A Synthesis of Equity, Expectation, and Needs Theories as a Conceptual Foundation for the User Satisfaction Construct in Information Systems Research

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Introduction

Research has been done on the construct of satisfaction and its relationship to performance for over fifty years. This research has spanned many disciplines, including health care, marriage and family, organizational behavior, and consumer behavior. Despite this effort, the results have been mixed and inconclusive, and the relationship between satisfaction and success remains unclear.

Likewise, in information systems (IS) research, investigators have attempted to explain and measure the relationship between user satisfaction (US) and IS success. And, like similar research in referent discipines, much of this research has been plagued by problems. Although this relationship in IS has intuitive appeal, it does not enjoy consistent empirical support. In fact, many studies have reported confilicting results.

One explanation for the inconclusive results in IS research is that there simply is no relationship between satisfaction and success. However, due to compelling evidence presented by many studies, this explanation does not seem reasonable. Perhaps a more reasonable explanation for the lack of progress in this area is the lack of conceptual development offered by studies investigating the relationship between US and IS success. While much effort has been expended on the measurement of satisfaction, there has been very little work on the construct itself. This may help explain why there is no consensus on a conceptual definition for US and no clearly articulated theory relating US to IS success.

By integrating three prominent organization behavior theories (equity, expectancy, and needs), this paper develops a theoretical foundation from which to view US in IS. This integration attempts to clarify many of the diverse dimensions of US.

A Theoretical Foundation for US

A theoretical foundation for the US construct can be found in the organizational behavior literature. Three theories of motivation that use satisfaction as the dependent measure are: equity, expectancy, and needs. Because the focus of this paper is *satisfaction* and not *motivation* per se, the discussion emphasizes the satisfaction content in each of these three theories. Using the common dependent measure of satisfaction to integrate these three organizational behavior theories, a well-founded and broad-based foundation for the study of US can result.

Equity Theory

Equity (or inequity) is the result of an individual's evaluation of his or her inputs and rewards in comparison to another's inputs and rewards. People appraise rewards in terms of their fairness. If a discrepancy is perceived between one's efforts and rewards compared to another's efforts and rewards, the individual is motivated to reduce this discrepancy. There is also evidence that equity in the mind of an individual is continually being recalculated and reassessed. It follows that satisfaction and dissatisfaction are dynamic constructs that ebb and flow based on one's equity recalculations.

In an information systems context, equity theory focuses attention on the fairness of the **process**. A user's perception of the inputs required and the results obtained on one system are compared to the inputs required and the results obtained by others using other systems. Inputs are what a user must invest in the system (e.g., training requirements, effort, time, maintenance requirements, costs etc.). This investment is evaluated in conjunction with the perceived returns, and a comparison to other users of other systems is made to determine relative efficiency.

The efficiency of the system is constantly reevaluated by the user, so that the effect on US is dynamic. If the process of converting inputs to outputs is considered to be efficient or fair, this contributes to US. On the other hand, if the process is considered to be inefficient or unfair, this contributes to user dissatisfaction (UD).

Expectancy Theory

Expectancy theory focuses attention on **outcome**, whether the outcome contributes to satisfaction or dissatisfaction. Expectancy theory posits that individuals consider alternative outcomes, analyze the costs and benefits of each outcome, and choose an outcome that maximizes their utility. Affecting this decision are valence -- the strength of one's preference for an outcome, and expectations -- the likelihood that a particular outcome will occur. Likewise, valence and expectations affect US. If a user's valence is high, US and UD are affected depending upon how strongly the outcome is expected and whether the outcome actually occurs. In IS, expectancy theory would focus on the effectiveness of the particular system.

Needs Theory

Needs theory is primarily based on the works of Maslow, Alderfer, and Herzberg. All three agree that there are "needs levels," although they disagree on the number of levels and the categorization of needs.

There is a cognitive element in needs theory. Individuals create their own unique needs categories through a cognitive process called "concept formation." Concept formulation is influenced by an individual's cognitive abilities, experience, and the situation in which he or she works. Because individuals construct their own unique needs categories, any evaluation of satisfaction must consider needs theory.

Synthesis

Expectancy theory addresses the effectiveness of the outcome, driven by expectation and valence, whereas equity theory addresses the efficiency of the process. Both the perceived efficiency of the process and the desire for the outcome have an impact on satisfaction and dissatisfaction. This combination highlights the distinction between being satisfied and/or dissatisfied with an outcome and being satisfied and/or dissatisfied with the process that produced the outcome.

The effects of both equity (process) and expectancy (outcome) are moderated by needs. Both process and outcome have to be considered in light of the user's uniquely constructed needs categories.

Illustrations of Process and Outcome

There are some situations where process dominates. The work of lawyers and journalists are examples. In both cases, the emphasis is on process over outcome. The lawyer supports the legal process and the journalist reports the news. That the guilty go free or that misinformation may be published about an individual are considered secondary to the integrity of the legal process and freedom of the press.

Likewise, in an IS context, there are some computing environments in which the process dominates. For example, in some group decision support systems, the process by which the decisions are made may take precedence over the decision itself.

Alternatively, there are situations where the outcome is considered more important than the process. In these situations, the end (outcome) justifies the means (process). Controlling inflation and enduring the associated unemployment is one example. Though few enjoy the process, many consider the benefits of the outcome to be greater than the pain of the process.

In an IS context, the are some application environments where the outcome is considered so important that a frustrating process will be tolerated. Here, outcome dominates the US evaluation. One example is the current state of equation editors. Most are very tedious to use and require disproportional amounts of computer resources, yet many find the professional looking output to be worth the frustrating process.

There may also be situations where both process and outcome play significant roles.

Summary

Research on US in IS has suffered from a lack of conceptual foundation. This paper proposes such a foundation, integrating three organizational behavior theories of motivation that affect US. Both outcome and process should be evaluated when studying user responses to an IS. Such a conceptual foundation may help clarify the various dimensions of US that have been the focus of past research and give direction to future research.

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