E-Learning Authoring Tool for Reusing Web Multimedia Resources

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Abstract. Reusing web multimedia resources for instruction can help a great deal instructors in authoring e-courses. These resources are interesting as they promote non-linear learning which fits the needs and constraints of learners. This paper presents an e-learning authoring tool which reuses web multimedia resources and integrates them into learning objects to be used in e-learning.

Keywords: E-learning · Authoring tool · Web multimedia resources

1 Introduction

Reusability is an important approach that assists instructors to search for learning material and reuse it for authoring e-courses. Reusing available web sources can be a very effective general methodology to adopt for instruction. An organized resource pool is like knowledge which provides instructors a great opportunity to monitor the areas where learners are short of knowledge [1]. It can improve the collaborative assistance culture. These repositories are considered as a knowledge management instrument that can assist the management of course authoring as these also open up the way towards the development of systems that promote e-learning [2] at any time and from anywhere.

These systems will improve accessibility to better learning, minimizing cost of authoring material, the desire to offer unrestricted learning, and the use of data information and communication technology (ICT) advances in education systems. Actually, with the developing of ICT systems, the convenience and practicality of mobile devices that have an intimate relationship with learners, and the availability of networks in urban spaces, has made the approach become easier to adopt. This paper covers developing an e-learning authoring tool for reusing web multimedia resources and learning material, generally known as learning objects. The research also focuses on the need of re-usability of the learning objects to find out less time consuming and more cost effective ways of learning. The main objectives of this research are: (i) To investigate the opportunity to reuse existing web multimedia resources in e-learning, (ii) Support the instructor in reusing web multimedia resources interaction in an effective manner, (iii) Develop an authoring tool that allows generating e-learning course material [3].

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In concurrence with The Academic ADL Co-Lab research paper [4], it is comprehendible that when we are able to create numerous e-learning resource centers or hubs, with an objective of storing and saving information on education and reserve the material for teaching, the chances of benefitting the learners and new instructors will enhance notably. Authors may be short of some specific skills or knowledge as the need for creation of the entirely fresh alteration policies altogether and a system for re-using materials will assist a lot to improve the procedures [5]. These materials may differ in many ways, but they do develop an association of ideas. The ease of access may help the creators of the content to develop their skills to a higher level. Effective implementation of these systemized approaches may benefit the end users, principally the learners and the instructors to develop learning material with a web based interface.

2 Related Work

With the increasing popularity of Internet, the insistence of e-learning has surpassed the expectation of many educators. This opportunity demonstrates an idyllic idea for a supple and less costly proficiency growth because these may be utilized with no limitations regarding actual placement of the person, and required time [6]. Multimedia techniques generally refers to the expansion and utilization of diverse sorts of ICT resources to improve presentation of learning material and involvement of the learner. This integrated methodology deserves proper attentions for the above mentioned approach [7].

Considering its importance, it is appropriate to focus on the new approaches to promote e-learning system [8]. Multimedia resources can be a helpful tool for problem based learning. It is described as an instructive approach with particular focus on the learner that creates notable and realistic, but complex conditions, particularly during the provision of learning, supervision, and chances for students when they enhance their capability to solve certain problems [9]. Multimedia resources can play a role of a subject matter specialist who is available all the time, and totally free of cost.

Efficient development of authoring tools using web based systems may set a base to develop a user friendly interface for better applicability [10]. This supports our idea that integration of ICT can be really simple to adopt when introduced on a basic level. Web based instruction mechanism is an accessible technique to prevail educational and learning objectives, although the emphasis should vastly be on the instruction procedures. The impact of the background cannot be neglected, which proves the significance of the technical background of instructive atmosphere; both for virtual or non-virtual education [11]. In the current era, only some interpreted instruction materials are accessible on the internet and still, these resources may not be exactly suitable for the requirement to reuse.

This generates the need for instructor availability for adaptation of the knowledge material. This can also help in systemizing manual contributions of the authors into web based tools, though those can still be annotated [12]. To Manage knowledge through such authoring tools, all information may be included to organize and to feed the systems in order to develop the organized resource center. These systems may be tabulated and arranged [13], in such a manner that these could be searched at the time

of need. Proper coding and tagging may help the searcher; however, clarity on the search terms is required. In the social media platforms, the authors tag their data themselves through manual entries, which makes it simple to reuse [14]. As we can now attach multiple structures, the quantity of the learning object is increasing substantially even though the full scale development is yet to mature. It is anticipated that instruction material storage systems will handle the accessibility issues for the required content and its usage [15]. Considering the adaptive approach of reusing the learning objects, extensive amount of hard work is visible in the current era while developing instructive course material. These systems follow certain targets to achieve within a system that emphasizes on learner to develop his/her awareness, right through the interface with the learner with an objective to adjust to the requirements of that specific person [16].

3 System Design

Web based e-learning authoring tools, Interface and Resources storage system is a procedure that started by a demand from a function seeking to utilize network knowledge assets for a specific reason. The demand is examined by the networking system followed by activation of relative examination unit for interpreting the repositories according to the demand [13]. These are the systemized processes, which explain the nature of performing jobs and association between multiple situations and requirements [17]. The systemization of reusing material technology needs a high level accessibility of vast quantity of instructional material to ensure a diverse range of e-learning resource storage center [18]. Enabling large scale reuse requires the availability of infinite learning objects. Classification of these materials must also be appropriate according to the subjects. This requires a 3 level system as presented in Fig. 1, starting from resource handing level, statistics level and submission system level. The utility of the first level of application is the arrangement of sources from multiple media and creation of available information.

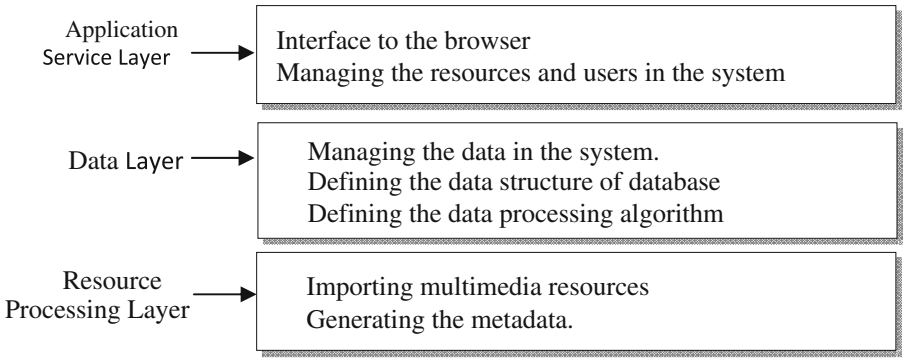

Fig. 1. System levels

The function of statistics level is organization of information in the system, so to make it reusable. The purpose of submission system level is organizing web based boundary to the searcher, supervision of the materials and learners in the system [19].

According to the above system in Fig. 2, the users will be linked with System interface and users themselves. These will be followed by Data Management, Data Publication, User Management, and Data Exploration; for further edition in the information. Then the user need to import multimedia resources to support his/her text, which include images, audio, video, text and animation sources. To enhance the chances of finding the required video information, the key tags must be defined and known by the users. The key tags may be related to the creator of the video, its theme, atmosphere or anything special that can be a helpful way to search. The learners or the instructors who need to find that information should attain actual information to find the right material to incorporate into the teaching resource. This way, they can not only develop an interactive learning object, but also a useful material with less effort [20].

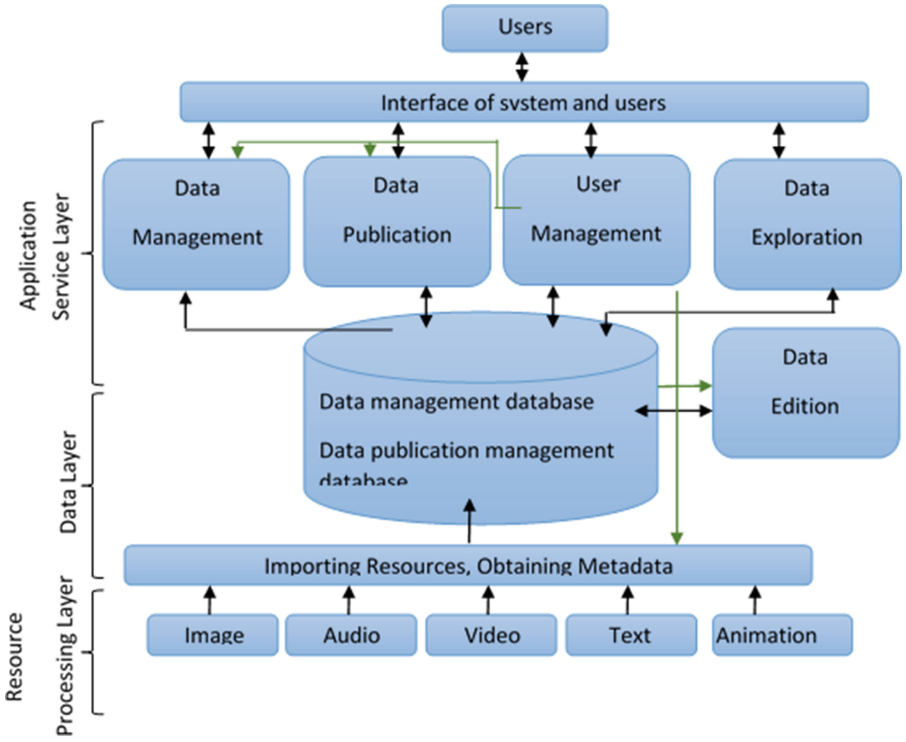

Fig. 2. System framework

The final system is a set of modules, perfectly collaborating with each other and providing unified user experience through its user interface. The data in the system is aligned, properly tagged and stored in a way that allows easy access and modification or re-tagging. The system has been designed to have multiple interfaces - user interface

for learners, administration interface for teachers and system administrator and resources integration interface, that will allow for importing learning content (lessons, exams and such) and for simple modification of already imported data. The system communicates with other systems such as Web-portals, web-sites, resource libraries, mail systems and bulk operations scripts. For these purposes, the system uses Application Programmable Interface (API) to be able to communicate with other systems, and so called connectors – simple programs and scripts that can operate remote systems via their APIs (for example: MySQL connector, IMAP connector, Google API script, etc.) to enable it to work with remote APIs of other systems.

4 System Implementation

The proposed system named "LMS Oxford Learn" begins with a brief description about the proposed e-learning design, how the system works, how the students find resources and how upload can be done on an e-learning design. The design serves the purpose of e-learning as an authoring tool for reusing web multimedia resources. Drupal has been used to develop the system as it is a new platform and there are exciting features adding to its potential.

Figure 3 shows a sample of user interface screen. It is basically a forum in the main screen where users can participate and interact with each other in the main dashboard and also attach documents or video for learning. In the left corner, there is a main menu which has an administrative link that can be used to help both the server/host, teacher support group and users.

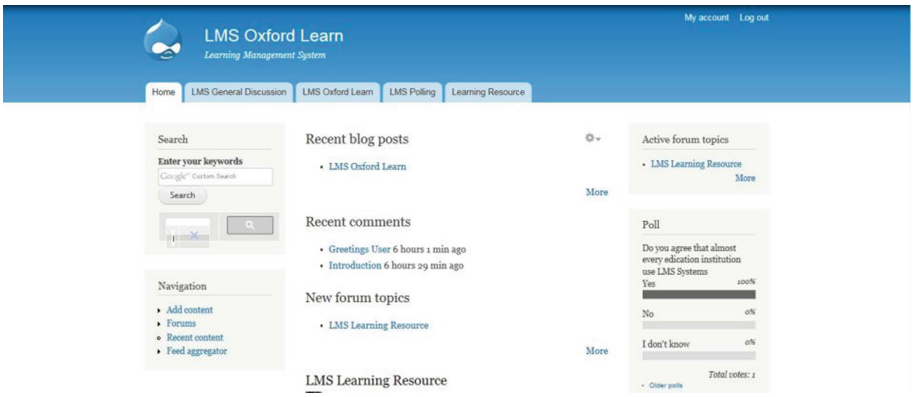

Fig. 3. System main user interface

Figure 4 shows an example of reusing multimedia sources – text, audio, video, and images. The instructor has to search for the source and they can upload it to Drupal folder or can copy the URL link for the media and paste into the web browser field allowing it to be added. This link can be a streamed video or a video file hosted on a server.

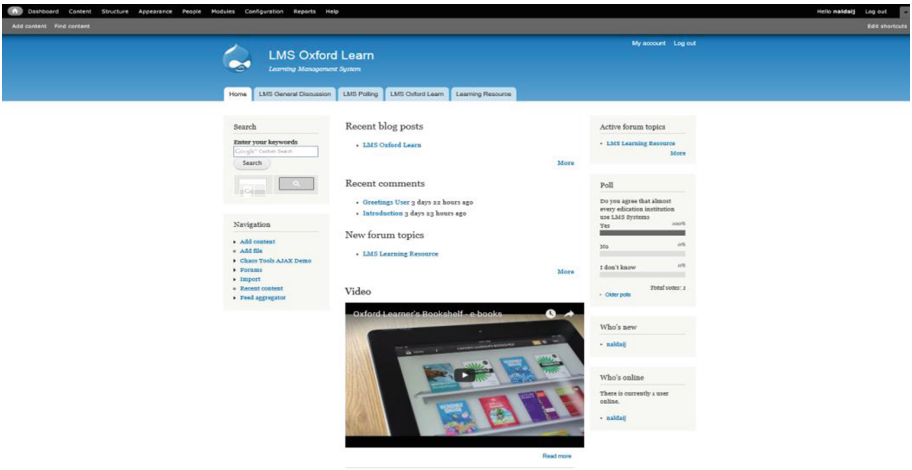

Fig. 4. Add media file

The "LMS Oxford Learn" will also be integrated with google custom search engine which will allow users to use "LMS Oxford Learn" as a link to other websites. The integrated Google custom search engine in the "LMS Oxford Learn" will make it an e-learning authoring tool for reusing web multimedia resources. The user only has to type Search Engine, then a list of all search engines are displayed and user can find Google Custom Search Engine.

5 Conclusion

This research presented the development of e-learning authoring tool for reusing web multimedia resources. The concept is compatible with the needs of contemporary education needs. The research concludes that re-usage of web multimedia resources is a great approach for the development of education materials. It also highlights that the use of multimedia sources may increase user interaction options and interest in the learning systems as well as improve the level of understanding. Innovations around e-learning authoring tool for reusing web multimedia resources can contribute significantly towards the improvement of education systems as a whole in the contemporary styles.

LMS Oxford is planned like a gathering on the Web where clients need to enroll with a specific end goal to partake in the discourse. In a like manner, LMS Oxford clients register themselves before they can enlist into a class, specifically for the subject and class.

LMS Oxford is not totally indistinguishable to a discussion, rather it has more elements that augment usefulness to the stage, making it a completely utilitarian class of its own, presented on the web and open to everyone.

LMS Oxford learn is essentially a tri-part programming that gives three parts to a client managerial, instructor and understudy. A managerial part can make new courses

on subjects and organize new classes as indicated by the subjects. There are likewise four enlistments and working component for understudies. For example, the first that does not require a confirmation key from an understudy. The second that permits an understudy to be a visitor client and investigate the whole capacity of this product, without taking an interest in courses. The third that lets enlisting one by one with the instructor having the power of both enlistment and ejection. The fourth that gives a secret key to an understudy and guarantees a sheltered enlistment, counteracting unapproved understudies.

The main advantage of the LMS Oxford learn software is that it can efficiently and accurately provide database and course management for students. LMS Oxford learn software can become the most imperative resource available to connect the students with teachers and other students. Particularly at a time when education has brought a tremendous change in teaching and competition in learning, as people are keen to find new ways to learn or to help them develop expertise in new fields and learn new subjects.

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