpose of this study is to establish a better measurement model for post-adoption user perception of mobile banking services. Based on 458 valid responses of mobile banking users, the results show that the instrument, consisting of 21 items and 6 factors, is a reliable, valid, and useful measurement for assessing the postadoption perception of mobile banking.

Introduction

GIVEN THE INCREASINGLY global bank environment, there is a growing need to utilize information technology (IT) to achieve efficiency, coordination, and communication.¹ This study explores improved measures associated with a customer-oriented perspective to explain mobile banking customer behavior in Taiwan, an environment that is culturally quite different from the developed economies of the West in terms of technology adoption and usage.

As mobile technology has become an increasingly vital element in the services industries, managerial interest in understanding postadoption user perceptions and the attitudes of different customers as adopters has led to a call for more academic research. Several online banking and mobile service studies have empirically tested the technology acceptance model (TAM) and/or validated the scales for perceived ease of use and perceived usefulness.¹⁻⁴ Curran and Meuter⁴ presented the effects of security, ease of use, risk awareness, need for interaction, and interface design on customers' adoption of online banking. Thong et al.² proposed a relationship between belief attributes (Web security, information display usefulness, and ease of use) and online banking adoption intention. The impact of customer satisfaction on specific technology adoption behavior has been examined in the studies of Wang.³ Based on these studies, we can assess users' adoption behavior by considering critical constructs such as payment mechanisms, ease of use, and relative ad-

vantages. Additionally, the presentation should be entertaining enough to encourage impulse use, since the site contains the bank's information.

Methodology

The questionnaire was divided into three major areas: (1) demographic profile of users, (2) general information about mobile commerce, and (3) evaluation of customer postadoption behavior levels in relation to 23 attributes on a 5-point scale (ranging from *strongly disagree* to *strongly agree*). The attributes were selected on the basis of reviews from previous research¹⁻⁴ and were modified to address the uniqueness of users in Taiwan and the country's mobile commerce environment.

The data for this study were collected via a questionnaire survey in Taiwan. After elimination of invalid responses, 458 valid surveys remained for analysis. Among 458 respondents, 252 were female. The respondents in this study were young, with 53.46% under 30 years old and 29.19% between 31 and 40 years old.

Data Analysis and Result

Based on application of exploratory factor analysis (EFA), a 6-factor solution was deemed appropriate. Accounting for 74.11% of the item covariance, EFA showed that all items loaded above 0.5 on their predicted factor and less than 0.4 on all other factors. Using confirmatory factor analysis

¹Department of International Business, Southern Taiwan University, Taiwan.

²Department of Information Management, National Yunlin University of Science and Technology, Taiwan.

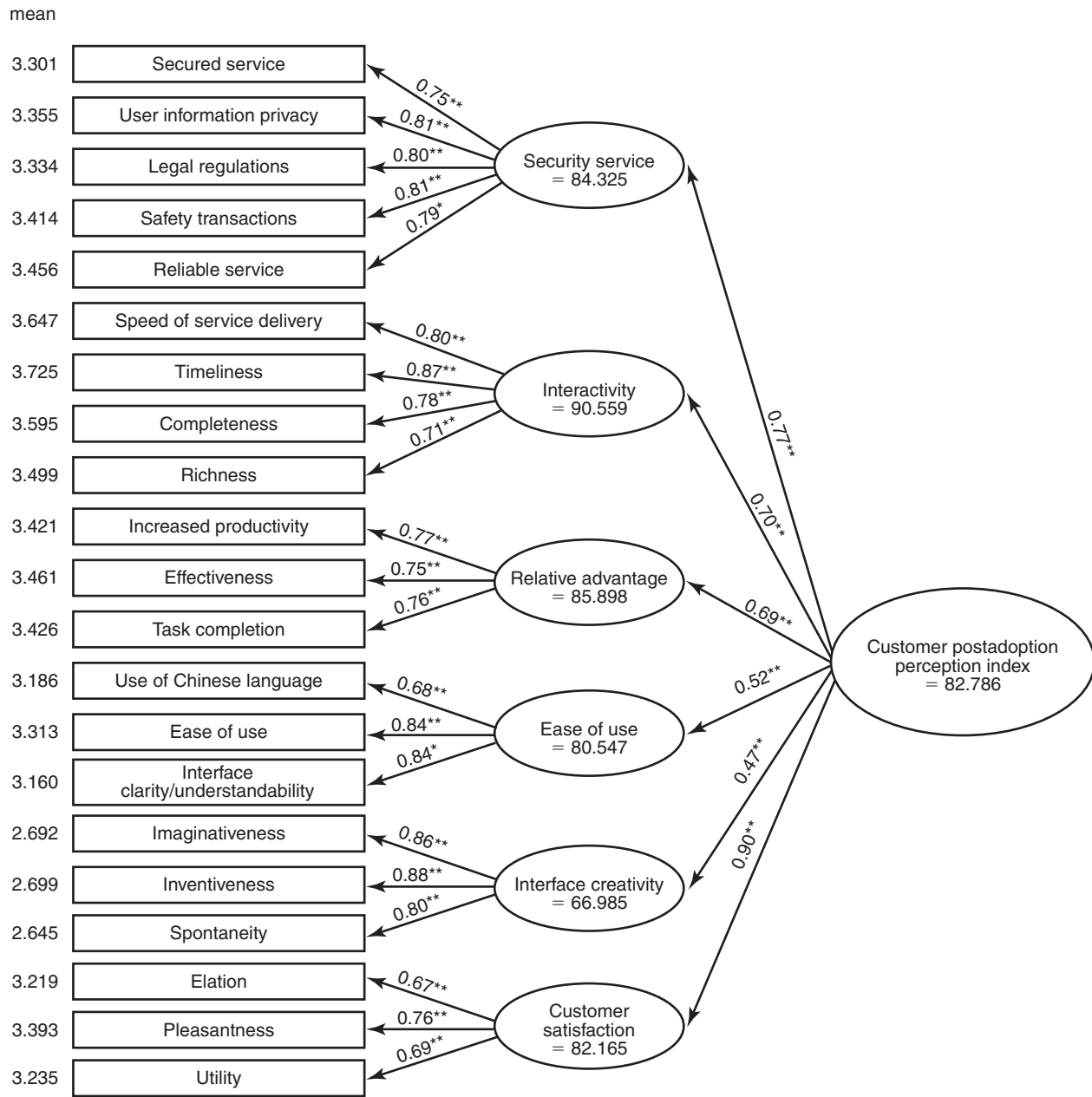


FIG. 1. Customer postadoption perception index.

(CFA), all 21 items had significant factor loadings (t values above 6.72) on their corresponding factors.⁵ Except for three items—the use of Chinese language, elation, and utility—which loaded slightly below the required 0.70 value, all of the factor loadings were above the criterion.

These Cronbach's alpha coefficients range from 0.75 to 0.89, all values being above the suggested 0.70 level for scale robustness.⁶ These composite reliability coefficients range from 0.75 to 0.89, the value above 0.60 being considered adequate according to Hair.⁵ Convergent validity and discriminant validity were evaluated by calculating the average variance extracted (AVE) for each factor within each model. The results confirm both the convergent and discriminant validity of the research model.

Following Anderson and Fornell's⁷ suggestion, these path coefficients and factor loading scores can then be used as

weightings for computation of the customer postadoption perception index, as shown below:

$$\text{Customer post-adoption perception index} = \frac{\sum_{i=1}^n \text{loading}_i * \text{mean}_i}{4 * \sum_{i=1}^n \text{loading}_i} * 100$$

In this study, the index for customer postadoption perception (82.786) was calculated by using the weights of these factor scores in order to obtain a better result (see Figure 1).

Discussion

Based on the results of this study, the following implications are suggested. First of all, the mobile banking system

allows everyone easy access to their banking activities; therefore, mobile banking is a subset of banking. This study developed a model of the determinants of customer postadoption perception in mobile-based banking services, and statistical analyses indicate that six constructs are central to customer postadoption perception of mobile banking services. If properly managed, establishing and maintaining good customer relations should play a significant role in increasing benefits to the bank from online banking, providing a new way to enhance organizational efficacy, integration, and competitive advantage.

Furthermore, the development of indices enables a comparison of relevant constructs in terms of similar objects, enabling banks to benchmark over time. From the perspective of benchmarking, understanding how the characteristics of the mobile banking industry affect customers' postadoption perception facilitates our understanding of what constitutes a good postadoption score and will make interindustry and intercountry comparisons of customers' postadoption perception scores more meaningful.

Due to the limitations of the study, there is much left for further study. The hypothesized measurement model, which is developed by exploratory techniques in this study, should be tested via confirmatory studies based on new data gathered from the same referent population. Different data sets should be used to build and validate the measurement model, as using the same data for both exploratory and confirmatory stages might lead to a final model that cannot be generalized to other samples of the population. For the purpose of cross-validity, future research might focus on using different samples to assess the instrument.

Acknowledgments

The author would like to thank the National Science Council of Taiwan for financially supporting this research under contract NSC95-2520-S-218-001.

Disclosure Statement

The authors have no conflict of interest.

References

1. Lai VS, Li H. Technology acceptance model for Internet banking: an invariance analysis. *Information & Management* 2005; 42:373–86.
2. Thnog JYL, Hong S-J, Tam KY. The effect of post-adoption beliefs on the expectation-confirmation model for information technology continuance. *International Journal of Human-Computer Studies* 2006; 64:799–810.
3. Wang Y-S, Lin H-H, Luarn P. Predicting consumer intention to use mobile service. *Information Systems Journal* 2006; 16:157–79.
4. Curran JM, Meuter ML. Self-service technology adoption: comparing three technologies. *Journal of Services Marketing* 2005; 19:103–13.
5. Hair F Jr, Black WC, Babin BJ, et al. (2006) *Multivariate data analysis*, 6th ed. New York: Macmillan.
6. Nunnally JC, Bernstein IH. (1994) *Psychometric theory*, 3rd ed. New York: McGraw-Hill.
7. Anderson EW, Fornell C. Foundations of the American customer satisfaction index. *Total Quality Management* 2000; 11:869–82.

Address reprint requests to:

Dr. Tai-Kuei Yu
 Department of International Business
 Southern Taiwan University
 1 Nan-Tai Street, YungKang City
 Tainan County, Taiwan
 Republic of China 710

E-mail: yutk@mail.stut.edu.tw