ASK–LOST 2.0: A Web-based Tool for Social Tagging of Digital Educational Resources

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Abstract

In the context of Technology Enhanced Learning, digital educational resources are widely used for supporting a wide range of educational activities. Thus, organizing, managing, offering and accessing these resources over the web have been a key issue for our community. Emerging Web 2.0 applications and user attitudes and, especially, the user participation in content generation has increased the amount of user generated educational resources on the web. As a result, the issue of the social tagging of these resources, beyond pre-defined metadata schemas, has been raised. In this paper we discuss the issues related to Social Tagging as a means for describing digital educational resources and present ASK Learning Objects Social Tagging 2.0 (ASK-LOST 2.0) a web-based tool that can be used for social tagging digital educational resource of various types.

1. Social Tagging of Digital Educational Resources

Web 2.0 applications and user behaviors are becoming the mainstream paradigm on the World Wide Web [1]. Thus, Web 2.0 implements Tim-Berners Lee original vision for a “read-write web” where everyone could add, edit and comment web pages and resources [2]. This has led to an enormous increase of the digital resources available on the web today. As a result, both the discovery of new resources and the recall of known ones on the World Wide Web, become an increasingly complex problem. Within this context, the issue of characterizing digital resources tent to move from the formal description based on centrally agreed classification systems (for example, with metadata, such as the IEEE Learning Objects Metadata for Learning Resources) to a less formal user-based tagging (that is, adding keywords to digital objects). The ill-defined term of social tagging has then, emerged for those applications that encourage groups of individuals to openly share their private description (or tags) of digital resources with other users, either by using a collection of tags created by the individual for his/her personal use (referred to as folksonomy) or by using a collective vocabulary (referred to as collabulary) [3].

In the field of Technology Enhanced Learning digital educational resources in the form of learning objects are used to support a wide range of educational activities, where, as Learning Object (LO) is typically defined any entity, digital or non – digital, that can be reused to support learning, education or training [4].

Traditionally, digital educational resources are organized using formal descriptions from centrally designed and agreed classification systems using metadata. The IEEE Learning Object Metadata (IEEE LOM) Standard is such an example [4]. As a result, digital educational resources and their associated metadata are organized, classified and stored in web-based repositories which are called Learning Object Repositories.

With the emergence of Web2.0 and the increased volume of user-generated educational resources on the web, other means (commonly used in popular Web 2.0 applications) for describing digital educational resources are investigated. More specifically, social bookmarking and social tagging of digital educational resources are proposed [5].

Anticipated benefits expected from the use of social tagging of digital educational resources are [5-7]:

- Individual users (practicing teachers and/or learners) are able to provide and use terms that are meaningful to them and create with this way a personal collection of tags. This can facilitate the searching and recalling of already used and known resources.
• These tags pay attention to the individual users’ intents reflect their personal way of organizing and locating learning objects. This offers a unique and personalized way of classification which is delivered by users’ tags and not by a traditional classification standard.

• By sharing these tags in an open manner with other users, groups of users with common vocabularies can act as a “human filter” for each other.

• Identifying the most popular tags within a given community of users, a community based vocabulary can be produced eliminating redundant and irrelevant to the community description elements.

• Tags generated by large communities bare the potential to discern contextual information from tags’ aggregation, facilitating an educational wisdom of the crowd.

• Social tagging can enable the formation of social networks around educational tags. These networks can reflect the interests and expertise of users contributing to the tag development.

• Analyzing user generated tags can enrich peer interaction and peer awareness around educational content.

On the other hand, common problems with social bookmarking and social tagging of digital educational resources are [5-7]:

• The use of tags with personal meaning from different users can create difficulties in the process of re-using digital educational resources.

• Unclear tags due to spelling errors and synonyms tags can create difficulties in the process of searching and retrieving resources that has been characterized with these tags.

• The lack of standards for the structure of tags (e.g. singular vs. plural, capitalization, etc.) can cause additionally problems in searching and retrieving of appropriate digital educational resources.

• Overall, tags are not connected to each other by a reference structure, which in formal systems is used to link related terms and narrower or broader terms.

Within this context, during the last years, a number of tools for facilitating social tagging of digital educational resources have been developed. The main tools in this category are Cannotea [8], CiteULike [9] and MELT [7].

Cannotea [8] and CiteULike [9] are online reference management and social bookmarking services for facilitating scientists, researchers and academics to store, organize, share and discover links to academic scientific and research papers. On the other hand, MELT [7] is using CELEBRATE’s learning object repository allowing users to add their own tags to the resources of this repository. However, none of these tools allow social tagging of digital educational resources of any format i.e. image, video, text, URLs etc.

2. ASK – Learning Objects Social Tagging 2.0 (ASK – LOST 2.0)

ASK-LOST 2.0 is a web-based tool fully supporting the process of social tagging of any type of digital educational resources by offering facilities for authoring and management of tags and resources. The main objectives of ASK – LOST 2.0 are the following:

• The development of learning object repository with any type of digital educational resources submitted and annotated by end users.

• The creation of personal collections of digital educational resources for every user and access to personal vocabularies created by user’s tags.

• Facilities for search and retrieval of these digital educational resources.

• Facilities for building social networking between users, aiming to enrich user’s interaction and awareness around the available digital educational resources.

The main functionalities of the ASK – LOST 2.0 (Figure 1) can be summarized as follows:

• Submit and tag digital educational resources: The user has the capability to submit and characterize with his/her selected tags any kind of digital educational resource.

• Browse digital educational resources via tag clouds: The user has the capability to search and browse digital educational resources using tag cloud produced by the tags that all users of the tool have offered.

• Creation of user’s personal digital education resources collection: The user has the capability to save to his/her personal list digital educational resources uploaded by other users and browse the tags that these users have used.

• Search, rate and comment digital educational resources: The user has the capability to search available digital educational resources tagged by other users and provide his/her ratings and comments.

• Social networking support: The user has the capability to create watchlist, which includes other users, so as to be able to monitor the tags that

1 http://www.ask4research.info/ask-lost/
these users are using as well as the digital educational resources that they are submitting to the tool.

Figure 1. ASK-LOST 2.0 Architecture

3. Conclusions

In this paper, we presented ASK-LOST 2.0, a web-based tool fully supporting the process of social tagging of any type of digital educational resources by offering facilities for authoring and management of tags and resources. ASK-LOST 2.0 is used in the framework of OpenScienceResources Project, enabling science education practicing teachers and students to add tags to science education digital resources offered by European Science Centers, facilitating also more efficient and context-sensitive search and retrieval of science education material. OpenScienceResources Project is funded by the European Commission's, eContentPlus Programme.

4. References


