

Enhancing Lifelong Competence Development and Management Systems with Social Network-based Concepts and Tools

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Abstract

This paper addresses the challenge of enhancing the social dimension of lifelong Competence Development and Management Systems with social network-based concepts and tools. Our premise is that through a combination of social network visualization tools, simulations, stimulus agents and management policies, we may improve the self-organizing and knowledge sharing capabilities of communities of CDMS users. The ultimate objective is to increase system usage toward a sustainable level of knowledge exchange and creation.

1. Introduction

This paper addresses the community aspect of Competence Development and Management Systems (CDMS) and in particular, the challenges related to how to engage CDMS users into a knowledge exchange process, to establish a sustainable level of engagement, and to empower groups into self-organizing, self-directed entities [1][2].

To address these challenges, we are currently experimenting with the design and validation of a number of features to enhance current CDMS. Such features range from **social network analysis and visualization tools** that facilitate communication and exchange, to more innovative approaches such as **advanced simulations** to scaffold networking and knowledge sharing behavior, and to the use of **stimulus agents** acting on user models to propose networking choices and to highlight cooperative opportunities. Additionally, **policies of self-organization** (terms of use, standards and quality, reward system, membership/role) will be tested to guide how users learn, share and create knowledge and support each other.

2. Enhancing CDMS with Social-network based concepts and tools

2.1 High-level visualization of social networks and competence development programmes.

CDMS comprises of a vast reservoir of knowledge assets as well as a diverse group of users with different targets, levels of expertise and competence levels. One way to facilitate navigation will be to provide users with access to relevant other individuals as a way of knowledge gathering through other people.

Most existing search engines work off a query to present users with a list of documents. However, our objective is to test the impact of information delivered in a more interactive and dynamic form and reflecting the structure of underlying social networks.

To this effect, interactive visualizations of the people and processes (who is interacting with who and on what) will assist in making the CDMS space more tangible and easier to navigate [3]. These visualizations need to present a very synthetic and rich view of important, relevant, and usable information, be adapted to user profile and current learning objectives, and at the same time, open up collaborative opportunities and community building. Technologies similar to Kartoo [4], a metasearch engine with visual displays and other open-source visualization software will be explored.

2.2 Games for promoting discovery, socialization and collaborative behavior

Simulations, in the form of games, provide a learning-by-doing approach [5] that may guide users toward discovering the social networks and networking opportunities within CDMS. The objectives of these simulations are to:

- Gradually increase user **familiarity** with a specific space or feature of the overall system
- Increase the **value perceived** by each user from using the system by locating and suggesting the ‘exploration’ of valuable spaces, knowledge assets and members.
- Contribute to gradually increase the level of **participation/involvement** and **self-direction** of each user.

We anticipate the use of simulations as a scaffold to users’ experience with system spaces and their communicative and collaborative features, to ongoing socialization as the simulation assists them in forming connections among people and to the gradual adoption of ‘desired’ behavior, i.e. transforming users from lurkers to active contributors.

2.3 Stimulus agents based on Social Network Analysis tools

We will also explore social network analysis (SNA) as a method for collecting, analyzing and presenting data about patterns of relationships among people and knowledge flow within a network [6][7].

Data from SNA will be leveraged to accelerate the flow of knowledge and information; identify thought leaders, key information brokers and bottlenecks; and target opportunities where increased knowledge flow will have the most impact.

Stimulus agents will act on SNA data as well information from user profile to generate interventions that are the most likely to stimulate the participation of users [8]. Interventions may include suggesting connections among users, setting up groups, closing the gaps in people’s knowledge of other members’ expertise and experience, and strengthening the cohesiveness within existing teams [9].

2.4 Policies for managing the network

The practical measures discussed thus far all support users in deriving more value from the network by fine-tuning their attitudes and behavior. In this sense, the network self-organizes. But what if users only have their own proximate goals in mind?

As an investor of time and effort, a user should be able to quickly estimate the **quality** of the network, the **speed** with which queries are resolved, and the **likelihood** of being helped at all by his peers. Visualization tools, simulations, and stimulus agents all help users to better make these assessments.

Additionally, we will explore policies related to reward mechanisms, anonymity, status, behavioral

guidelines, among others [10], that support the community’s capacity for self-organization while preserving the autonomy of individual uses, such that everybody is stimulated to submit high quality contributions, to react quickly, and most importantly, to react at all.

3. Conclusions

The emergence of a self-organizing community of knowledge workers within which members actively exchange and create knowledge remains a major challenge within online learning systems. **Interactive visualizations** represent a first step toward organizing and presenting relevant information in a manageable form. **Simulations** provide a point of entry into the system by placing users within a context within which to explore the social networks, identify relevant individuals, form collaborative groups, and locate resources. **Stimulus agents** provide further support by activating personalized and contextualized intervention based on user objectives and actual online behavior. **Management policies** further contribute to ensure that the network does not wither. Taken together, we envision a framework in which the adoption of proactive online behavior is modeled as a *change process* in which users become increasingly more invested, self-organized and self-directed in the knowledge-related activities.

4. References

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