

Cooperative Learning in Groupware Implementation

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Introduction

On-going use of collaborative technologies is a topic of continuous interest for researchers in the CSCW community. As such technologies become progressively more intertwined in the operations, products, and infrastructure of companies, it is crucial that the implementation be successful.

However, researchers have noted widespread failures in this process (Grudin, 1988; Earl, 1993; Premkumar and King, 1994; Rogers, 1994; Fitzgerald, 1998; Gottschalk, 1999). Why is implementation of groupware in one organisation more successful than in another? We believe that social issues around implementation of the system play an important role in this process.

In the BITE research project at the University of Twente we are concerned with social problems involved in on-going use of groupware. Taking into consideration the nature of groupware, we think that especially group processes, such as collaboration among users, influence adoption of the technology.

Therefore we propose to look at the implementation of groupware from a group learning perspective. Group learning is understood as group interactional activities. Research questions of the project are: What are the learning characteristics of evolutionary adoption of groupware? Which steps form the process of evolutionary adoption of groupware? What is the role of the team and individual learning characteristics as contextual constructs in the implementation process? Do the learning processes influence the stable use of groupware?

Why is the learning approach relevant?

We conjecture that purposeful creating of a learning atmosphere in a company will support the process of groupware implementation. This is based on three reasons:

- Groupware technologies require cooperative work. Different studies in human resource management have suggested the interdependency between cooperative work and learning, which is known as cooperative on-the-job learning, where the work socialisation plays the crucial role (Marsik and Watkins, 1992, Dixon, 1994;

Swieringa & Wierdsma, 1994; Onstenk, 1995; Watkins & Marsick, 1996). A lot could be gained from the system if people would learn from their own experience and share knowledge during the whole process of implementation.

- After groupware is deployed, people have to learn how to use a new system.
- Changes in technology inherently lead to changes in different aspects of professional competency because employees act with technology on the basis of their understanding of it, previous experience and personal learning characteristics.

Understanding of groupware implementation

In order to gain insight into how employees collectively operate with a system, we describe this process from a *cooperative on-the-job learning* approach. The basis for the model is founded on Kolb's psychological concept of experiential individual learning (Kolb, 1984) and transferred into a cooperative cycle. The latter reflects the team learning processes such as collective acting, group reflecting, sharing understanding, sharing knowledge, and mutual adjustment.

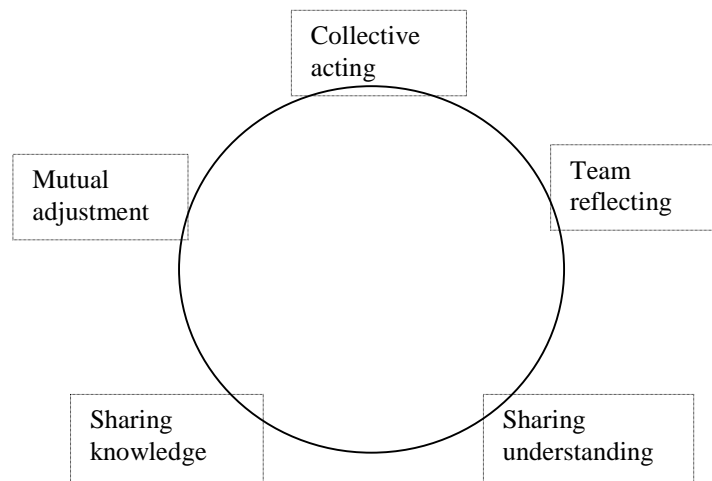


Figure 1: Cooperative learning cycle based on the Kolb's (1984) experiential learning cycle

In a first explanatory case study, the team learning processes could be operationalized to concrete group activities. Next, we are to develop measures for the learning constructs at the team and individual levels and correlate them with the evolutionary process and the indicators of groupware implementation. Two rounds of the same quantitative and qualitative methods should allow us to investigate the evolution of those constructs in the use of groupware.

Our interest in the workshop

Input we can provide to the workshop is an elaboration of the experiential group learning approach and a case study currently carried out. We are willing to share our first experiences in this area and we hope to learn from the insights, experiences, and feedback of others. Also, we are very interested to get into contact with other researchers with a similar interest, with the prospect of a continued exchange of ideas and possible further cooperation.

References

- Dixon, N. (1994), *The Organizational Learning Cycle*, London: McGraw-Hill.
- Earl, M.J. (1993), Experiences in Strategic Information Planning, *MIS Quarterly*, V.17, No.1, pp.1 – 24.
- Fitzgerald, G. (1998), Evaluating Information Systems Projects: A Multidimensional Approach, *Journal of Information Technology*, V.13, pp.15 – 27.
- Gottschalk, P. (1999), Implementation Predictors of Strategic Information Systems Plans, *Information & Management*, V.36, pp.77 – 91.
- Grudin, J. (1988), Why CSCW Applications Fail: Problems in the Design and Evaluation of Organization Interfaces, *Proceedings of the International Conference on CSCW*, Portland, Oregon, pp. 85 – 93.
- Kolb, D. A. (1984), *Experiential Learning. Experience as the Source of Learning and Development*, N.J.: Prentice-Hall, Englewood Cliffs.
- Marsick, V., & Watkins, K.E. (1992), *Informal and Incidental Learning in the Workplace*, London: Routledge.
- Onstenk, J.H.A.M. (1995), Human Resources Development and On-the-job Learning, M. Mulder, W.J. Nijhof & R.O. Brinkerhoff (Eds.), *Corporate Training for Effective Performance*, Boston: Kluwer Academic Publishers.
- Premkumar, G., & King, W.R. (1994), Organizational Characteristics and Information Systems Planning An Empirical Study, *Information Systems Research: a Journal of the Institute of Management Sciences*, V.5, No.2, pp.-75 – 109.
- Rogers, Y. (1994), Exploring Obstacles: Integrating CSCW in Evolving Organizations, *Proceedings on CSCW'94*, October 22 - 26, Chapel Hill, NC, pp. 67 – 77.
- Swieringa, J. & Wierdsma, A. (1994), *Becoming a Learning Organization*, Addison-Wesley Publishing,
- Watkins, K. & Marsick, V. (1996), (Eds.), *Creating the Learning Organization*, Alexandria, Virginia: ASTD.

