Methodological Issues in MIS Cross-Cultural Research

ELENA KARAHANNA, University of Georgia, USA
ROBERTO EVARISTO, University of Illinois, Chicago, USA
MARK SRITE, University of Wisconsin-Milwaukee, USA

This paper presents a discussion of methodological issues that are relevant and idiosyncratic to cross-cultural research. One characteristic that typifies cross-cultural studies is their comparative nature, i.e., they involve a comparison across two separate cultures on a focal phenomenon. When differences across cultures are observed, the question arises as to whether the results are true cultural differences or merely measurement artifacts. Methodological considerations in cross-cultural research focus on ruling out alternative explanations for these differences and thus enhancing the interpretability of the results. The paper presents an overview of key methodological issues in cross-cultural research and reviews methods of preventing or detecting methodological problems.

INTRODUCTION

Globalization of business has highlighted the need to understand the management of organizations that span different nations and cultures. In these multinational and transcultural organizations, there is a growing need to utilize 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.

Cross-cultural information systems research, in general, remains relatively undeveloped. Although several important research endeavors have been recently published in the better IS journals, the overall number of cross-cultural articles is fairly low considering the number of practical and theoretical questions that remain unanswered. This incongruence can be partly explained by methodological and resource difficulties inherent in cross-cultural research as well as the long time horizon required to complete and conduct these types of studies.

This paper focuses on these difficulties. Methodological considerations are of the utmost importance to cross-cultural studies since 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.

In the next section, we provide a brief discussion of key methodological issues in cross-cultural research, presenting both threats to making valid cross-cultural comparisons as well as methods of preventing or detecting potential problems. Next, sampling considerations and guidelines for instrument wording and translation are presented. The paper concludes with a summary discussion of the issues.

METHODOLOGICAL ISSUES

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 and Leung, 1997). Clearly, the choice
and appropriateness of 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 and Triandis, 1985; Poortinga, 1989; Mullen, 1995) and bias (Poortinga and van de Vijver, 1987; van de Vijver and Leung, 1997; van de Vijver and 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. For instance, Mullen (1995) uses the term measurement equivalency and describes its three key aspects: translation equivalence, metric equivalence, and calibration equivalence. He then defines the term metric equivalence to imply that subjects across cultures respond to measurement scales in the same way. Furthermore, he views scalar inequivalence and inconsistent scoring across populations as two major threats to metric equivalence. Poortinga’s (1989) categorization of equivalence distinguishes between equivalence at the construct level (termed identical and non-identical domains of generalization) and measurement scale equivalence. The latter includes equivalence at the following hierarchy of levels: same scale origin and same metric, same metric, and same metric after linear transformation.

To alleviate confusion created by the multiplicity of concepts and terms used to describe different but somewhat overlapping aspects of equivalence, Hui and Triandis (1985) have 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. Van de Vijver and Leung (1997) use a similar typology: construct inequivalence, construct equivalence (also called structural equivalence), measurement unit 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 next.

**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, consequences, 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).

**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.

**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.

Finally, **scalar equivalence** (or full score comparability) (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 and Triandis, 1985).

**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 Vijver and Poortinga (1997) describe three different types of biases: construct bias, method bias, and item bias.

**Construct bias** occurs when a construct measured is not equivalent across cultures both at a conceptual 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 (van de Vijver and Leung, 1997)), poor sampling of relevant behaviors to be represented by items on instruments, and incomplete coverage of the construct (van de Vijver and Leung 1997). Construct bias can lead to lack of conceptual/functional equivalence and lack of equivalence in construct operationalization.

There are a number of techniques used to detect the presence of construct bias. First, informants in each culture should be asked to describe the construct and associated behaviors (Serpell, 1993) to ascertain that the construct is not only identical across cultures, but that it also encompasses similar behaviors. Second, internal structure congruence techniques can be used to assess the anatomy of the construct across cultures (Hui and Triandis, 1985). These include techniques such as factor analysis which can be used to examine the factor structures of an instrument across cultures (Hui and Triandis, 1985; van de Vijver and Leung, 1997). Differences in factor structures point to possible construct bias. Other internal structure congruence techniques include multidimensional scaling (Hui and Triandis, 1985), “Simulta-