Cross–Cultural Research in MIS

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INTRODUCTION AND BACKGROUND

"Globalization of business highlights the need to understand the management of organizations that span different nations and cultures" (Srite et al., 2003, p. 31). In these multinational and transcultural organizations, there is a growing call for utilizing information technology (IT) to achieve efficiencies, coordination, and communication. However, cultural differences between countries may have an impact on the effectiveness and efficiency of IT deployment. Despite its importance, the effect of cultural factors has received limited attention from information systems' (IS) researchers. In a review of cross-cultural research specifically focused on the MIS area (Evaristo, Karahanna, & Srite, 2000), a very limited number of studies were found that could be classified as cross-cultural. Additionally, even though many of the studies found provided useful insights, raised interesting questions, and generally contributed toward the advancement of the state of the art in its field, with few exceptions, no study specifically addressed equivalency issues central to measurement in cross-cultural research. It is this methodological issue of equivalency that is the focus of this article.

METHODOLOGICAL ISSUES

Methodological considerations are of the utmost importance to cross-cultural studies, because valid comparisons require cross-culturally equivalent research instruments, data collection procedures, research sites, and respondents. Ensuring equivalency is an essential element of cross-cultural studies and is necessary to avoid confounds and contaminating effects of various extraneous elements.

Cross-cultural research has some unique methodological idiosyncrasies that are not pertinent to intracultural research. One characteristic that typifies cross-cultural studies is their comparative nature, i.e., they involve a comparison across two or more separate cultures on a focal phenomenon. Any observed differences across cultures give rise to many alternative explanations. Particularly when results are different than expected (e.g., no statistical significance, factor analysis items do not load as expected, or reliability assessment is low), researchers may question whether results are true differences due to culture or merely measurement artifacts (Mullen, 1995).

Methodological considerations in carrying out cross-cultural research attempt to rule out alternative explanations for these differences and enhance the interpretability of results (van de Vijver & Leung, 1997). Clearly, the choice and appropriateness of the methodology can make a difference in any research endeavor. In cross-cultural research, however, one could go to the extreme of classifying this as one of the most critical decisions. In this section, we briefly review such cross-cultural methodological considerations. Specifically, this section will address equivalence (Hui & Triandis, 1985; Poortinga, 1989; Mullen, 1995) and bias (Poortinga & van de Vijver, 1987; van de Vijver & Leung, 1997; van de Vijver & Poortinga, 1997) as key methodological concerns inherent in cross-cultural research. Then, sampling, wording, and translation are discussed as important means of overcoming some identified biases.

Equivalence

Achieving cross-cultural equivalence is an essential prerequisite in ensuring valid cross-cultural comparisons. Equivalence cannot be assumed a priori. Each cross-cultural study needs to establish cross-cultural equivalence. As such, equivalence has been extensively discussed in cross-cultural research, albeit using different terms to describe the phenomenon (Mullen, 1995; Poortinga, 1989).

To alleviate confusion created by the multiplicity of concepts and terms used to describe different but some-

what overlapping aspects of equivalence, Hui and Triandis (1985) integrated prior research into a summary framework that consists of four levels of equivalence: conceptual/functional equivalence, equivalence in construct operationalization, item equivalence, and scalar equivalence. Even though each level of equivalence is a prerequisite for the subsequent levels, in practice, the distinction between adjacent levels of equivalence often becomes blurry. Nonetheless, the objective in cross-cultural research is to achieve all four types of equivalence. Hui and Triandis' (1985) four levels of equivalence are discussed as follows:

1. *Conceptual/functional equivalence* is the first requirement for cross-cultural comparisons and refers to whether a given construct has similar meaning across cultures. Furthermore, to be functionally equivalent, the construct should be embedded in the same nomological network of antecedents, consequents, and correlates across cultures. For instance, workers from different cultures may rate "supervisor is considerate" as a very important characteristic; however, the meaning of "considerate" may vary considerably across cultures (Hoecklin, 1994).
2. *Equivalence in construct operationalization* refers to whether a construct is manifested and operationalized the same way across cultures. Not only should the construct be operationalized using the same procedure across cultures, but the operationalization should also be equally meaningful.
3. *Item equivalence* refers to whether identical instruments are used to measure the constructs across cultures. This is necessary if the cultures are to be numerically compared.
4. *Scalar equivalence* (or full score comparability; see van de Vijver and Leung, 1997) occurs if the instrument has achieved all prior levels of equivalence, and the construct is measured on the same metric. This implies that "a numerical value on the scale refers to same degree, intensity, or magnitude of the construct regardless of the population of which the respondent is a member" (Hui & Triandis, 1985, p. 135).

Bias: Sources, Detection, and Prevention

To achieve equivalence, one has to first identify and understand factors that may introduce biases in cross-cultural comparisons. Van de Vijner and Poortinga (1997) described three different types of biases: construct bias, method bias, and item bias:

1. *Construct bias* occurs when a construct measured is not equivalent across cultures both at a conceptual level and at an operational level. This can result from different definitions of the construct across cultures, lack of overlap in the behaviors associated with a construct [e.g., behaviors associated with being a good son or daughter (filial piety) vary across cultures], poor sampling of relevant behaviors to be represented by items on instruments, and incomplete coverage of the construct (van de Vijver & Leung, 1997). Construct bias can lead to lack of conceptual/functional equivalence and lack of equivalence in construct operationalization.
2. *Method bias* refers to bias in the scores on an instrument that can arise from characteristics of an instrument or its administration (van de Vijver & Leung, 1997), which results in subjects across cultures not responding to measurement scales in the same manner (Mullen, 1995). Method bias gives rise to concerns about the internal validity of the study. One source of method bias is sample inequivalency in terms of demographics, educational experience, organizational position, etc. Other method bias concerns relate to differential social desirability of responses (Ross & Mirowsky, 1984) and inconsistent scoring across populations (termed "selection-instrumentation effects" by Cook and Campbell, 1979, p. 53). For instance, on Likert scales, Koreans tend to avoid extremes and prefer to respond using the midpoints on the scales (Lee & Green, 1991), while Hispanics tend to choose extremes (Hui & Triandis, 1985). Differential scoring methods may also arise if respondents from a particular culture or country are not familiar with the type of instrument being used.
3. *Item bias* refers to measurement artifacts. These can arise from poor item translation, complex wording of items, or items inappropriate for a cultural context. Consequently, item bias is best prevented through careful attention to these issues. Like method bias, item bias can influence conceptual/functional equivalence, equivalence of operationalization, and item equivalence.

Table 1 presents a summary of how the three types of bias can be prevented or detected. The next section discusses three important methods of bias prevention: sampling, wording, and translation. This article concludes by presenting a set of cross-cultural methodological guidelines derived by a committee of international scholars.

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