

# Chapter 8

## Construct Validity

### Assessment in IS Research: Methods and Case Example of User Satisfaction Scale

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#### ABSTRACT

*Valid and reliable measures are critical to theory development as they facilitate theory testing in empirical research. Efforts in scale development have been put on ensuring aspects of validity. In this paper, the authors address a specific topic of construct validity assessment in scale development. Using data from the five leading IS journals between 1989-2008, in this paper, the authors determine if and how the field has advanced in construct validity assessment. Findings suggest that the proportion of studies reporting construct validity had increased and Confirmatory Factor Analysis (CFA), Exploratory Factor Analysis (EFA), and Multi-Trait Multi-Method (MTMM) were the three most common methods of construct validity assessment. The authors also apply a popular method from psychology and exemplify how the correlation analysis technique can be used to measure construct validity.*

#### INTRODUCTION

The development of new measures is important in research studies that push the boundaries in order to enrich the domain in theory building. Consequently, it is essential that new measures be reliable

and valid to ensure advancement in the body of knowledge. From the positivist standpoint, discussions on aspects of validity draw on the empirical position of quantitative science for justification. Academic enquiry in the Information Systems (IS) discipline is greatly influenced by this empiricist

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paradigm. In this paper, we examine the literature landscape regarding the assessment of construct validity when developing new measures.

In the IS field, many research efforts have gone into developing new instruments to help us gain a better understanding of IS constructs and enable us to explore new paths of IS research. For instance, Doll and Torkzadeh (1988) with their End User Computing Satisfaction (EUCS) instrument have successfully guided other IS researchers to understand user satisfaction with many different types of Information Technology (IT) applications. Practitioners, on the other hand, regard instruments as practical measures that can be directly adopted to evaluate their particular area of interest. For instance, Barnes and Vidgen's (2000) E-Qual (previously called WebQual) has been increasingly gaining attention from industry, particularly from those who would like to assess the quality of the usability, information, and service interaction of their Internet websites. Having acknowledged the important role of instruments within the academic and industry communities, it is essential to ensure that any developed instruments accurately and reliably assess what they purport to measure in order to ensure the legitimacy of the results. Consequently, the notion of construct validity assessment is crucial for any instrument developers.

Many researchers in other disciplines, particularly in the field of psychology, have long acknowledged this type of validity when validating new measures (Nunnally, 1978). In the IS field, such validity concerns began to attract more attention when Straub (1989) initially raised the issue of the lack of validation within IS research. In 2001, Boudreau, Gefen and Straub replicated the latter's first study and found a considerable improvement in construct validity assessment compared with the initial study. However, these two studies did not provide a detailed explanation of the construct validity, which is essential in order to highlight the importance of, and to encourage

researchers to better appreciate, construct validity assessment. This paper presents the theoretical background of construct validity and explores the changes (if any) that have been made to construct validity assessment since 1989. Focusing only on instrument development studies published in the five leading IS journals between 1989-2008, this paper highlights various methods that have been utilized to assess construct validity of the newly developed instruments. Our findings reveal that IS researchers commonly assess construct validity of their scales internally through the employment of Confirmatory Factor Analysis (CFA), Exploratory Factor Analysis (EFA), and Multi-Trait Multi-Method (MTMM). This paper demonstrates that construct validity can also be assessed externally via correlation analysis with other measures. A case example showing how this method works is then presented. The theoretical and practical implications of the study, as well as directions for future research, are discussed in the concluding sections of this paper.

## **CONSTRUCT VALIDITY IN GENERAL**

Construct validity might seem complicated for those who are not familiar with instrument validity. Cronbach and Meehl (1955) provide an often-cited, easy-to-understand definition. They describe construct validity as a condition whereby items measuring one particular construct are considered together and provide a reasonable operationalization for that particular construct (compared with other latent constructs). Thus, an instrument demonstrates construct validity if, in measuring an intended construct, it measures the concept it purports to measure regardless of any other established instruments of other constructs (Nunnally, 1978; Zaltman, Duncan, & Holbek, 1973). Such assessment is important since, knowing the constructs are properly measured and measure what they are intended to measure, (1) will increase

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