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Using Deep Structure Theory to Visualize Inherent Limitations of Systems Analysis Tools in Relation to Habermassian Communicative Action

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Abstract
Problems related to dysfunctional communication and collaboration between business and IT professionals have been discussed for decades. This distortion in communication can partially be explained by the Critical Social Theory and Jurgen Habermas' notions of communicative action and Univeral Pragmatics, which differentiate between ideal communication and types of "distorted communication." The present research sees that success in this performative linguistic process of ISD calls for shared understanding and communication between participants to the process, leading to agreement on the meaning of the requirement and its concomitant elements and desired outcomes. This paper shows how the Work Systems method (Alter) can be used to reduce communicative distortion from the requirement gathering process by creating something more akin to Habermassian communicative action.

Keywords: Work Systems Method, Critical Social Theory, Communicative Action, Universal Pragmatics

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Problems related to dysfunctional communication and collaboration between business and IT professionals have been discussed for decades. Various empirical observations have been made about communication dysfunction. Beath and Orlkowski's (1994) deconstruction of SA&D methods illustrated how methods tended to privilege technical experts whose control of the discourse often led to distorted requirements. This distortion in communication can partially be explained by Critical Social Theory (Habermas, 1985 a & b), and in particular his notions of communicative action and Univeral Pragmatics, which differentiate between ideal communication and types of 'distorted communication'. We see that success in this performative linguistic process calls for shared understanding and communication between participants to the process, leading to agreement on the meaning of the requirement and its concomitant elements and desired outcomes.

Part of the communications problem relates to variance in understanding between those giving and those receiving the requirements. This perhaps relates to a variance between the users and developers on the understanding of the structures of an information system. The concept of structures is derived from Wand and Weber's (1995) theory of deep structure of IS, which describes them as follows:

- surface structure, the interface between the information system and its users' organizational environment.
- deep structure, the meaning of the real-world system that the information system is intended to model
- physical structure, hardware/software technologies used to implement an information system

Inconsistently borrowing Wand and Weber's application of deep structure theory, Table 1 applies the concept of deep structure for identifying limitations of typical systems analysis and design methods, tools, and interactions. Specifically, most of these tools are not designed to engender Habermassian ideal communication.

Table 1: Using deep structure theory to compare viewpoints of business professionals and IT technical experts

	Deep structure	**Surface structure**	**Physical structure**
Viewpoint of business professionals	Work system as a system of doing work to produce products and services for internal and/or external customers	Information system interface, reports, and queries	Visible details of work activities, tools, and other resources
Viewpoint of IT technical experts	Information systems as a configuration of hardware and software	Information system interface, reports, and queries	Structure of hardware and software configuration, plus

	that is used by users		details of technical interfaces, data schemas, etc.

The current research combines Wand and Weber's notions of deep structure theory with Habermassian ideal communication to explore the current understanding of communication between business and IT professionals. Clarification of issues implied by Table 1 could lead to insights and possibly controversial conclusions. For example,

- In contrast to Wand and Weber the deep structure of information systems may be about the work systems they support, not about the information systems per se.
- In contrast to typical guidelines concerning systems analysis and design, use cases may not be the best way to capture deep structure that should be the basis of requirements.

The work system method (WSM) was developed as a systems analysis method to aid business professionals in their own understanding and to support communication between business and IT professionals. (Alter, 2003, 2006, Truex and Alter, 2010) The premises of WSM include:

- The unit of analysis is the work system, not an entire organization.
- Even rudimentary understanding of a work system covers customers, products/services, processes and activities, participants, information, technologies, environment, infrastructure, and strategies- e.g., a process oriented view.
- Work systems evolve over time through a combination of planned and unplanned change.

This paper shows how the WSM can be used to reduce distortion from the requirement gathering process by creating something more akin to Habermassian communicative action.

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