

Knoware, a Collaborative Concept Mapping Tool for Managers

Knoware is a joint research project between the Swiss Federal Institute of Technology (EPFL, <http://www.epfl.ch>) and the International Institute for Management Development (IMD, <http://www.imd.ch>), both located in Lausanne Switzerland.

The goal of the project is to enhance the synthesis capabilities of adult learners taking course modules at IMD. IMD's pedagogy is a constructivist pedagogy in which learners construct their own knowledge from information they find in the outside world, discussions they have with fellow learners, presentations they make to fellow learners, and feedback they receive. It is essential that learners be able to create a synthetic view of the information they find, in order to be able to give meaning to this information. By synthetic view we mean viewing the whole, its parts and their relationships. We believe that these synthesis capabilities allow the learner to progressively shape evolving models of the world (rather than merely accumulate data) that will allow him/her to act upon it.

The approach we took with Knoware is to create a shared space (Schrage 1995) that enables learners to collaboratively build and view concept maps that represent their understanding of a subject. The use of concept maps in education is not new (Novak et al. 1984), nor is the use of computerized tools for generating concept maps (Gaines and Shaw 1995). However, most studies of concept mapping involve school-age children rather than adult learners and most computerized tools are platform dependent and don't offer collaboration mechanisms.

Using Knoware, learners can represent concepts and their relationships in a graphical form. Concepts and relationships can be named. Content such as text, any type of document, and links to the Web can be attached to any concept or relationship.

Knoware is a Java applet running on the World Wide Web. All concepts and relationships as well as attached content are stored in a centralized database on the server. Knoware supports both synchronous and asynchronous collaboration. Asynchronous collaboration is supported by the fact that all concepts, relationships, and content are stored on a central database on the server. Learners can connect at different times and from different places to find the concept maps they created and view other learners concept maps. The applet continually polls the server for changes made by other learners and displays those changes, thus supporting basic synchronous collaboration.

Knoware exists as a prototype and is available on the World Wide Web at the following address: <http://icapc4.epfl.ch/knowarepub>. Knoware will be tested and its usefulness and validity will be evaluated in several IMD seminars and workshops over the next year. We are enhancing Knoware with more synchronous tools to support awareness (Gutwin et al. 1998) as well as offline usage to support unconnected users.

References

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- Gaines, B.R., and Shaw, M.L.G. (1995). Concept maps as hypermedia components. *International Journal of Human-Computer Studies* 43, 3 (1995), 323-361.
- Gutwin, C., and Greenberg, S. (1998). Effects of Awareness Support on Groupware Usability. *Proceedings of the CHI'98 Conference on Human Factors in Computing Systems*, ACM Press.
- Novak, J. D., & Gowin, D. B. (1984). *Learning how to learn*. New York: Cambridge University Press.
- Schrage, M. (1995). *No More Teams! : Mastering the Dynamics of Creative Collaboration*, Currency/Doubleday.