



Enhanced Annotation of Educational Video Resources for E-Learning

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Abstract

Educational video resources provides better scope for e-learners. Maximum number of present video resources lack in efficient annotation of video resources. This paper presents a novel methodology of annotating the videos in secured and isolated way by two annotating tools: annotation and synote tool. Annotation guides a way to browse user semantically and syntactically the web information which are available in Linked Data Open Cloud. Synote enables the user to retrieve the accurate and knowledgeable resource from semantic web. The paper concludes with applying linked open data cloud for annotation of video resources which will be a scalable and reusability technology for future.

Keywords: Annotations, Synote, Linked Data Open cloud, Semantic web, E-learners.

1. Introduction

Social media such as Facebook Twitter, and You Tube provides more opportunities for students to learn. Students obtain more knowledge from social media. Traditional way of learning focuses on group of students learning and doing some classroom activities. These pedagogy method are usually not time consuming. Now a day's students prefer and need anywhere and anytime strategy that resulted in emergence of E-learning. Online learning provides a workflow of qualitative and quantitative learning. A research on survey of students who prefer learning in classroom and outside classroom environment was done and higher frequency was seen for e-learners [1]. The reason for this is e-learners can allot their time when they are interested to learn and many free educational multimedia resources are available on web to gain the knowledge. Some of the challenges encountered in this research are as follows:

1. Relevant search: The normal view of the learners is to get accurate video resources as per their need in a short period of time. This mechanism provides the best of the search for e-learners.
2. Secured data: Each and every learner has to select a unified course to gain knowledge in a particular period of time. Educational video resources are encrypted and taken off for the usage of users.
3. Syntactic and semantic approach: A meaningful and syntactic annotate tool is used to link the open cloud for particular vocabularies of video resources.

The content of the paper includes Related work (Section 2), the overall architecture (Section 3) the detailed work of the paper, Evaluation process (Section 4), and the conclusion (Section 5) of the work.

2. Related Work

The earlier overviewed work is either the fat-client software or non-linked data annotation [2]. To enhance the knowledge of learners educational video resources play a vital role in distance education. For example a student listening in the classroom is far related to a student with the video resources learning outside the classroom. The student undergoes a pedagogy study where blackboard is the contact between teachers and students.

Furthermore the information obtained by pictorial video is more linkable to brain than learning and understanding from other prospective. Many research proved that learners obtains the intellectual knowledge on learning online. The following are the major challenges of Semantic tool.

1. Identification of URI's.
2. Scalability in Linked open cloud.
3. Creation of video resources on different domains.

Most studies identify online entities for better look and feel [3]. The comparison chart of all the learning methods is shown in Fig.1. Linked Open Data Cloud holds five different type of information [4]

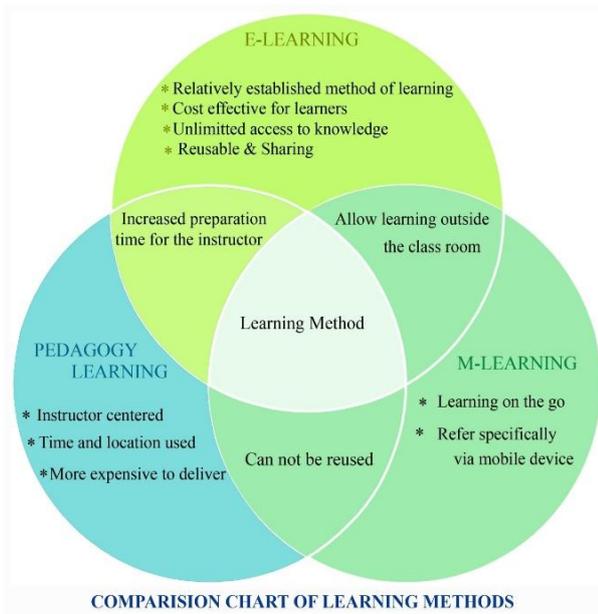


Figure1: Comparison Chart of Learning Methods.

Distance learning is cost effective and provides unlimited access of knowledge when compared to other learning methods. In E-learning videos are searched using semantic and syntactic search methodology [5].Users gain knowledge from various annotated process created by domain experts.

3. Overall Architecture

The proposed architecture shows the annotation by two browsing tools, annotations and synote. The annotations need four different categories of people to process the video resources.

1. Experts: the person who are specialized in developing a certain video resources.
2. Course framers: who are in charge of framing the syllabus according to criteria of the learners.
3. Deliverer: A person who gives a detailed description of teaching material to the students.
4. Knowledge gainer: these are the learners who undergo distance education courses.

3.1 Annotation Technology

Annotation Ontology includes several processes

- 1.Friend of a Friend: Identifies a user from the URI's [6]
- 2.Duration Ontology: Identifies a user for certain duration of time.

Annotation tool collaborate with Linked Open Data Cloud to retrieve the video resources from the experts. Linked Open Data Cloud also gives information on the use of vocabularies, free spell of grammar, and the storage provision of digital library. Synote tool provides the online platform both for Deliverer and Knowledge gainer. Synote tool is useful for both syntactic and semantic web search analysis.

A sample pseudo code on creating a video and upload of timeline duration is provided below:

```
/*admin*/
<Html>
<Head>
```

```
<title>e-learning</title>
function call () {
if ($("#userName").val () == ")
{
$("#userNameError")
html('UserName is blank');
}
If ($("#passWord").val () == ")
$("#password Error").
Html ('Password is blank');
}
if (user!= " && pass != ") {
if (service == 'Student')
{
document.loginForm.action= 'LoginAction.action';
document.loginForm.submit ();
}
else if(service=='Admin')
if (user == 'admin' && pass == 'admin')
{
document.loginForm.action = 'home.jsp';
document.loginForm.submit ();
} else {
$("#userNameError").html ('Invalid UserName');
$("#passwordError").html ('Invalid
Password');
}
} else {
alert ('Invalid selection');
}
}

/*encrypt*/
if (password != ") {document.PasswordAction.action=
'PasswordAction.action';
} else
alert ('please enter the password!!!);
/*upload*/
<title>e-learning</title>
$("#btnUpdate").click (function (event)

if (tag! =")
{
document.uploadAction.action= 'FileUploadAction.action';
document.uploadAction.submit ();
}
else
{
alert ('please enter the tag field !')
}

/*search*/
function call (a) {
document.SearchAction.action= 'download.action? fileName=' +
a;
document.SearchAction.submit();
}
function callShow (path, mode) {
$.ajax ({
type: 'POST',
URL: 'ViewAction.action',
data: 'path='+path+'&mode='+mode,
Success: function (dat) {
If (mode=='file')
$("#resText").show();
$("#resultText").val (dat);
$("#resVideo").hide ();
else
```

```

alert (dat);
$("#resText").hide ();
$("#resVideo").show ();
$("#MediaPlayer1").attr ('src',http:
//localhost:8080/TubeAnnotation/Exported/1.avi);
}
if (searchText! = ")
document.SearchAction.action= 'SearchAction.action';
document.SearchAction.submit ();
else
Alert (' the Search Text field!')
$("#videoUrl").click (function () {
Alert ('hello');

```

3.2 Using Synote technology

Various traditional video annotation uses free keyword text but still it fails to retrieve the syntactic and semantic resources. They are insufficient due to multilingual performance on resource. Furthermore it requires a key split either by homogenous portal or by heterogeneous portal. When it observes a homogenous portal then it requires a caching functionality or it moves on with different key split of resources [7]. Synote maintains accuracy and completeness of videos.

3.3 Working Principle of Architecture

The proposed architecture defines four different entities: experts, course framers, deliverer, and knowledge gainer. The experts has to create URL with Linked Open cloud and store the necessary information of the courses. The edit privilege is given to experts such that they can add or delete information of a particular content when required. The resources are then stored in Db. Course Framers frame the curriculum/syllabus for the learners. Deliverer act as the tutor to deliver the notes either in video or text format. Knowledge gainer obtains the necessary information from semantic web. Linked Open Data Cloud is linked with DB. On usage of annotation ontology the video resource are retrieved from DB stored by the experts. The course framers checks with syntactic and semantic web and pass over to Deliverers. The approach of the deliverer mechanism is assisted by power point, video format and printed format. Data annotation duration is noted by Synote tool. The use of Synote tool helps the learners to gain relevant knowledge of the course provided with online browsing platform. Semantic search links Open Data Cloud available with educational resource from Semantic web. [8] as seen in Fig.2.

Various Services added to Linked Data Services are Map services and YouTube service. Map services link Ajax Mapping from Google, Yahoo, G-mail etc. whereas You Tube interact with keyword based search and semantic search. [9]

4. Evaluation Process

Synote plays an important part on showing the results. The evaluation task fulfils certain criteria of the knowledge gainer.

1. Using annotation tool, basic search of video resources were done on various content.
2. Link Open Data cloud identifies new URI's
3. Using video or text content, the search relates only to useful and relevant information of the resources.[10]
4. The activity was done anywhere and anytime according to the convenient of the knowledge gainer.

A survey was done on 500 students who are provided with E-Learning courses. Fig.3 shows the search identified by the learners to get the relevant information on degree level resources available in semantic web using Linked Open Data Cloud. Document Search, You tube search or Basic search were found to finish the task within the time limit of 5 minutes, 8 minutes or 15 minutes.

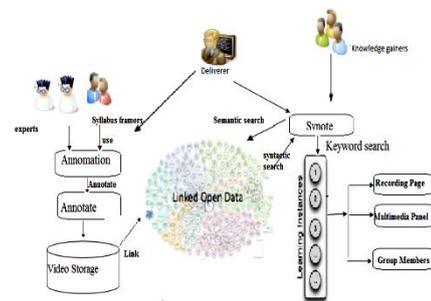
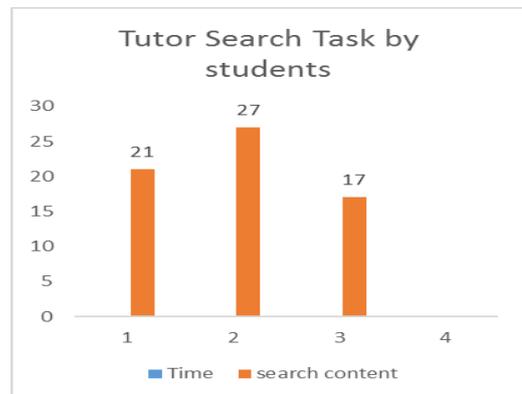


Figure 3: Monitors search

The students were allowed to search a related content on the topic 'Leaders of India' for five minutes 'methods undergone to improve nation' for ten minutes and studies related to related to E-learning topic for fifteen minutes. The time based search content was given by 21, 27 and 17 respectively as shown in figure 3. The efficient search was given by 17 students within 15 minutes. Figure 4 shows the semantic search done using synote.



Figure 4: Synote search



Figure 5: Login Form

Before user get registered for searching the video content the admin or the course creator gives permission to get the content of the resource from the domain creator. The course creator has the edit privilege to add or delete the resource. User login form is shown in Fig 5 and user registration is seen in Fig.6. When the user registers the form, the e-learning material focuses its view to the learners and the student gains knowledge from the e-learning content. After the knowledge gainers obtains knowledge, the result of E-learning effect is achieved which is shown in fig.7.



Figure 6: User Registration

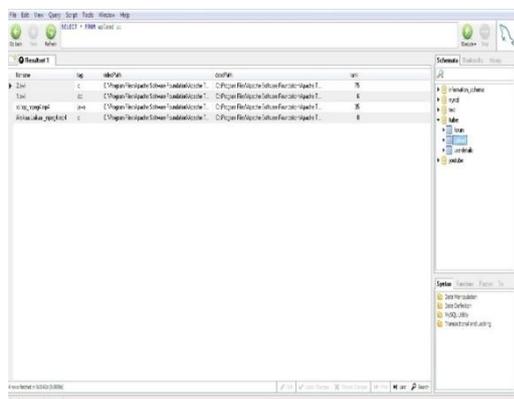


Figure 7: E-Learning Usage

5. Conclusion

This paper illustrated the work of annotation and synote tool with Linked open data cloud technology. The conclusions of this research are (1) Synote tool helps in retrieving the video resources syntactically and semantically. (2) Editing privilege service was done with annotation tool (3) Linked Data Cloud linked various additional information needed to retrieve relevant data for adding value to video resource. The future work is to concentrate on other annotation tools that can be linked with cloud.

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