Learning Objectives in Web-Based Continuous Inquiry Learning Using Social Bookmark

Yasuo MIYOSHI[a]*, Ryo TADOKORO[a] , Masahiro YOSHIZAWA[a],
Ryo OKAMOTO[a] & Kazuhide KANENISHI[b]
[a]*Faculty of Science, Kochi University, Japan*
[b]*Center for University Extension, The University of Tokushima, Japan*
*miyoshi@is.kochi-u.ac.jp

Abstract: Although an inquiring learner has a learning objective, in web-based continuous inquiry learning using social bookmark, association with the bookmark and the learning objective of her/him would be lost. In addition, the learner often forgets existence of the bookmark of a web page got passively. Therefore it is difficult for the learner to revisit the bookmark as reflection of the learning activity. In this paper, we consider how to let a learner be conscious of her/his learning objectives.

Keywords: Learning Objectives, Awareness, Reverse References, Web-Based Inquiry Learning, and Social Bookmark

Introduction

In recent years, many studies have been made on support for web-based inquiry learning[1]. In this study, we utilize a social bookmark system for inquiry learning because we would like to make learners continue their self-directed inquiry learning. The social bookmark system is a web application that can obtain the hot pages as collective intelligence by sharing each user's interest web pages as bookmarks.

A learner acquires and/or reconstructs new knowledge by having a practical learning objective in inquiry learning. Learning objective is a specific statement to achieve learning goal which is general outcome[2]. In this study, the learning objective is a sentence (verb phrase) to express behavior. If the learning goal is "(I want to) be able to create a web application in Python", for instance, conceivable learning objectives are "(I want to know how to) store data in a sequence in Python", "(I want to know how to) handles Unicode characters in Python", and so on. Existing inquiry learning support studies assume that the learner always has a practical learning objective. However, learners who are users of a social bookmark as an information accumulation tool to use routinely are not often conscious of their learning objectives.

1. Inquiry Learning Using a Social Bookmark

Inquiry learning includes activities that are acquisition and reconstruct of new knowledge, by a learner investigating questions and interests to achieve the learning objective. A flow of inquiry learning using a social bookmark is repetition of 3 phases as shown in figure 1.
  (1) Search: A learner investigates their questions and interests based on their learning objectives by web-search using a search engine.
  (2) Read: The learner reads acquired web pages and learns it.

(3) Organize: The learner bookmarks useful web pages to their social bookmark.
To bookmark web pages to a social bookmark by learners is for their own good. The loose classification of the web page with tagging is constructed as collective intelligence, called social tagging and folksonomy, by whole tags posted for classifying by the individual learners[3]. Also, a learner can examine associated information by tracing the bookmarks of other learners who add the same web page to their bookmarks. Then s/he can get passively interesting web pages from such as a RSS feed of her/his favorite learners. But passively-acquired bookmarks do not always relate to present learning objective. It is difficult to utilize the bookmarks that are not related to learning objectives, because the learner often forgets existence of the bookmarks. In addition, although one of the purpose of organizing phase is for knowledge stability, it takes more than the just bookmarking activity.
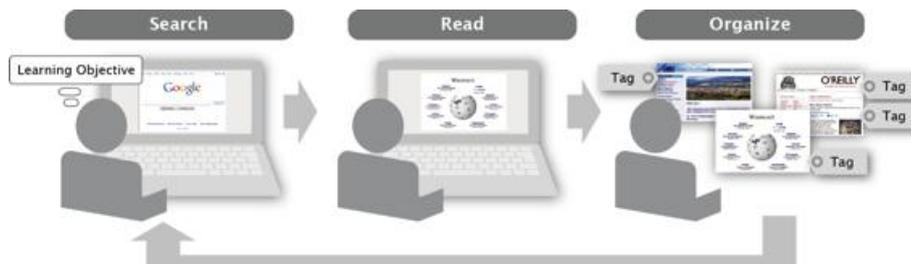
Figure 1. Web-Based Inquiry Learning Flow

2. Environment to Write Reverse Reference Books

The important thing for knowledge stability is to externalize contents of learning. Therefore, we provide an authoring tool of reverse reference books as a bookmark arrangement environment for externalizing learning contents. The reverse reference is a dictionary to look for methodology and examples from aim or a specific problem. The heading format becomes like "Reversing a String by Word or Character". This is a format same as a sentence of a learning objective of this study. Consequently, a learner can write a reverse reference item whose heading is her/his learning objective, as a summary of the inquiry learning. The learner can describe the summary including bookmark links and quotes of the web pages in the body text of the item. S/he would revisit the bookmarks easily, because a learning objective described in the heading is connected with bookmarks in the body text.

3. Learning Objective Awareness

We provide also a learning objective awareness tool provides learners awareness of their conjectured learning objectives for reminding them to have bookmarked. This tool speculates from their bookmark history about learners' learning objectives that they were interested or would be interested in it. As shown in figure 2, a learner's learning objective is conjectured from her/his bookmarks unclassified according to her/his learning objectives. Then s/he will receive it as awareness together with some bookmarks that make her/him revisit itself via such as Twitter. Specifically, the tool shows the following message with the several bookmarks that the learner already registered.

Have you ever been conscious of a learning objective for how to "…" when you read these web pages? Would you like to write up an item of your reverse reference book what you have learned with this objective?
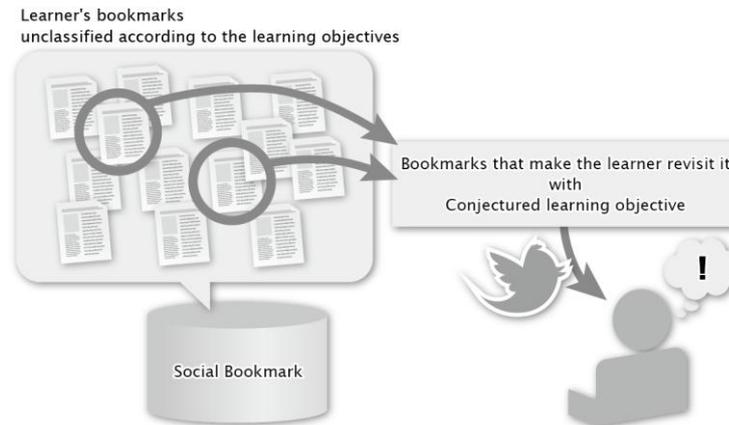
Figure 2. Learning Objective Awareness

There are two purposes to show learning objective awareness. The first is to promote reflection of the bookmark to the learner and remind her/him of writing a reverse reference item. The second is to remind the latent learning objective that the learner oneself did not notice. We have already developed a prototype of the function to generate a sentence of a learning objective by adopting our simple algorithm and some open source libraries for natural language processing. An evaluation experiment is under contemplation yet, but we have been able to confirm that it can generate an interesting conjectured sentence enough to give a learning opportunity to the learner.

4. Summary

In this paper, we focused attention on the problem of losing the association with bookmarks and learning objectives in web-based inquiry learning using a social bookmark. The maintenance of learning motivation is important to continuous inquiry learning using the social bookmark, because it is a tool to use continuously on a daily basis. It cannot be called inquiry learning only by zapping around through the web pages based on interest without learning objective. Therefore, our support tool for letting learners be conscious of their learning objectives is useful. In addition, new folksonomy as social linking (grouping) is created by connecting each bookmark with learning objectives. We expect this collective intelligence is useful to a learning environment for such as recommending learning contents, learning objectives and other learners.

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