Chapter 4.20
Working and Learning in Interdisciplinary Project Communities

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INTRODUCTION AND BACKGROUND: CREATING KNOWLEDGE IN INTERDISCIPLINARY PROJECT TEAM SITUATIONS

Designing a product or service does not form a complete and coherent body of knowledge that can be precisely documented or even articulated by a single individual. Rather, it is a form of knowing that exists only through the interaction among various collective actors (Gherardi & Nicolini, 2000). Existing literature (Kanter, 1988; Nonaka, 1994) has highlighted a need for the development of a diverse workforce if knowledge creation is to be promoted and sustained. This literature suggests that a diverse set of resources (experts with different backgrounds and abilities) provides a broad knowledge base at the individual level, offering greater potential for knowledge creation.

Sahlin-Andersson (1998) viewed projects as local arenas for knowledge creation, as individuals possessing different experience and skills work together to solve a common task within a limited timeframe. Through collaboration, new technical knowledge and knowledge for organizing the project are developed over time. March et al. (1991) argued that organizations learn from experience to improve future performance. By the same token, projects can be used as a medium for organizational learning, where knowledge and experience gained in one project can be transferred and utilized in the next. This strategy does not aim solely to save time and money, but also to avoid "reinventing the wheel", which is something that occurs frequently in every new project. Penrose (1959) argued that utilizing and employing experience and the knowledge thus created makes an organization grow.

Conceptually, a team can be viewed as a socially constructed phenomenon or linking mechanism that integrates individuals and organizations (Horvath et al., 1996). A multidisciplinary team is defined by Nonaka and Takeuchi (1995) as "a self-managed, self-organised team in which members from various functional departments, and/or areas of expertise, work together to accomplish a common goal" (p. 85). The primary goal of the multidisciplinary composition (see Figure 1) is to marry diverse bodies of knowledge in a way that forces out a synergistic knowledge outcome that is innovative, contextualized, difficult to imitate, and, as such, has strategic value. For the most part, project team tasks are nonrepetitive in nature and involve the application of considerable knowledge, judgment, and expertise.

The advantage of adopting multidisciplinary project teams is that they are quicker in integrating the expert knowledge of different functions, for example, design, construction, property management, marketing, and so forth. Cross-functional

Figure 1. A multidisciplinary composition of team members with diverse knowledge, judgment, and expertise

project teams with mutual accountability and collective work products have been found to decrease development time and increase product quality (Van de Ven, 1986; Wheelwright & Clark, 1992). Multidisciplinary project teams create a "task culture", facilitating close linkages and direct personal contacts between different functions (Cohen & Levinthal, 1990). These close connections are necessary, as new product development by its very nature includes uncertainty about the potential market response and about new technology (Henke, Krachenberg & Lyons, 1993). The multidisciplinary project team can be viewed as an unusual team arrangement primarily because it is composed of professionals from various disciplines who take pride in their fields of expertise. They are committed to the basic assumptions of their paradigms, and they perceive their roles in the team as representing their knowledge bases in the best possible way.

KNOWLEDGE SHARING IN PROJECT TEAMS

To enhance competitiveness and meet organizational goals, organizations need to ensure that people share both tacit and explicit knowledge. The increased sharing of knowledge raises the likelihood of new knowledge being created, tending to support valuable innovation (Nonaka & Takeuchi, 1995). Though organizations can codify some of the knowledge people use, it is easy to find cases or examples that do not fit the codified knowledge of the organization. This unarticulated knowledge requires communication among people in the organization. Orr (1996) found that photocopier technicians often searched for solutions beyond their manuals. He explained that "the expertise vital to such contingent and extemporaneous practice cannot be easily codified" (p. 2). When documentation proves insufficient, people need to access each other's experience to solve more difficult problems. Orr showed how technicians

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