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Personalized Project Space For Managing Geographical Objects in G-Portal

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ABSTRACT

Personalized project space is an important feature in G-Portal to support learning activities. Users in G-Portal are assigned unique usernames and can be members of one or more groups. Within a personalized project space, an owner user can create, delete, and organise metadata referencing learning objects on the Web. Browsing metadata and querying them are among the functions provided to access the metadata. New metadata schemas can be added to a personalized project to accommodate metadata of diverse attribute sets. This paper also presents the “copy-and-paste” approach for users to easily share metadata across different projects, and a personal project viewer to support offline viewing of personalized project content.

Keywords

1. OVERVIEW OF G-PORTAL

Consider a class of students attending some course conducted by a teacher in the university or high school setting. The students are engaged in some learning activities that involve acquisition of course content from the teacher, self-gathering of other referenced materials from the library or other sources and making sense out of all the available materials, doing a few assignments, and attending course tests and examinations.

Throughout the above activities, the role of traditional libraries and also digital libraries is usually confined to gathering of referenced materials. While access to library collections has been made much simpler by web-based interfaces and digitized content, there is still a significant gap to bridge when digital libraries are to be included as part of learning process.

In this paper, we describe the efforts in G-Portal project to develop digital library functions to support learning ac-

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tivities. In particular, *personalized project space* is a key feature in G-Portal to allow its owner, the learner, to gather and organize metadata about geography-related learning objects relevant to his/her learning process. The ongoing G-Portal research has been focusing on the development of a web portal to manage geography learning objects on the web by storing metadata about these objects. Query, classification, annotation and map browsing are among the functions provided to manipulate these objects[1]. These functions are still available to personalized project space. On top of them, new functions to help acquiring new metadata content, synthesizing knowledge about the course topic, exporting personalized project content and creating (and referencing) project contexts are added to integrate more learning steps into G-Portal.

The web portal of G-Portal (also known as G-Portal) has been developed completely as a Java applet with all metadata and personalized projects stored within a database server that supports XML and spatial objects. G-Portal can therefore be accessed from any web browser supporting Java making it possible for users to easily access and manipulate personalized project space anywhere, anytime. To support offline viewing of project content in situations such as referencing metadata from course assignment reports, a G-Portal viewer is developed to export projects to local storage for viewing and reference.

2. PERSONALIZED PROJECT

2.1 Project Configuration

In G-Portal, *project* refers to a set of metadata records grouped together to support a learning task (e.g., field study) or to describe information relevant to a topical domain (e.g., earthquake). Metadata can be assigned spatial locations and be displayed in the map user interface under different *layers*. E.g., metadata of buildings and roads can be displayed in one layer while that of parks and lakes can form another layer. Metadata belonging to a layer can be hidden temporarily by turning off/on the layer. Metadata within the project are also classified under one or more category hierarchies. When projects are created for public access or a group of users, we call them the *public projects*. Typically, the owners of these public projects are domain experts and course instructors.

Personalized project, in contrast, is a project created for/by a specific user. Only the owner can modify the content of the project. When a personalized project is first created, new layers have to be created to display different sets of

metadata records. G-Portal therefore supports user commands to create/delete layers. Each layer can be assigned one or more *metadata schemas* such that metadata of the same schema can be displayed under the layer.

2.2 Metadata Creation

As shown in Figure 1, G-Portal provides users the function to create their own metadata schema. Each schema is represented as a tree structure with nodes representing metadata elements and multiplicity constraints. New metadata schemas are particularly required when users wish to add metadata of new formats into their personalized projects. Due to its personal usage, the schemas created are not subject to a formal review and registration process. Users can also create new metadata records using the metadata editor window in G-Portal. Creating a new metadata record only involves specifying the metadata schema to use and the editor will ensure that only valid metadata can be created as shown in Figure 2.

Figure 1: Metadata schema creation

Figure 2: Metadata creation

2.3 Copy-and-Paste Metadata Records

Resources in the public projects are often useful for reference within a personalized project. For example, a student working on a field study project may need to include some existing metadata records created by the teacher into his/her own personalized project. To facilitate easy insertion of existing metadata, a *copy-and-paste* function is supported. Using the function, users can easily select metadata of interest from public projects and then paste them into their personalized projects. In the copy-and-paste process, metadata records are shared across projects.

3. G-PORTAL PROJECT VIEWER

3.1 Exportation of Projects

G-Portal Viewer is a Java application designed for viewing personalized projects offline. The intention is to make personalized projects accessible when internet connection is not available or when the project is to be viewed by non-G-Portal users. Prior to offline viewing, the personalized project has to be exported to some local storage. The functions provided by G-Portal Viewer are very much similar to G-Portal applet except that functions modifying project content are disabled to protect the integrity of project data.

3.2 Context Creation and Reference

Context is an important feature in G-Portal Viewer to register some map extent (a specific map area) and metadata records for future references. Despite some similarities with the bookmarks in web browsing, a context contains a more detailed setting such that the user can revisit at a later time. Each context is assigned a unique name for future reference. Figure 3 shows the dialog for saving a context.

Referencing context can be done in two ways. The first is through the G-Portal Viewer where user can choose to visit one of the previously registered contexts. The second approach is to launch G-Portal viewer with a specified context by embedding a link to the context in some document, e.g. an MS-Word document. This approach is particularly useful when G-Portal Viewer is currently not active and it provides a seamless access to personalized project from other applications.

Figure 3: Saving a context

4. CONCLUSION

In the paper, we summarize several key functions of G-Portal that support learning through personalized project space. With its user having the flexibility to create and manipulate personalized project content, we believe that a better integration between digital library content and learning activities can be achieved.

5. REFERENCES

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