Chapter 4.19
Media Centric Knowledge Sharing on the Web 2.0

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ABSTRACT

The success of knowledge sharing heavily depends on the capabilities of an information system to reproduce the ongoing discourses within a community. In order to illustrate the artifacts of a discourse as authentic as possible it is not sufficient to store the plain information, but also to reflect the context they have been used in. An ideal representation to do so is non-linear storytelling. The Web 2.0 in its "bi-directional" design therefore is an ideal basis for media centric knowledge sharing. In this article we present a novel solution to this issue by non-linear storytelling in the Virtual Campfire system. Virtual Campfire is a social software that allows a modular composition of web services based on a Lightweight Application Server in community engine called LAS. Hence, Virtual Campfire is capable of fully exploiting the features of the Web 2.0 in a comprehensive community information system covering web-services for geo-spatial content sharing, multimedia tagging and collaborative authoring of hypermedia artifacts.

INTRODUCTION

The development of information systems for communities of practice (Lave & Wenger 1991; Nonaka & Takeuchi 1995; Wenger 1998) in different application domains is a challenging issue for several reasons. Principles like legitimate peripheral participation, group knowledge, situated learning, informality and co-location have to be taken seriously in the design of the community engine. For

that reason, the community engine has to reflect the social learning processes taking place, which differ from community to community. Even more, the information systems need a careful design of the digital media and the related communication/collaboration tools in order to reflect the discursive hypermedia knowledge contained in text, pictures, videos etc. Furthermore, communities are usually not able to express their needs in the very beginning of information system usage. Thus, the communities have to gain experiences "on their own" while applying the technologies in use. In addition, multimedia technologies and the Web 2.0 are rapidly developing, thus creating new requirements on hardware and software. In combination with a trend for multidisciplinary work and research novel approaches for flexible, evolving, adaptable, and interoperable community engines are required. Social software for technology enhanced learning therefore need to reflect the nature of the underlying community processes and their discourses. Consequently, the question is: How to design and orchestrate community information systems in order to fully exploit the features of the Web 2.0?

In order to meet these requirements we have developed in recent years a Lightweight Application Server [LAS] for community information system, which is capable of supporting communities by multimedia services on the basis of the multimedia content description interface MPEG-7. On top of it, Virtual Campfire is a community information system that allows a modular composition of web services for media centric knowledge sharing on the Web 2.0.

In this paper we first introduce a theoretical framework for working and learning in media-supported communities of practice. After that, we introduce concepts of knowledge sharing on the Web 2.0 and explain how these technologies help to create, manage and share knowledge in communities. Then we present Virtual Campfire and its core modules in a scenario of non-linear multimedia storytelling. Here, our social software is applied in a community of professionals for cultural heritage management. The paper closes with a summary and an outlook on further research.

A MEDIA CENTRIC KNOWLEDGE MANAGEMENT THEORY

Snow differentiates between two different trends in collaboration and learning within scientific communities (Snow 1959). First, the 'linear type' of learning that is goal-oriented and transmission-centered. This means, old information in scientific communities is being replaced by new one as soon as this appears. Second, there is a 'non-linear type' of learning. This type is media centric and reflects the nature of the ongoing discourse. It doesn't replace old information but keeps it and might be applied in a different context later on. Here, information is not simply transmitted for learning, but it is presented based on the underlying theory in use. Our collaborative research center on "Media and Cultural Communication" (cf. http://www.fk-427.de) has given us a detailed insight into the importance of proper media support in knowledge sharing. The description and [loose] classification of medial artifacts is probably the most important part of the methodological perception process to make social software work. This means that a continuous perception of activities in communities of practice is necessary for them in order to gain new knowledge. The question therefore is: How to resemble working practices in communities of practice by means of social software?

A media-specific theory developed in the center helped us understand digital media support for discourses in the cultural sciences. It is based on the following three media operations (Jäger & Stanitzek 2002; Fohrmann & Schüttpelz 2004):

- *Transcription* is a media dependent operation to make media collections more readable.