

I

Understanding Practice

2. Mappings Situations

3. Using Diaries

4. Systems, Processes, and Structures

5. Formalization in Practice

Part I addresses the following question: How can we support reflection in and help shape understandings of systems development practice? This introduction presents four of my own contributions that can help answer this question and it also summarizes other contributions of my Danish colleagues aimed at understanding practice (see table 3 and reference list in chapter 1). In general, two different approaches can be taken to investigate this question: one which emphasizes techniques that practitioners can use to reflect as part of their practice, e.g. based on soft systems (Checkland 1981; Checkland *et al.* 1990), on diaries (Naur 1983), or on contradictions (Bjerknes 1989, 1991); and another which offers general conceptions of systems development that can be used as intellectual frameworks to understand practice, e.g. as presented in (Lanzara 1983; Lyytinen 1987a; Iivari *et al.* 1987; Avison *et al.* 1990).

Chapter 2 presents a set of tools for mapping systems development practices. Maps are cognitive constructs containing pictures that actors make of the situations in which they are involved. Four different types of maps are proposed to increase awareness, to learn, to invent solutions, and to support action in project groups. These tools were developed and used in the MARS project (1984a, 1984b, 1985) to diagnose and intervene into systems development projects.

Chapter 3 offers a similar, but different approach to reflect on what happens and what could happen during the course of a project. Inspired by Naur's work (1972, 1983) we present diaries as a medium for collective reflection. Diaries are developed as tools for

managing projects and for conducting empirical research based on experiments in the IT department of a bank (Nielsen 1990).

Chapter 4 discusses systems, processes, and structures as general concepts for understanding development and use of computer-based systems (Mathiassen 1981). Three contrasting views: a hard systems, a soft systems, and a dialectical are presented and their relative strengths and weaknesses are discussed. It is suggested that to understand the conflicting, complex, and dynamic nature of systems development practice we should take a dialectical approach based on the concepts of process and structure. Within such a framework, we can practice a multi-perspective approach and use hard and soft systems thinking as appropriate.

Chapter 5 discusses the use of formalizations, e.g. in the form of methods, in systems development practice. Inspired by Naur's discussion of formalizations in program development (1982) and based on experiences from the MARS project (1984a, 1984b, 1985) we discuss the limits and alternatives to having analysis, design, and management activities follow rules, customs, and conventions. Formalized behavior is seen as a useful way to improve efficiency and quality in certain situations. But systems developers have to deal with the uncertainties they are facing, and they must, therefore, integrate the use of different methods into an informal and situation-specific behavior.

In addition, a number of other contributions to Reflective Systems Development deal with understanding practice: (Mathiassen 1981) presents an intellectual framework for understanding systems development and systems development methods; (Aaen 1989) discusses organizational perspectives on systems development; and (Dahlbom *et al.* 1993) offers a comprehensive framework with complementary perspectives for reflecting on computer and information systems, systems development, quality, and practice.