The Development of End-User Satisfaction Model Considering User Expectation

Soung Hie Kim, Young Soo Kim

Graduate School of Management, Korea Advanced Institute of Science and Technology, 207-43 Cheongryangri Dongdaemoon Seoul 130-012,

South Korea

seekim@kgsm.kaist.ac.kr, yskim0127@kgsm.kaist.ac.kr

Abstract

The user satisfaction construct has played a central role in behavioral research of the information system until now. Recent research suggests that the impact of user expectations should be considered when assessing user satisfaction.

This study analyzes the difference of the relation between end-user satisfaction and perceived usefulness based on the level of end user expectation.

This study focuses on the point of end user attitude rather than on the general point of the information system.

Therefore in this study, User attitude-based approach rather than IS-based approach is suggested about end-user satisfaction.

The result of the study is validated from data collected from a field study of 142 end-users in KAIST Graduate School of Management. ANOVA is used to test the research hypotheses.

Introduction

The user satisfaction construct has played a central role in behavioral research in information system. And the measuring and analyzing of end-user satisfaction is motivated by management's desire to improve the productivity of information systems because Information System utilization is directly connected to the user sense of satisfaction with the information system.

In a survey of information systems conducted by Conrath and Mignen(1990), Rushinek and Rushinek (1986), Scamell(1993) and Ryker et al.(1997) they considered the user expectaion in user satisfaction model in information system.

In establishing the user satisfaction model and perceived usefulness model, Although they consider the end-user expectation, which is an important variable in behavior science, they did not take account of the level of user expectation.

Literature Review

User satisfaction may be the best omnibus measure of IS success[Seddon and Kiew, 1994]. Further, Power and Dicken(1973) argue that user satisfaction is the most important criterion in measuring IS success and failure. User satisfaction may be defined as the extent to which users believe the information system available to them meets their information requirements [Ives et al., 1983].

User satisfaction has come to be identified with the Bailey and Peason's(1983) instrument and its derivatives: Ives et al.(1983) instrument and Baroudi and Orlikowski's(1988) 13-item "short form. Ives et al.(1983)instrument, especially, is the de facto user satisfaction instrument.

Davis(1989) defines perceived usefulness as "the degree to which a person believes that using a particular system would enhance his or her job performance".

Adams et al.(1992) presents the findings of study that replicate previous work by Davis on the

subject of perceived usefulness. Adams et al. Focus on evaluating the psychometric properties of the usefulness scales, while examining the relationship between ease of use, usefulness, and system usage. Moreover, Adams et al. (1992) demonstrate reliable and valid scales for measurement of perceived usefulness.

Recent research suggests that the impact of user expectations should considered when assessing user satisfaction (e.g. Ryker et al 1997, Szajna et al. 1993, Conrath et al. 1990, Rushinek and Rushinek 1986).

Pitt er al.(1995) applied the service quality model to information services and added vendor communications to this list of determinants. The determinants of expectations are divided into 3 categories : sources internal to the organization, sources external to the organization, and the past experience by Ryker at al.,(1997)

New methodology of measuring

In general, there may be a time difference between perceived usefulness and user expectation. But, this is not practical because in reality, IS suppliers can not infinitely supply new IS in order to increase end-user satisfaction. Therefore, in other to measure user expectation more practically, we propose new a methodology of measuring User expectation and perceived usefulness that exist in the time gap between the time when the observer measures user expectation and the time when observer measures perceived usefulness.

The end user can answer the level of the information system usefulness while using the present system. At the same time, the user can expect a certain performance level after upgrading, Therefore, the inquiry of present usefulness in the information system is perceived usefulness, and user expectation is the inquiry of the level of output expected, after future upgrading of information system

So, user expectation is measured through the degree of expectation of IS upgrade in existing IS, and perceived usefulness is measured by the perception acquired from direct use of existing IS.
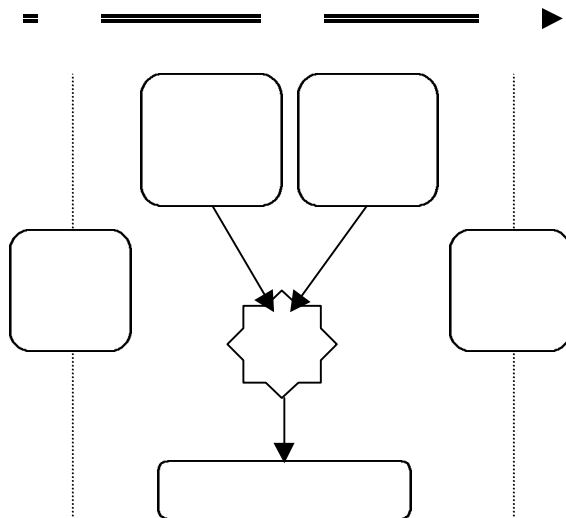

Figure1. New methodology of measuring User expectation and perceived usefulness

Research Model

Figure 2. Research Model is the supposed model in this study, where the relationship between user satisfaction and user expectation, and perceived usefulness and user expectation will be examined. Therefore, this study will examine how both user satisfaction and perceived usefulness are affected by the level of expectation.
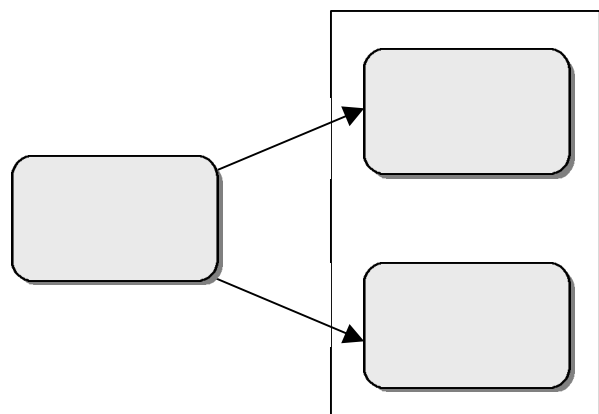
Research Hypothesis

H1 : The higher the level of expectation, the stronger perceived u sefulness becomes

H2 : The higher the level of expectation, the weaker end-user satisfaction becomes Figure 2. Research Model

Research Methodology

This study used a survey-based field study of end-users. This research methodology have been used in the majority of previous studies in this area[Olson and Ives 1981, Ein-Dor and Segev 1982, Tait and Vessey 1988, Igbaria 1997]

The research method employed in this study to test the hypothesis was a survey of end-users in KAIST Graduate School of Management. Prior to undertaking hypotheses testing, the reliability of the scales   and Validity Test was determined.

Each measure of all variables related in this study is as follows.

End-User Expectation: Measure developed by Szajna (1993) is applied in this study.

Perceived Usefulness: Measure developed by Davis (1989) is applied in this study.

It was ranked on a 5-point Likert type scale ranging from (1) Highly Unlikely to Highly Likely. Operationalized Measures contain working more quickly, job performance and usefulness. Davis developed originally 5 measures. But in this study, two measures: productivity increasing and making job easier were deleted because preventing the confusion of respondents

End-User satisfaction: There is only one question of overall satisfaction

Results of Testing the Hypotheses

The purpose of this ANOVA analysis was to examine the relationship between the level of user expectation and end-user satisfaction, and the relationship between the level of user expectation and perceived usefulness. The average satisfaction score for the low, middle and high expectation group are shown in Table 1. Using ANOVA, Hypothesis H1 and H2 is supported($p=.0000$, $p=.0309$).

Difference analysis of the relation between end-user satisfaction and perceived usefulness based on the level of end user expectation

Difference analysis of the relation between end-user satisfaction and perceived usefulness based on the level of end user expectation is done and the result is shown in Figure 3.

This analysis reports on the difference of the relation between end-user satisfaction and perceived usefulness based on the level of end user expectation. And the change rate of end-user satisfaction on perceived usefulness is higher in the high level of user expectation rather than both low and middle level of user expectation. Therefore, different strategies are needed to satisfy end-users that have different level of expectations.

Figure 3. The difference of the relation between end-user satisfaction and perceived usefulness based on the level of end user expectation

Conclusion

The   supposed   new   methodology   of

measuring User expectation and perceived usefulness is comparatively practical and applicable in the real world.

There is a difference in the relation between end-user satisfaction and perceived usefulness based on the level of end user expectation.

The change rate of end-user satisfaction on perceived usefulness is higher in the high levels of user expectation rather than both the low and middle level of user expectation.

This result will be fundamental on the development of an augmented end-user satisfaction construct involving a new instrument, end-user expectation, which is an important variable in behavior science.

The items which constitute variables(e.g., personal variables) are not sufficient. More structured and various items should be adopted to represent the whole characteristics of variables.

The potential limitation of the survey method may be included as a major limitation of this research. As further direction, a longitudinal approach research method can be applied to analyze the evaluation process more dynamically.

User satisfaction has some shortcomings with usage; it may suffer from time-dependent noise and may be influenced by social desirability.

A promising area for future research is the comprehensive psychometric development and validation of an instrument to measure user expectations and determine the construct' dimensionality.

Reference

1. Bailey, J. E. and Pearson, S. W. "Development of a tool for measuring and analyzing computer user satisfaction," Management Science, Vol.29, No.5, May 1983, pp. 530-545.
2. Conrath, D. W. and Mignen, O. P. "What is being done to measure user satisfaction with EDP/MIS," Information and Management, 1990, pp. 7-19.
3. Davis, F. D. "Perceived Usefulness, Perceived Ease of Use, and user Acceptance of Information Technology," MIS Quarterly Vol.13, 1989, pp. 319-340.
4. Delone, W. H. and Mclean, E. R. " Information System Success: The Quest for the Dependent Variable," Information System Research, 1992, pp. 177-188.
5. Doll, W. J. And Torkzadeh, G. "The Measurement of End-User Computing Satisfaction," MIS Quarterly, June 1988, pp. 259-274.
6. Melone, N. P. "A theoretical Assessment of the User-Satisfaction Construct in information Systems Research," Management Science, 1990, pp. 76-91.

Table 1. Analysis of Variance of Perceived Usefulness and End-user Satisfaction

	Perceived Usefulness	End-user Satisfaction
Low Expectation (n=33)	3.63	3.74
Middle Expectation (n=77)	4.14	3.34
High Expectation (n=32)	4.32	3.3
F Ratio	11.1887	3.5647
(F Prob.)	.0000***	.0309**
Hypothesis	Accept(H1)	Accept(H2)
*Significant at p<.10 **Significant at p<.05 ***Significant at p<.01		