Information Environments of Middle Managers in Higher Education

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INTRODUCTION

The importance of middle managers is frequently noted in the context of strategic management and other key decisions (Floyd & Wooldridge, 1996; Gold, 1998; Kettunen, 2002). The role of the middle managers can, however, be much greater because they are responsible with other creative individuals for the innovations of their subunits. They assume the responsibility for developing many information systems to serve the processes of the organisation.

There has been some criticism of the limited scope of information system innovation research (Lyytinen & Rose, 2003a, 2003b). The purpose of this article is to show that the information systems of an education institution can be classified according to the information environments (IEs) and other characteristics such as the organisational levels. The analysis reveals the creative class of a higher education institution (HEI) which assumes responsibility for developing the information systems in cooperation with the other units of the institution and networks.

The empirical case of this article illustrates the information environments and information systems of the Turku University of Applied Sciences (TUAS). It is argued that technology and behaviour are not dichotomous in an information environment; they are inseparable. The analysis helps education management to develop the institution's information systems in an innovative way.

The article is organised as follows: First, the role of middle managers is discussed in the background section of the study. Next, the concepts of IEs are introduced and information systems are analysed using the various IEs. This is the main focus of the article. Thereafter, the information environment of degree programme managers is shortly discussed. Finally, the results of the study are summarised and discussed in the concluding section.

BACKGROUND

The role of middle managers has been changing in Finland. Finnish universities of applied sciences (formerly known as polytechnics) are in an interesting phase of organisational development because a major reform of higher education took place in the 1990s. The universities of applied sciences were established by taking parts from the vocational institutions. At the same time, hundreds of separate vocational institutions merged to constitute larger multidisciplinary institutions.

The reform caused major organisational and functional changes in the education institutions. The reform produced changes in the working cultures and autonomy of the institutions and changed their patterns of management and administration. Many management tasks were transformed from the rectors of vocational institutions to the expanding middle management of the new institutions. Larger organisations demanded for more managers to take responsibility for degree programmes and also many new development functions in the institutions.

A matrix organisation is a typical model in the Finnish universities of applied sciences. Typically, the institutions have four to eight education departments (faculties) led by directors of education (deans). Each education department includes several degree programmes. The institutions have also a department of support services led by the rector and vice rectors.

The department of support services includes support service units such as international relations, library, and human resources management.

In the last decade, when the structural reform of the universities of applied sciences was introduced, a reform in their operating environment took place. New constructivist ideas about learning turned increasing attention to students and their progress. These new ideas can be called a service paradigm or a customer paradigm in Finnish vocational higher education. At the same time, there occurred a major change in the technical environment and information systems, which modified the traditional ways of learning, teaching, and management.

An important group in the organisational and functional development of institutions is that of the middle managers. The middle managers of matrix organisations in the Finnish universities of applied sciences can be classified into three main groups: degree programme managers, research and development managers, and support service managers. It is emphasised that the strategic management of these middle managers can be crucial for organisational success in an HEI. This is important, if the education and business environments of departments are distinct from each other. Especially in larger organisations, a greater degree of responsibility has been assigned to subunits.

The programme managers may typically be responsible for one large or several smaller degree programmes. The middle managers of the support services, such as the development manager, quality manager, financial manager, and manager of international relations, are responsible for a specific sector in the whole institution. Many other expert positions belong to the group of middle managers in a broad sense, even though these people do not have a manager's title. Floyd and Wooldridge (1996) point out that the roles of the middle managers are to champion innovative initiatives, facilitate adaptability to new behaviour, synthesise information within and outside the organisation, and implement strategy.

MAIN FOCUS OF THE ARTICLE

Information Environments

The information environment approach was introduced by Ståhle and is described in several articles (e.g., Ståhle & Grönroos, 2000; Ståhle & Hong, 2002; Ståhle, Ståhle, & Pöyhönen, 2003). According to the IE approach, the organisation can be described as a knowledge creating system arising as a result of interaction between individuals and groups. The characteristics of the networks define the different IEs. The know-how, relationships, information flow, and management are the dimensions to analyse the IEs. Management has a remarkable role in creating these environments.

According to this approach, there are different kinds of IEs:

- Mechanical
- Organic
- Dynamic

These environments are the results of management actions and have different kinds of know-how and knowledge structures. They have different kinds of relationships and information flows within and outside the organisation. Riihimaa (2004) emphasises that a taxonomy can be an essential element to create theory and analyse information technology.

Mechanical IEs are strictly documented and determined. The information systems in these IEs include accounting systems and the student and study registers. Typically, the input is strictly controlled, information flows one way, top-down, and the system produces certain kinds of reports. Automation is important because these information systems have been planned to increase the efficiency of routine tasks. The creative human contribution can be directed to more important functions.

Organic IEs emphasise communication and dialogue. The information systems in this environment have been designed for making course implementation plans and collecting feedback from students. The management information system based on the balanced scorecard approach also belongs to this environment (Kettunen, 2005; Kettunen & Kantola, 2005). The members of the organisation share their experience-based tacit knowledge (Kim, Chaudhury, & Rao, 2002; Nonaka & Takeuchi, 1995; Takeuchi & Nonaka, 2004), try to make it explicit, combine knowledge, and develop the internal processes. The organic IEs require development-oriented management, in which middle managers have an important role. Management includes power sharing, development of feedback systems, and fostering of efficient communication in the organisation.