Development of the Function which Collects Viewing History in the Support System for Dividing and Viewing Lecture Contents

Ryosuke TAKATA
Graduate School of Engineering,
Kagawa University
Hayashi-cho 2217-20, Takamatsu,
Kagawa 761-0396, Japan
s15g471@stu.kagawa-u.ac.jp

Naoka GOTODA
Information Technology Center,
Kagawa University
Hayashi-cho 2217-20, Takamatsu,
Kagawa 761-0396, Japan
gotoda@eng.kagawa-u.ac.jp

Hiroshi MURA
University Consortium for E-Learning,
Shikoku Center, Kagawa University
Saiwai-cho 1-1, Takamatsu,
Kagawa 760-8521, Japan
murai@cc.kagawa-u.ac.jp

Toshihiro HAYASHI
Information Technology Center,
Kagawa University
Hayashi-cho 2217-20, Takamatsu,
Kagawa 761-0396, Japan
hayashi@eng.kagawa-u.ac.jp

Rihito YAEGASHI
Faculty of Engineering,
Kagawa University
Hayashi-cho 2217-20, Takamatsu,
Kagawa 761-0396, Japan
rihito@eng.kagawa-u.ac.jp

ABSTRACT

The authors develop the support system for dividing and viewing lecture contents by using lecture contents metadata. This system has index function, unit/content viewing function, and play-list function. This system can divide the lecture content into each unit and learning content. Also, this system can view each unit and learning content. However, this system did not have the mechanism to grasp viewing history of learner.

The authors develop the function which collects viewing history. This function can collect viewing history from the support system for dividing and viewing lecture contents.

This paper describes the function which collects viewing history.

KEYWORDS

Lecture Contents, Lecture Contents Viewing System, Lecture Contents Meta Data, Viewing History, Learning Analytics

1 INTRODUCTION

Recently, many educational institutions offer various mechanism for the educational advance using Information Communication Technology (ICT). A massive open online course (MOOC) [1],[2],[3] is a model for delivering learning content online to any person who wants to take a course, without any limitation on attendance. MOOC delivers not only text media (A syllabus, handout etc.), but also sound contents and movie contents. Coursera [4] is also the service provider to deliver a lecture of a university as MOOC. Coursera is delivering courses of more than 870 by 110 universities and has more than 10,000,000 participants.

Learning analytics [5] has been attracting attention. Learning analytics is the measurement, collection, analysis and reporting of data about learners and their contexts for purposes of understanding and optimizing learning and the environments. Its information stored LMS [6] and CMS [7]. However,
LMS and CMS did not have the mechanism to grasp viewing history of learner.
We developed the lecture contents viewing system with lecture contents metadata [8], [9]. The system which we developed has 3 functions, index function, unit/content viewing function and playlist function. The index function can view lecture contents from utterance time of indexing term by using index metadata. The unit/content viewing function can view selected unit and learning content of lecture content by using syllabus metadata generated from the Syllabus. The playlist function can view plural units and learning contents continuously. This system provides various mechanism of viewing lecture contents on learning. However, this system did not also have the mechanism to grasp viewing history of learner.

We developed the function which collects viewing history in the support system for dividing and viewing lecture contents. This function can collect viewing history from the support system for dividing and viewing lecture contents. This paper describes the function which collects viewing history.

2 Lecture Contents Viewing System
Using Lecture Contents Meta Data

Lecture contents metadata consist of index metadata and syllabus metadata. The index metadata is generated from text data which is converted by teacher’s utterance in lecture
contents using a voice recognition technology. Fig.1 shows index metadata. In Index metadata, the information of lecture contents describe contents tags, indexing term describe term tags and utterance time of indexing term describe time tags. Fig.2 shows that the user can directly enter in the input form if the word which user wants to search is clear. Fig.3 shows the result, when it is stored in the database. In order to realize the index system, the contents created by this system don’t need the play back from the beginning but from the midstream. The Syllabus metadata is generated from the Syllabus. Fig.4 shows the Syllabus metadata. According to Fig.4, the lecture contents JAD02 consists of various units and learning contents. This Unit consist of encoding of information and information content. This learning content consist of information transmission and symbol and code. The lecture contents can be played back selected units and learning contents by using syllabus metadata. In this research, the authors use SMIL (Synchronized Multimedia Integration Language) of markup language. Using SMIL, we can create a video combined various multimedia such as moving image data, image data, sound data, and text data.
Fig. 5 shows SMIL file generated by playback of units and learning contents function. According to Fig. 4, the lecture contents JAD02 playback unit of information content from 1905 seconds to 3008 seconds. These information are based on syllabus metadata which the author defined in this research.

3 Function which Collects Viewing History in the Lecture Contents Viewing System

Table.1 shows viewing history obtained by the function which collects viewing history. This is a viewing history of lecture content JAD02 by a certain learner. No.1 of Table.1 means that the learner watches lecture content JAD02 from January 16, 2015 10:28:00 to January 16, 2015 10:31:16. Also, it means that lecture content JAD02 playback from 00:06:41 to 00:09:57. Therefore, the learner watches lecture content JAD02 for 196 minutes from 00:06:41 to 00:09:57. As shown in the syllabus metadata of Fig.1, lecture content JAD02 is played back about Symbol and Code from 00:06:41 to 00:09:57. Therefore, it means the learner watches symbol and code of lecture content JAD02.

4 CONCLUSION

This paper describes the function which collects viewing history in the lecture contents viewing system. At present, the authors are developing a recommendation function of lecture contents and a learning analysis function. A recommendation function recommends lecture contents which students should study based on the viewing history of lecture contents. A learning analysis function analyzes degree of the students' achievement using viewing history of lecture contents.

REFERENCES

[10] Synchronized Multimedia Integration Language (SMIL 3.0), http://www.w3.org/TR/SMIL/