Multilevel Perspectives on Technology and Human Interaction

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The International Journal of Technology and Human Interaction aims at being an interdisciplinary journal. In this editorial, I will make the case for multilevel and collaborative perspectives on the topics covered by the journal.

The topics covered by the journal include experiential learning through the use of technology, influence of law and culture on e-commerce, e-government, impacts of technology adoption and use, and the social shaping of technology. These are only a very small fraction of the topics that authors can find listed at the journal’s Web site (www.ijthi.net), but they will help to clarify why multilevel perspectives are important to the information systems (IS) field.

All of the above topics refer to phenomena that can happen at the individual, group or organizational levels and can be explained by single-level or cross-level theories. Taking experiential learning through the use of technology as an illustrative example, a researcher can choose to focus the individual as the unit of analysis and decide to study how individuals in organizations improve their work actions as a result of using new technology. However, these improvements do not occur in isolation. They are shaped by organizational culture and politics that exert influence in the learning process and outcome.

Moreover, individual learning is only relevant to organizations when it introduces permanent and observable improvements in work practices of groups and, ultimately, in the way the organization, as a coherent whole, deals with internal problems and relates with external entities.

Many of the phenomena addressed in the IS field today are very complex and can be observed at various levels of analysis. To study them at only one level at a time leads to an unnatural, incomplete and disjointed view of how technology impacts and is shaped by culture, organizational politics, learning, performance, decision, strategy, social and economic transformations, and many other organizational and societal issues. Thus, multilevel theory seems of central importance for the IS field. However, this kind of theory is seldom developed by IS researchers (Walczuch & Watson, 2001). Exceptions to this situation are the studies described by Ang, Slaughter, and Ng (2002) and Vaast and Walsham (2005).

Multilevel research assumes that organizations are multilevel systems and aims at developing theories (descriptive, explicative, or predictive) that attempt to account for phenomena that span organizational levels (Kozlowski & Klein, 2000).

While planning multilevel research, the researcher may adopt positivist or non-positivist epistemological stances. Interpretive and critical research assumes that studied phenomena are context dependent (Robey & Sahay, 1996). Many interpretive and critical theories have a multilevel character by implicitly or explicitly acknowledging that the studied phenomena happen at different levels in the organization, with different structures.
and same function. However, these contextual theories may also focus on only single-level occurrences of the phenomenon.

Context dependency of phenomena is acknowledged in positivist multilevel theories by the introduction of moderating factors. Cross-level models are becoming more common, but their definition is still subjected to too much confusion (Klein & Kozlowski, 2000).

Research constructs (positivist/concepts (interpretive, critical) can be thought of as “conceptual notions whose existence must be inferred from more observable actions or features of an entity” (Morgeson & Hofmann, 1999). Constructs/concepts that describe phenomena observed at the level of any interdependent and goal-directed combination of individuals, groups, organizational units, organizations or industries are collective constructs/concepts. Constructs/concepts may be related to one another through research models/frameworks.

In positivist research, collective constructs may be measured at various levels of analysis. The most elementary unit of analysis of any collective construct is the individual behavioral act. Individual action is influenced by a multitude of situational and contextual factors. Within a social system, the action of individuals meets each other in space and time, resulting in interpersonal interaction. “As interaction occurs within larger groups of individuals, a structure of collective action emerges that transcends the individuals who constitute the collective” (Morgeson & Hofmann, 1999). A collective construct may manifest itself at several levels of analysis, presenting similarity of function but not of structure. The function of a concept refers to its causal outputs or effects. Concepts, collective or singular, may be interdependent and form the basis of a descriptive, explanatory or emancipating framework.

It is not my goal to go deeper in the description of multilevel research. The reader willing to explore this approach has several good sources of information, including Hox (2002); Klein et al. (1994); Klein and Kozlowski (2000); Morgeson and Hofmann (1999); and Snijders and Bosker (1999). Furthermore, good studies applying the multilevel research principles may be encountered in Vaast and Walsham (2005), Walczuch and Watson (2001), Drazin et al. (1999), Drazin and Shoonhoven (1996), Gallivan and Benbunan-Fich (2005), Gibson (2001), Jackson and Joshi (2004), Mierlo et al. (2005), Southwell and Doyle (2004) and Walczuch and Watson (2001).

IS phenomena, relevant for this journal, are complex, interdependent, subject to a plethora of affecting factors and the cause of important organizational changes. Thus, it is not reasonable to think that a single research project can get a comprehensive theory about those phenomena. This journal, therefore, welcomes collaborative efforts across studies addressing the same phenomenon from different perspectives, time frames and levels of analysis. In the first editorial preface, written by the journal’s editor-in-chief, Bernd Stahl wrote “… the journal also invites scholars from neighboring disciplines to contribute. These could be researchers who are interested in the interaction of technology and humans in different ways. Possible examples include sociologists who study the social or organizational impact of ICT (information and communication technologies), or philosophers who are interested in the moral implications of machine use.” This could not be a more appropriate ending to this editorial preface that aims at encouraging contributions from researchers performing interdisciplinary, multilevel and collaborative research, whether positivist, interpretive or critical.

REFERENCES
Ang, S., Slaughter, S., & Ng, K.Y. (2002). Human capital and institutional determinants of information technology compensation: Modelling multilevel and cross-level in-


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