Enhance feature of LMS Through Human Computer Interaction for Synchronizing with SIAKAD

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Article Info	ABSTRACT
	Increasing information technology facilities on campus is needed as a means of supporting the success of teaching and learning activities. UTM campus until now, some teachers are still using the LMS facilities that have been provided freely. The problem is the need for initial initialization when forming the class. Adjustments to SIAKAD data were also carried out manually. The learning concept in LMS generally only focuses on teaching and learning activities. Even though the implementation of learning activities starts from planning, lecturing, evaluation and monitoring activities. This research was conducted to develop LMS features according to SIAKAD requirements. Produced a system that is integrated with SIAKAD.

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1. INTRODUCTION

Applications supporting distance learning activities are very important as a means of delivering material and assessment. Learning Management System (LMS) is an application that can be used. Currently, there is an LMS application which is free and easy to use. LMS applications that have been used by many people, namely: Joomla and Google Classroom.

During the COVID 19 pandemic, teaching and learning activities for students for some campuses were carried out online. The use of LMS is increasingly prevalent, including on our campus. For some teachers, it is easy to follow the flow of using existing LMS, but others do not. This is because they still have to synchronize the result data obtained from the LMS with the SIAKAD data that the campus needs.

For this reason, it is necessary to analyze, how and what are the obstacles for some users to using the existing LMS. Before this research was conducted, we conducted a survey of old students, new students and teachers on our campus. The questionnaire contains questions about existing online learning services in the LMS. We use the results of the questionaire as a reference for the development of LMS UTM. LMS UTM is an LMS that is implemented in our campus at Trunojoyo Madura University (UTM).

The current condition on campus is the use of asyncronous learning with the use of existing LMS. But this is only applied to some teachers. The LMS used is an LMS that has been freely provided by other service providers. The weakness of the current system for online learning is the poor management of material, due to the limited size of the storage media. Then the available LMS is not integrated with SIAKAD UTM. The

difficulty of monitoring from the campus learning quality assurance agency is because they cannot see documents and online classroom learning directly.

The purpose of this research is making LMS UTM as an application that is used to support learning at UTM. LMS UTM adopts activities in learning. These learning activities include planning, implementing learning, evaluation and monitoring. Then later LMS UTM will also be synchronized with the data on SIAKAD, so that even though the system is different, it is still integrated into one.

2.   LEARNING ACTIVITIES

There are several activities related to the achievement of all stages of learning, as seen in the following Figure.

Figure 1. Schematic of learning stages

Planning activities are activities carried out by the Study Program Coordinator, Faculty and LP3MP as an academic quality assurance institution. These activities include class scheduling, making lecture rules, and preparing curriculum. For lecture implementation activities, it is the core activity of learning. The lecture implementation activities are carried out by lecturers and students. This activity includes providing material, giving assignments, determining the weight of lectures, conducting examinations, recording lecture minutes, and attendance. Evaluation activities are carried out by the lecturer by giving scores for assignments and examinations that have been carried out. The assessment is based on the weight that has been determined at the beginning of the activity. The values made are also adjusted to the needs of SIAKAD. On our campus, final grades are in the form of letter grades with predefined grade categories. All of these activities must be properly monitored by the head of the study program, faculty and LP3MP institutions as representatives of the university.
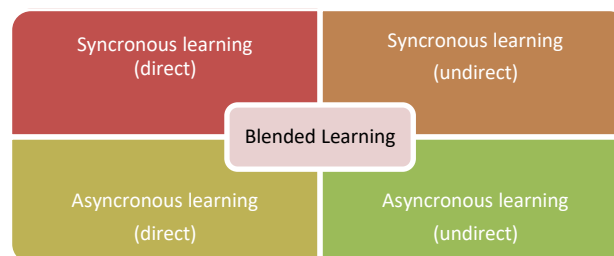

Figure 2. Learning activities study

The existing LMS usually only focuses on lecturing activities, between teachers and students. The scoring model also does not have a final grade that is weighted, and is in the form of numeric values, not letters. Class participants are also still manually, the list of participants is independently by the teacher or by students, not automatically. There are also no lecture reports and attendance. There is also no monitoring for third parties.

This is what interests us to create a LMS UTM that suits campus needs and covers all business processes in learning activities. So that it can be used optimally by academics and can be synchronized with the existing SIAKAD on campus.

3.   PRE QUESTIONER

The survey was conducted in April 2020 by UTM for all students and lecturers. The purpose of this Questioner is to find out what difficulties they face in implementing online-based learning with existing LMS.

From a population of around 15,000 students, the number of respondents who filled out this questionnaire was 7139 so that they had met a confident level of 99% and a confidence interface of 5%. From the results of student responses, 91.3% stated that they had participated in online learning activities during lectures. 44.68% stated that online learning is more difficult than face-to-face meetings. And the main difficulty is 73.29% mentioned network constraints.

Proses pembelajaran daring yang pernah diikuti

- 91.30% - Kuliah
- 65.88% - Ujian
- 17.64% - Praktikum
- 5.58% - [TIDAK MEMILIH]
- 0.00% - other
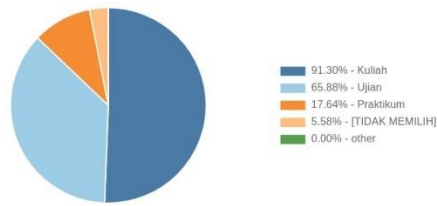
Rekapitulasi setiap pilihan

Isian	Jml Responden	Persentase
Kuliah	6518	91.30%
Ujian	4703	65.88%
Praktikum	1259	17.64%
[TIDAK MEMILIH]	398	5.58%
other	0	0.00%

Figure 3. Prosentage of student activities

Aplikasi/layanan yang pernah anda gunakan untuk mengikuti PERKULIAHAN pada pembelajaran daring
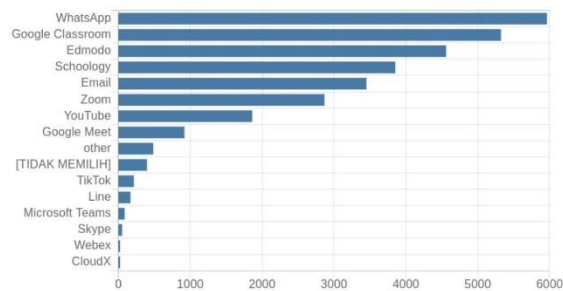
Rekapitulasi setiap pilihan

Isian	Jml Responden	Persentase
WhatsApp	5963	83.53%
Google Classroom	5323	74.56%
Edmodo	4560	63.87%
Schoology	3853	53.97%

Figure 4. Studying tools

Aplikasi/layanan pembelajaran daring yang anda sukai

Rekapitulasi setiap pilihan

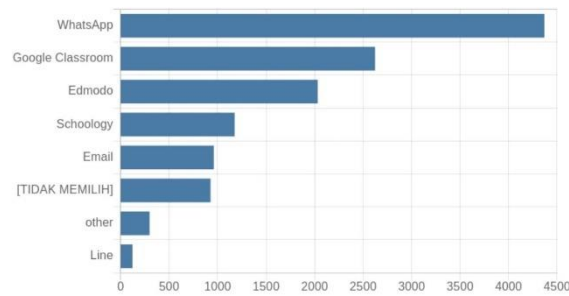| Isian	Jml Responden	Persentase
WhatsApp	4369	61.20%
Google Classroom	2623	36.74%
Edmodo	2032	28.46%
Schoology	1175	16.46%
Email	960	13.45%
[TIDAK MEMILIH]	927	12.99%

Figure 5. Studying tools than student prefer use

The lecturer questioners collected were 256 lecturers. From the results of the questionnaire calculation, 63.67% claimed to have conducted online lectures recently and 32.42% had done it for a long time. From the results of the questionnaire it was also known that lecturers and students had no difficulty using the LMS application. The top 3 LMS rankings that are often used are Google Classroom, Edmodo and Schoology.

From the results of the questionnaire analysis, it is known that the Google Classroom LMS is often used, so that LMS UTM adopts some of the features presented in the Google Classroom but still refers to the rules of lectures on campus.

4.   METHOD

The business process carried out in this system is the first lecture planning activity. This activity is carried out by the Study Program Manager which is then used in the academic process in SIAKAD. The second is the activity of conducting lectures by lecturers and students. Lectures can be face-to-face with a one-way or two-way model. Lectures can also be carried out without face to face with the presentation of material using an LMS. Implementation of lecture evaluation. Generally, the evaluation is carried out by the lecturer to students by following the evaluation rules, namely the implementation of the UTS at the 8th meeting and the implementation of the UAS at the 16th meeting. But sometimes the lecturer gives an evaluation in the form of a task or quiz. The third is monitoring activities carried out in stages from the Study Program level to the University. Monitoring of the implementation of lectures at UTM is carried out by the Academic Quality Assurance Team that has levels from the Study Program level to the University level. This aims to ensure that lectures are carried out properly.
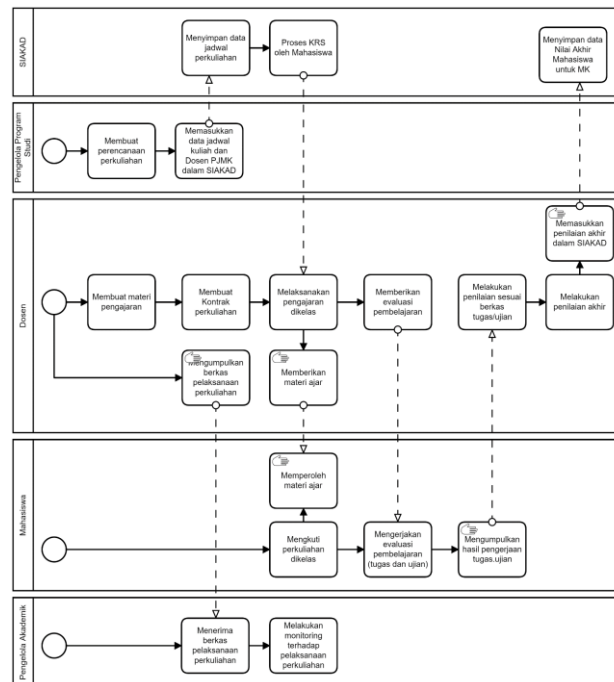
Figure 6. Business processes in teaching and learning activities today

User requirement in this learning activity include:

Lecturer
- Lecturers can provide teaching materials and manage learning in their class.
- Lecturers can update the learning material to be delivered
- Lecturers can find out the activeness of their students in class by the presence of students in lectures, actively asking and answering questions and being diligent in doing assignments.
- Lecturers can evaluate learning in class, by giving assignment questions and exams and giving deadlines for processing.
- The data lecturer assesses the results of the answers given by students in each assignment or exam
- Lecturers can give final grades according to the weight given in the RPS and their course contracts

College student
- Students get teaching materials from PJMK lecturers
- Students can be active in class by asking questions about material that has not been understood to the PJMK lecturers and answering questions from the lecturer regarding problem solving according to the teaching material
- Students can take part in learning evaluations by working on assignments and exams given by the teacher at the specified time
- Students can find out the value of their learning evaluation results

Academic Manager
- Academic managers can monitor the implementation of learning, namely by checking whether learning in class is in accordance with the existing RPS
- Academic managers can monitor student attendance in class teaching
- Academic managers can monitor evaluation performance in the form of the proportion of students graduating and not graduating in the lecture

Figure 7. LMS UTM business processes in planning activities learning

In the course planning process, there is no significant change from the current system. Scheduling, distribution of PJMK and RPS is still carried out by the Study Program Manager. Existing external factors are SIAKAD and Gdrive MyLMS. Scheduling data and PJMK are still included in SIAKAD, it's just that in the new system RPS is entered in the Gdrive MyLMS so that the filing for monitoring is not done manually. The picture of the business process is shown in Figure 8.

Figure 8. LMS UTM business processes in the implementation and evaluation of lectures

The lecture implementation process is carried out by the lecturers and students registered in the MK. The business process is not much different from the previous one, it's just that there is an ease in processing data in the form of teaching materials and assessments as well as student activity. The activeness of students can be seen from the comments that are often given. Activeness can be considered as the presence of students in class.

The teacher's task in providing class material can be helped by the facilities and infrastructure provided by the system. There are features for managing material, giving announcements, giving assignments and giving grades as a final evaluation.

The role of students in the classroom in taking lectures and receiving learning materials can be done by using this MyLMS. Learning evaluation activities by teachers for students can be carried out because of the features of giving assignments and exams as well as collecting student answer files. The value will be converted according to SIAKAD needs, namely in the form of letter values. The final score is obtained from the weight of each student's assignment and examination in accordance with the lecture contract.

Due to the integration of SIAKAD with MyLMS, classes will automatically be formed in the system with PJMK and students registered according to the data in SIAKAD. The rules for following the UTS and UAS can also be done automatically, namely by looking at the percentage of attendance. Likewise with the final grade, the final grade will automatically be entered into SIAKAD, so that lecturers do not need to enter the value in SIAKAD again.
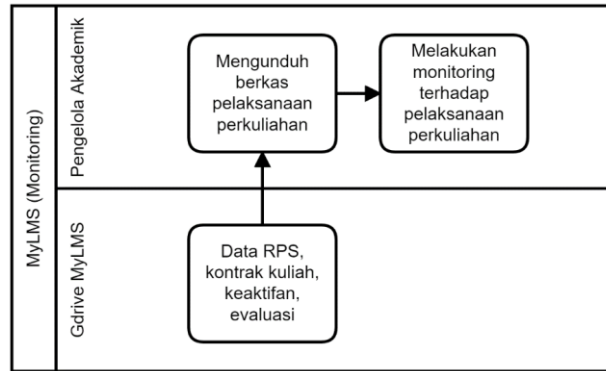
Figure 9. LMS UTM business processes in monitoring activities

Monitoring activities can be seen from the compatibility of the RPS with the teaching materials provided in the system. The presence of lecture participants can also be monitored, and final monitoring of lecture implementation activities can be seen by the final grades given by the teacher on student learning outcomes in class.

With LMS UTM, supporting data for monitoring is obtained automatically from Gdrive where the required data is stored. The Academic Manager as a user who monitors lecture activities simply downloads the required data.

5. RESULT AND DISCUSSION

The result of application LMS UTM like Figure 10.
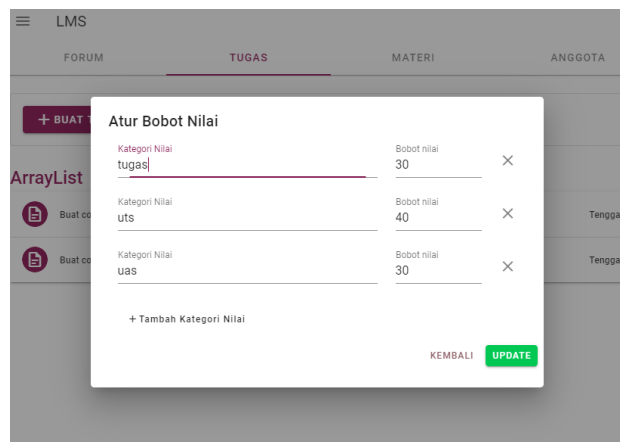

Figure 10 . Landing page of LMS UTM

Figure 11. The assessment criteria weighting menu display

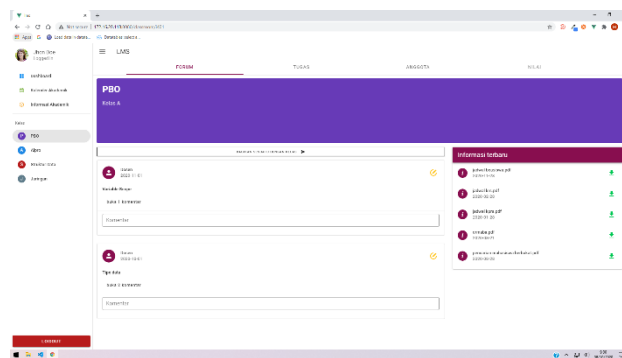Figure 12. Lecture planning menu display
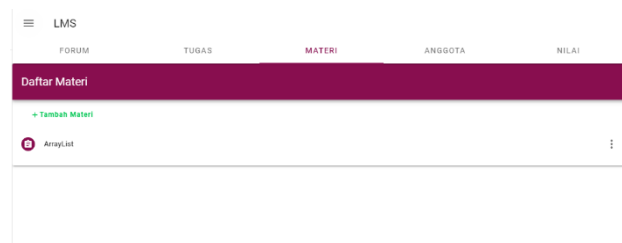

Figure 13. Lecture class view

Figure 14. Materi Upload view

6. CONCLUSION

With the integration of LMS UTM and SIAKAD UTM, LMS UTM can automatically form classes according to data from KRS in SIAKAD. Data from the LMS can later be used directly for the KHS assessment process. It is hoped that with the LMS UTM which includes all learning activities, teaching and learning activities can run better and regularly.

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