



Development and Learning in Organizations

Emerald Article: Use it or lose it: Structuring an organizational memory for communities of practice of e-learning

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Use it or lose it

Structuring an organizational memory for communities of practice of e-learning

If you look up “ontology” in Wikipedia, it says that “in information science, an ontology formally represents knowledge as a set of concepts within a domain, and the relationships between those concepts”. Having knowledge set in context in a usable, accessible form – knowledge capitalization – is a key source of value creation for organizations. One of the main reasons for trying to make organizational knowledge explicit – particularly tacit knowledge – is to allow the organization see what it does not know and where the gaps are. Ontologies can provide the technological backbone and help create a “semantic learning organization”.

Organizational memory and knowledge management

Organizational memory is a common metaphor for the way information and knowledge assets are captured, retained, accessed and used. Many organizations use technology-based knowledge management (KM) to create and share tacit and explicit knowledge. An organizational learning approach considers:

- knowledge acquisition;
- information distribution;
- information interpretation; and
- and organizational memory.

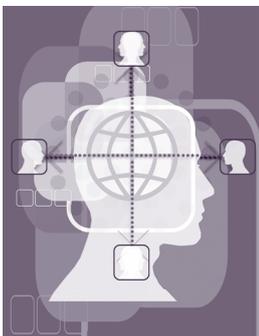
In his well-known book, *The Fifth Discipline*, Peter Senge argues that a learning organization embeds processes in its culture to encourage learning at all levels, distinguishing between:

- single-loop, adaptive organizational learning – solving problems and making incremental improvements without examining current learning behaviors; and
- double-loop or generative learning, prompting those involved to question and perhaps modify values, assumptions and policies that led to the actions.

Where do communities of practice come in?

Communities of practice (CoPs) play an important role in allowing knowledge to be created, used, transferred and shared within and between organizations. The social aspect of communities of practice, in particular, affects both learning and knowledge sharing. CoPs have three basic elements:

1. A domain of knowledge defining a set of issues.
2. A coherent group of people concerned with the domain and one another’s learning needs and aspirations.
3. A developing and adapting shared practice.



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A virtual community of practice (or CoPE) brings together actors involved in e-learning and provides a virtual space to exchange, share and resolve problems that members have come across during the different lifecycle phases of an online learning system (OLS). Every member will bring an individual perspective to the CoP, but they typically share a common vision and have similar learning goals, making it easier to engage in double-loop learning. It goes without saying that where a CoP has to solve a problem or execute a task, you need to have the right knowledge in the right place at the right time – in other words, you need organizational memory.

A general framework for community memory

What does organizational memory look like in a CoP? Well, the architecture looks a bit like a layer cake. The different layers include several ontologies:

- a generic ontology describing its members, community and common activities;
- domain ontology, describing the community's interests and concepts relating to common practice within the community;
- knowledge ontology, covering members' different kinds of knowledge – skills, competences, experience and routine knowledge; and
- task ontology – the problem-solving processes that they use for particular tasks.

This general framework for ontology-based CoP memory brings together knowledge assets and community resources, with members of the CoP as the main actors in a semantic learning organization. These ontologies can be used to categorize the knowledge, tasks and domains that engage a community of practice based in cyberspace and provide them with a framework for long-term collaborative processes.

Applying the community memory framework to an e-learning community of practice

A useful illustration of this approach is described in a recent paper by Sarirete and others. They focus on an e-community of practice engaged in instructional engineering for an OLS. Members of the community collaborate in the virtual environment to share their expertise and knowledge and create online learning systems.

The researchers looked at the various ontologies used to annotate the resources of this CoPE, incorporating them as a part of the community's memory. They focused on knowledge and task ontologies, intending to integrate them with a domain ontology and subsequently apply the overall framework to some existing CoPEs.

Knowledge, task and domain ontologies

Knowledge is itself made up of other concepts, notably context, content and annotation, which helps to identify appropriate knowledge and the reasons for its creation. Sarirete and others use Nonaka's SECI framework to categorize knowledge that may be saved in the community memory, covering:

- experiential knowledge such as lessons learned in CoPE practice and skills acquired through dialogue;

- conceptual knowledge, like models and maps used to represent members' knowledge of a particular situation;
- systemic knowledge, including explicit knowledge packaged in documents including E-books, manuals, wikis or web links, as well as course or learning resource specifications defined or used by community actors; and
- routine knowledge such as tacit knowledge of routines and procedures that community members want to model so others can make use of them, for instance in the form of process models or workflow diagrams.

Task ontology specifies concepts and relations for tasks involved in a particular role such as the socialization process (choose communication tool, establish dialogue) or the externalization process (choose modeling tools, re-use existing knowledge).

In this example, socialization and externalization are regarded as generic activities, but activities related to the instructional engineering domain are treated as part of the domain ontology. These include:

- analysis;
- design;
- implementation; and
- utilization.

Each of these follows an activity cycle involving:

- research;
- structure;
- confrontation; and
- decision-making.

Bringing it all together

Throughout the different phases of the OLS, CoPE members discuss and negotiate questions encompassing all aspects of the process. For example, during the analysis phase, they plan tasks such as:

- curriculum review;
- lectures;
- syllabus preparation;
- teaching styles; and
- student learning styles.

When negotiations are finished they can represent the results of their deliberations in the CoPE memory. Conceptual mapping provides a useful tool to articulate ideas and share them with others.

Pulling these activities together domain by domain, it is clear that the development of an OLS is a long-term collaborative process, rather than something that can be undertaken quickly. But contributing to organizational memory is an effective way to ensure that knowledge gets

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remembered, used and reapplied. Communities of practice of e-learning are no exception and this ongoing research shows how members can structure a community memory to capitalize on tacit and explicit knowledge.

Keywords:

Organizational memory,
Communities of practice,
Online learning systems,
Knowledge management,
Instructional engineering,
Semantic learning
organization,
Tacit knowledge,
Explicit knowledge,
Information management

Comment

This review is of “Building a community memory in communities of practice of e-learning. A knowledge engineering approach”, by Akila Sarirete, Azeddine Chikh and Elizabeth Noble. The article discusses the application of information and communication technologies to the creation of a collective organizational memory for a community of practice – even a virtual community. It suggests combining generic, knowledge, task and domain ontologies to provide a structure that will enable a community of practice of e-learning (CoPE) to store, share, re-use and re-apply the knowledge of community members. Focusing on knowledge and task ontologies, future research is expected to integrate these with a domain ontology and subsequently apply the overall framework to some existing CoPEs.

Reference

Sarirete, A., Chikh, A. and Noble, E. (2011), “Building a community memory in communities of practice of e-learning: a knowledge engineering approach”, *The Journal of Workplace Learning*, Vol. 23 No. 7, pp. 456-67.

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