Trialogical Learning Supported by Knowledge Practices Environment

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Abstract: Here is shortly presented an interactive session where Knowledge Practices Environment (KPE) is presented and demonstrated, as well as a learning approach called trialogical learning. The trialogical learning emphasizes students learning activities which are organized around shared "objects". KPE is designed to support trialogical learning and collaborative knowledge creation processes. Both KPE and trialogical learning have been developed in a large EU-funded KP-Lab project (2006-2011). They will be elaborated during the session.

Introduction – Main Features of the KP-Lab Project

KP-Lab project (5 year IST project co-funded by the European Community 2006-2011, ended at January 2011) has aimed at understanding how learners in educational and professional settings develop novel epistemic artefacts and transform their knowledge practices, collaboratively, in long-term processes, In addition, the project investigated how students in higher education do the same by cross-fertilizing professional and educational practices and solve complex, authentic problems with the help of innovative knowledge practices and educational technology. The theoretical approach has its background in the *knowledge creation metaphor* of learning. The knowledge creation metaphor emphasizes collaboration on developing some novel things, good representatives being the *knowledge building* approach, the *progressive inquiry* model, and the *expansive learning* (see Paavola et al 2004). The specific approach developed in the KP-Lab project is called 'trialogical learning', where the shared objects are the third element in addition to the individual work and participatory collaboration.

Theory

The trialogical learning approach (Paavola & Hakkarainen, 2009) develops models and tools for supporting and arranging learners' activities around shared 'objects' (such artefacts as texts, models, conceptual artefacts, but also practices and processes) that are created for some real purpose or subsequent use, which is often not the case in conventional educational practices. The focus on collaboration with shared objects and practices can be seen as a complement to the meaning making tradition in CSCL. Within the trialogical approach, individually performed activities and social interaction serve the longer-term processes of developing specific, concrete, shared objects. Shared epistemic objects and practices are not fixed objects with stable properties like materials typically used in educational settings, but open-ended, future oriented, and in the process of being defined by the participants (see Knorr-Cetina, 2001).

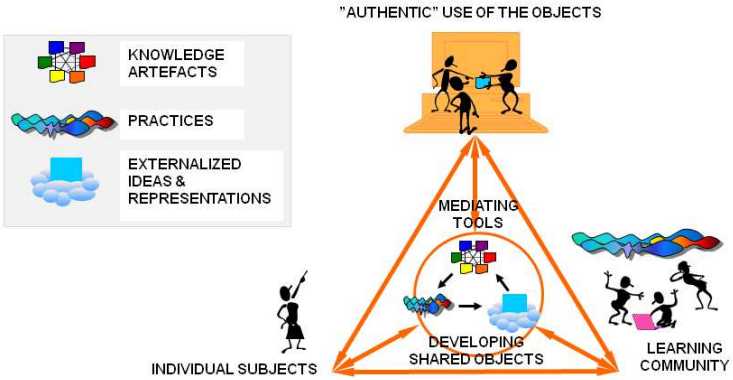

Figure 1. An Illustration of the Trialogical Approach to Learning Presenting Its Basic Elements (Paavola & Hakkarainen 2009).

Pedagogy

In the KP-Lab project following design principles have been formulated to characterize trialogical learning.

1. Organizing activities around shared objects.
2. Supporting integration of personal and collective agency and work.
3. Emphasizing development and creativity on shared objects through transformations and reflection.
4. Fostering long-term processes of knowledge advancement with shared objects (artefacts and practices).
5. Promoting cross fertilization of various knowledge practices and artefacts across communities and institutions.
6. Providing flexible tools for developing artefacts and practices.

Technology

Within KP-Lab, an open source collaborative learning environment, called Knowledge Practices Environment (KPE), has been developed in (see Lakkala et al, 2009). KPE is based on a visual desktop metaphor. Thus, allowing an easy manner to freely organise, re-structure and move the shared objects and chronological tasks as the users wish. Furthermore, there are no restricted rights according to preset categories, such as a teacher versus students. The users define themselves the rights and restrictions they need in their work. The already well-established features of collaborative environments are obviously present in KPE also. Such are: facilities for interacting with knowledge artefacts, processes, users, and reflective tools during a trialogical learning or working process.

The visual metaphor offers different perspectives to the same elements, called views:

1) The Process View presents students with a GANTT chart type of chronological display, which specifies the tasks students have set for themselves, milestones and allocated responsibilities. The Alternative Process View gives means for grouping the process more freely with elements chosen by the participants and tagging these, which allows filtering according to the tags.

2) The Content View presents users with a graphical representation of all the artefacts and their linkages, metadata and tags describing these artefacts, plus “tasks” provided by the users. Content items can be documents, wiki pages, web links, notes, sketches, and visual models, which can be commented as well as chatted by the users.

3) The Community View allows displaying the members visually in groups if the users have formed such groups. It also provides a description of all members of the particular shared space, explicating the tasks and content items created and responsibilities allocated for each member.

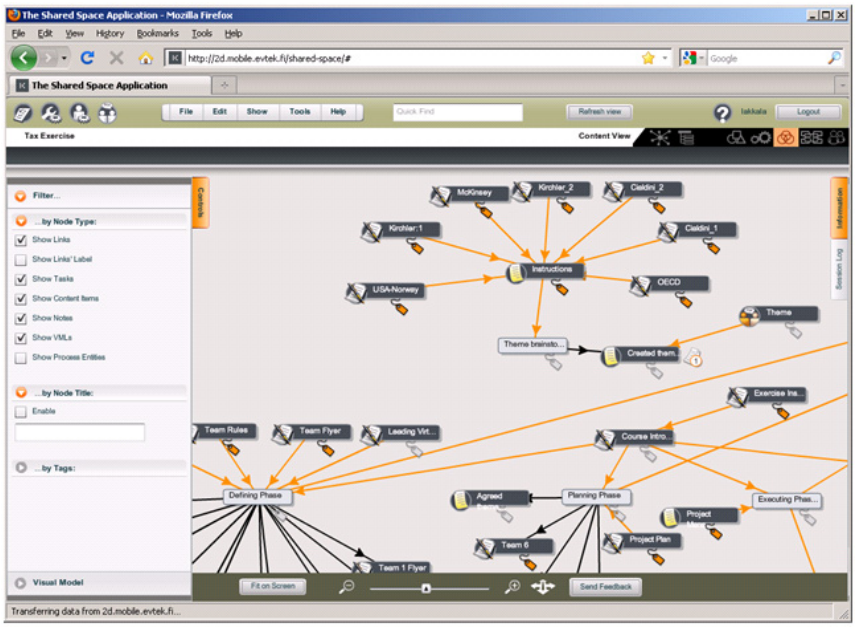

Figure 2. An Example of Content View in KPE.

Co-design

The project had strong theoretical background, which produced the scope for the technical development. Design of KPE had its start on design principles of the trialogical learning (see above). The design principles served as a guide and as generic criteria in the design process in the sense that they enabled the creation of pedagogical scenarios which attempt to situate and contextualize the knowledge practices within particular educational contexts. Especially for technology development, it turned out early on in the project that other conceptual tools (like various "types of mediation") besides design principles were needed. Ideas and requirements from practical cases and also from technology developers were provided. The central question was to articulate and specify advanced knowledge practices that are still emerging and in flux. The design solutions produced scenarios, design principles, and requirements for operationalizing the trialogical approach.

Theme of the Session and Expected Outcome(s)

We present examples of usage and features of the KPE as pre-conference activity – actually in the KPE. During the interactive session, we make a short introduction to the trialogical learning approach and visit the ideas of the pre-conference activity. The aim of the session is to discuss and plan the different usage potentials with the participants of the session as well as the users and designers of the system attending virtually.

As an outcome, we anticipate to promote interaction between current and potential users (developers, teachers, students, researchers) and with pedagogical and technological developers from different countries. Further, various challenges and opportunities related to the trialogical learning approach and more generally co-design and pedagogical development activities will likely be generated and discussed.

Before the CSCL-meeting

Material on experiences and comments concerning KPE will be collected to one shared space in KPE called "CSCL2011". It will be open for anyone to join from:

http://2d.mobile.evtek.fi/shared-space/
Username: Student1, or: Student10, or: Student13
Password: 1234
And then search "CSCL2011", e.g. with "Quick Find", and double-click and you are in.

There will be some guidance to the use and features of KPE. We will also invite persons and organizations who have used KPE and been interested in KPE to add comments and materials (like short comments, or videos from users) before the meeting to be developed together. This focus with materials before the session is in line with the ideas of trialogical learning.

The comments of the users will be used in the 90 min session as a start to continue the discussion. Thus, the persons attending to the virtual pre-congress activity have a real potential to contribute to the future use and development.

During the CSCL Session

There are teachers, students, developers, and researchers from Helsinki, Oslo, Stockholm, and Kiel available in their own countries who will be monitoring the group work, with participants at the CSCL, plus potential participants from other places invited to join though the net:

1) A short introduction on the ideas produced during the pre-congress activity as well as potentially some presentations on KPE tools, and on the trialogical learning. Slides on these will be produced to the shared space and there will be room for discussion and commenting.

2) Short slide shows on 2-3 courses where KPE and the trialogical approach have been used and applied. Teachers and students from these courses are available for answering questions and commenting their experiences.

3) Usage scenarios elaborated in small groups for using KPE and the trialogical approach. What advantages and challenges are to be seen? Groups are organized at the place of the CSCL session but remote participants can collaborate also through KPE. The group works are done at KPE.

4) Summarizing the results and answering questions. The small groups shortly present their main ideas. Answers and questions are collected for further use.

Knowledge Practices Laboratory (KP-Lab) Project - Links

Website: http://www.knowledgepractices.info; http://www.kp-lab.org
Facebook: http://www.facebook.com/group.php?gid=189181689732&v=wall
Introductory video: http://www.youtube.com/watch?v=k9CVmq3P00w
Knowledge practices Environment: http://2d.mobile.evtek.fi/shared-space/
Partners, see: http://www.kp-lab.org/partners

References

Knorr-Cetina, K. (2001). Objectual Practice. In T. R. Schatzki, K. Knorr Cetina, & E. von Savigny (eds.). *The Practice Turn in Contemporary Theory* (pp. 175-188). London and NY: Routledge.

Lakkala, M., Paavola, S., Kosonen, K., Muukkonen, H., Bauters, M., & Markkanen, H. (2009). Main functionalities of the Knowledge Practices Environment (KPE) affording knowledge creation practices in education. In C. O'Malley, D. Suthers, P. Reimann, & A. Dimitracopoulou (Eds.), *Computer Supported Collaborative Learning Practices: CSCL2009 Conference Proceedings* (pp. 297-306). Rhodes, Creek: International Society of the Learning Sciences (ISLS).

Paavola, S. & Hakkarainen, K. (2009). From meaning making to joint construction of knowledge practices and artefacts – A trialogical approach to CSCL. In C. O'Malley, D. Suthers, P. Reimann, & A. Dimitracopoulou (Eds.), *Computer Supported Collaborative Learning Practices: CSCL2009 Conference Proceedings*. (pp. 83-92). Rhodes, Creek: International Society of the Learning Sciences (ISLS).

Paavola, S., Lipponen, L., & Hakkarainen, K. (2004). Models of Innovative Knowledge Communities and Three Metaphors of Learning. *Review of Educational Research*, 74(4), 557-576.

Acknowledgments

The event has been organized within the framework of KP-Lab Integrated Project, which was sponsored under the 6th EU Framework Programme for Research and Development.