Designing a Lecture Journal Information System as an Effort to Monitor and Evaluate the Learning Process (Literature Study)

Annisa Hamsy[1], Irma Ritonga[2], Elfrianto[3]
[1,2,3] Department of Higher Education Management, Universitas Muhammadiyah Sumatera Utara, Indonesia

ABSTRACT

In the learning process, it is necessary to hold a monitoring process to see the extent of the lecture activities that have been carried out. Lecture journal documents contain material delivered by lecturers to students at each lecture meeting which aims for information and data on the lecture process. This research aims to design an information system for monitoring and evaluating the learning process which is expected to be able to provide solutions in monitoring and evaluating learning activities that are transparent, accountable and realtime. The method used in this research is literature study. The conclusion in this study is that the information system for monitoring and evaluating the learning process has very important benefits for making decisions in the teaching and learning process in the future

Keyword: *Information System; Learning Process; Monitoring and evaluation*

Corresponding Author:
Annisa Hamsy,
Universitas Muhammadiyah Sumatera Utara,
Jl Kapten Muktar Basri No 3 Medan 20238, Indonesia
Email: annisahamsy25@gmail.com

1. INTRODUCTION

The learning process is one of the important processes in the implementation of the Tri Dharma of Higher Education which is carried out by teaching staff at the university, namely lecturers. Lecturers are an important part of the higher education system, where the roles, duties and responsibilities of lecturers, especially in the learning process, are very important in achieving the nation's educational goals. In carrying out learning process activities, monitoring and evaluation are needed so that what lecturers do is more directed and in accordance with the standards set by the university.

According to the Minister of Research and Higher Education Regulation No. 44/2015 on National Higher Education Standards, Chapter I Article 1 Paragraph 10, learning is an interactive process of students with lecturers, staff, and learning resources in a learning environment. The regulation also states that an effective learning process is conducted in 16 meetings. In implementing the regulation, of course, monitoring and evaluation are needed to achieve the objectives. Internal monitoring and evaluation activities are a form of higher education's responsibility to ensure that academic activities are carried out according to regulations and that the set goals are achieved. Through this monitoring, problems and obstacles encountered during implementation can be predicted and overcome

According to Rinda, quality assurance of higher education is the process of implementing and fulfilling quality standards and management of higher education consistently and continuously, so that stakeholders (students, parents), the world of work, government, teachers, support personnel and other interested parties) are satisfied. Therefore, quality assurance needs to be implemented throughout higher education by paying attention to the identified quality points, among others: curriculum, human resources (lecturers and staff), support staff), students, learning processes, infrastructure and facilities, academic environment, finance, research and publishing, community services, public services.

A university's Study Programme is an academic organiser at the study programme level that is obliged to report learning outcomes to the leadership. The monitoring and evaluation process is carried out by the Quality Assurance Unit of the Study Programme in the learning process every semester which aims to monitor the implementation of the established learning process standards.

Monitoring is a series of activities that involve stockpiling, returning, reporting, and actions taken based on information about a process that is being carried out. Meanwhile, evaluation is the final result of the monitoring results carried out during the teaching and learning process carried out during one semester. During the learning process, monitoring is carried out by checking the results of filling out the course diary which is part of course management. Course journal documents contain documents presented to students by instructors at each course meeting with the aim of providing information and data about the ongoing course process. In addition, it is also related to controlling the implementation of the learning process. The making of the course diary is still done manually by writing on paper, the information and data collected are not timely and less accurate. Therefore, there is a need for innovative steps to overcome these problems by connecting with information systems that are expected to provide effective and efficient solutions, such as immaterial data, timely and can provide accurate information for decision making.

An information system is any orderly combination of people, hardware, software, and databases that collects, transforms, and disseminates information within an organisation. Information system is a system that collects, processes, stores, analyses, and disseminates information for specific purposes.

Based on this, this research aims to design an information system for monitoring and evaluating the learning process which is expected to be able to provide solutions in monitoring and evaluating learning activities that are transparent, accountable and realtime

2.   RESEARCH METHOD

The method used in this research is literature study research. Literature study is a series of activities related to literature data collection methods, reading, recording and managing research data objectively, systematically, analysing and counter-arguing. The data collected and analysed are secondary data in the form of research results such as books, journals, articles, internet sites, and others relevant to the information system for monitoring and evaluating the learning process.

There are several journal articles that describe the design of information systems for monitoring and evaluating the learning process which will be discussed, namely:

1) Design of Lecture Journal Information System as an Effort to Monitor and Evaluate the Learning Process (Case Study: Industrial Engineering Study Programme, Faculty of Engineering, Kadiri University) by Imam Safi'i.
2) Design of Learning Process Evaluation and Monitoring System in Study Programme by Novita Mariana, Rara Sri Artati Rejeki, and Jeffri Alfa Razaq.
3) Information System for Monitoring and Evaluation of Lectures (Case Study: STIKOM Dinamika Bangsa) by Fachruddin
4) Learning Transparency with Kardavi Learning System by Karfindo, Rifa Turaina
5) Web-Based Student Learning Monitoring and Evaluation Information System and Sms Gateway at SDIT Nurul Istiqlal Klaten by Salisa Kurnia Sari, Dwi Remawati, Bebas Widada

The data analysis technique in this research is to use content analysis data analysis techniques. Data analysis begins by analysing the results of research from the most relevant, relevant and quite relevant. Then by looking at the research year starting from the most recent, and gradually going back to the older years.

3. RESULTS AND DISCUSSION

This section will discuss the results regarding the design of the learning process monitoring and evaluation system. From the research that has been carried out by researchers, results are obtained related to the design of the monitoring and evaluation system of the learning process. The analysis of this research is carried out non-interactively and takes place continuously in searching and finding the results of literature review from various sources. Data analysis techniques adjust to the stages of research, so that data will be analysed using the results of relevant literature sources.

The methodology used to develop information systems, i.e. the standard procedures followed to carry out all the steps required to analyse, design, implement and maintain information systems. The system development life cycle is called the system development life cycle. The stages of the system development life cycle are planning, analysis, design, implementation, operation, and maintenance. In this study, only the system design stage is presented.

The following are the stages carried out in the process of designing a learning monitoring and evaluation system;

a. System Planning, which determines the scope of the system, which organisational units, activities or systems are involved and which are not. This information provides an initial estimate of the scale of resources required.
b. System analysis, namely determining the required system components and the interaction between existing components.
c. System Design, namely designing the system in accordance with the needs and objectives of the system
The cycle design of the learning process monitoring and evaluation system is described as follows:
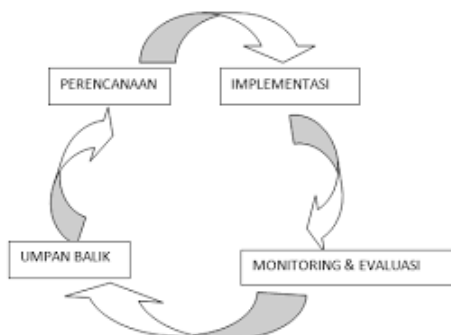

Figure 1: Learning process monitoring and evaluation system cycle.

a. Lesson Planning
   1) Scheduling lectures according to the study programme curriculum
   2) Preparation of RPKPS and Teaching Materials by lecturers
   3) Preparation of Learning Media
   4) Ensuring the availability of RPKPS, teaching materials, teaching media and learning infrastructure facilities
b. Implementation or Implementation of Learning
   1) Lecture contract with students
   2) Learning process for 1 semester in accordance with the lecture contract
   3) Signing of attendance and lecture journals by lecturers and students
   4) Lecturers conduct learning evaluations in the form of assignments, Midterm Exams and Final Semester Exams.\
   5) Documentation of learning process activities
c. Monitoring and Evaluation of Learning
   1) Filling in the learning evaluation rubric by students to provide feedback on the results of the learning process carried out by lecturers.
   2) KaProgdi conducts monitoring and evaluation of learning carried out by lecturers.
   3) Internal Auditors conduct audits of study programmes for the purposes of study programme quality assurance.
d. Feedback
   1) The results of evaluation and monitoring are analysed in accordance with the findings of the results of monitoring and evaluation of learning.
   2) The results of the analysis are used as material for feedback on the improvement of the learning process the following semester.

Example
a. The Dean is in command and ensures the implementation of Quality Assurance at the Faculty level. In carrying out his/her functions, the Dean must always develop coordinative efforts with the Faculty Senate.
b. The Quality Assurance Group is the executor of the Faculty Quality Assurance and is tasked with assisting the Dean in improving the Academic Quality of the Department. The structure of the Quality Assurance Group consists of the Chairperson, Secretary and Members.
c. At the Department level, the Quality Control Group is responsible for the implementation of Academic Quality Assurance at the study programme level. In carrying out its duties, the Quality Assurance Unit (UJM) always makes coordination-consultative efforts with the Quality Control Group at the Faculty, besides that the Quality Assurance Unit in carrying out its functions is responsible to the Head of the Department.

The implementation of designing a lecture journal information system as an effort to monitor and evaluate the learning process is by outlining system requirements. System requirements describe the process or function that must be done by the system in serving user needs. Therefore, the main functions that must exist in the lecture journal information system are:

a. Login Function
   This function is used by the student in charge of the course (PJMK) in the Study Programme to enter and update the lecture journal sheet online.
b. Function of Filling Lecture Journal Sheet
   This function is used by PJMK to fill in the results of classroom learning carried out at each lecture meeting, covering PJMK data, choice of lecture meetings, dates and days of lectures, lecture hours, lecturers in the class, subject matter at each meeting, description of lecture material, and reflection on lecture results.
c. Function to Save Lecture Journal Filling Document
   This function is used to save the results of filling out the lecture journal in the form of a pdf file. Which will later be uploaded on the website.
d. Function of Inputting and Checking the List of Person in Charge of Course (PJMK).
   This function is to input PJMK data and display it on the website so that all users can see the list of PJMK that has been divided.
e. Function of Checking Lecture Journal Fillings.
   This function is used to check the documents of the lecture journal entries for each course at each meeting.
f. Function of Inputting and Checking the Number of Lecture Meetings.
   This function is used to input documents to the website so that all users can see the results of the lecture journal entries.
g. Function of Inputting and Checking Attendance List and Student Assessment Evaluation.
   This function is used to input data on the results of student attendance and lecturer assessments of students at each lecture meeting.

Furthermore, there is also a system development model using the Waterfall method. The Waterfall method is a classic sequence of events technique, which means it uses a systematic and sequential approach to software development. When performing this technique, the steps must be sequenced first and completed one by one, and then you can move on to the next step.

Gambar 2: Waterfall Methods.

The following is an explanation of each stage of waterfall research:

1) *Requirement definition*
   In this initial stage, there are steps in analysing needs. That is, in this stage the researcher must know and understand what information the user needs for a software. In collecting this information data, you can use various methods including observation, interviews, discussions, surveys, and so on.
2) *System and software design*
   The second stage is System and software design. This stage is a continuation of the first stage. So after getting information about the needs for the software to be developed, the next stage is designing or designing from these needs.
3) *Implementation and unit testing*
   The third stage is the programming stage. In this third stage, it is an advanced stage from the second stage. So, after designing or designing what the user needs, the next step is to programme it.

4) Integration and system testing

This fourth stage is the completion of the previous stage. After the programming stage, it is necessary to implement and test the system designed in the second stage. This application is carried out to find out whether the designed system is in accordance with the needs of its users or not..

5) Operation and maintenance

When you have carried out the four stages above, the last stage is maintenance. So, the designed system will be tested and then applied to users to meet their needs. After that, the system must be maintained in order to keep the system running smoothly and to minimise errors in the previous stages.

The next step is to use a system model approach. The system model is intended to describe system requirements clearly and completely. The system model used is object-oriented, namely the method of analysing and designing the system following an object-oriented approach.

a. Use Case Diagram

Use case diagrams show how actors (users) interact with the system and how a system module is executed.

b. Class Diagram

Class diagrams describe the structure and description of classes, packages, and objects and their relationships with each other.

c. Activity diagram

Used to describe the flow of activities / activities of the business process, as well as to model the response that will occur when an operation in the system is executed.

This website-based lecture journal information system is designed using an object-oriented model with a system design described through UML with the initial stages:

1. Use case diagram

Based on the needs of the lecture journal, the use case diagram of the information system for monitoring and evaluating the lecture process can be described as follows:
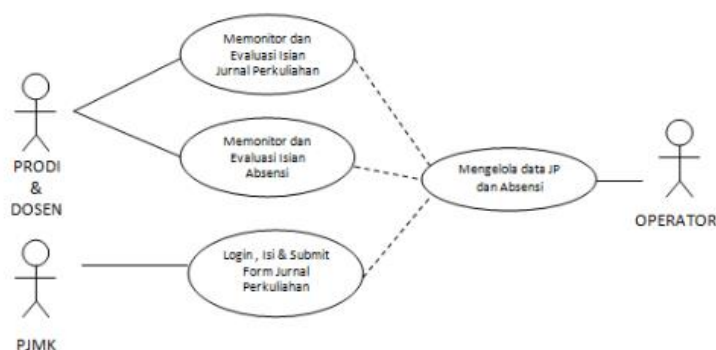

Gambar 3: Use Case Diagram

a. The Person in Charge of the Course (PJMK) is tasked with filling in the lecture journal form online at the study programme website address by logging in first using the default password then filling in the lecture journal after completing the lecture.

b. Operators can manage all data, both data from lecture journal results and attendance data to be entered into the column for each course at each meeting, as well as attendance data.

c. Prodi and Lecturers can see the results of the lecture journal entries by PJMK then an evaluation can be made.
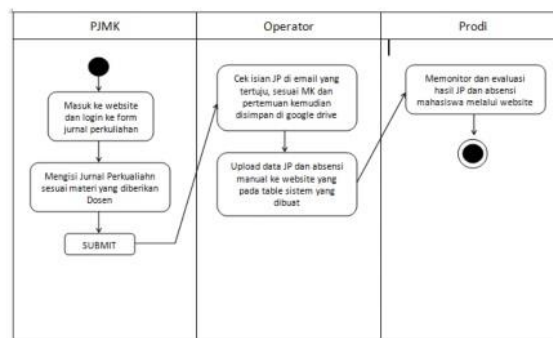
2. Class Diagram

Class diagram on this lecture journal information system aims to find out the relationship of the component structure with one another
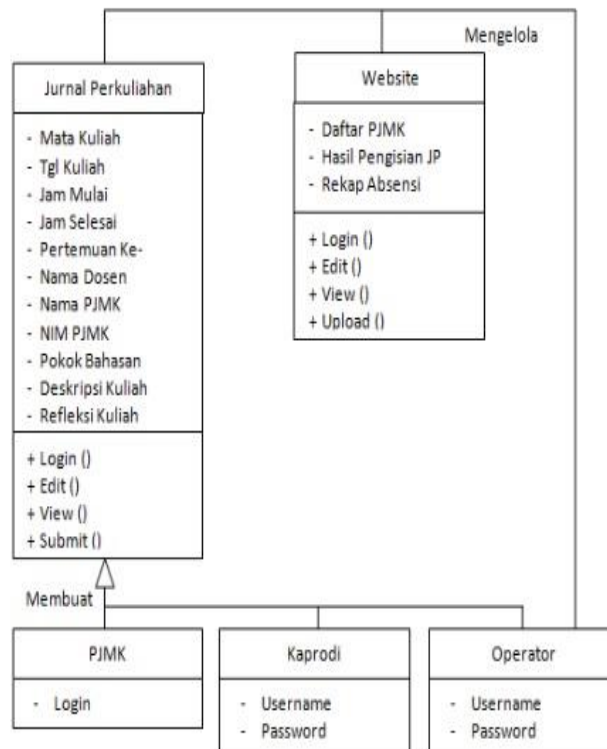
Gambar 4: Class Diagram

3. Activity diagram

To describe the flow in the lecture journal information system when it is run, it is necessary to draw an activity diagram.

Gambar 5: Activity Diagram

After modelling the information system, the next stage is the implementation of the system from the lecture journal as follows:

1. Lecture journal form display

This is a display of the lecture journal form that will be filled in by PJMK after each meeting. The form is made using the application from Google Form then all the elements in the class diagram are entered. If you have filled in, PJMK writes the email address that has been determined so that the data entered and collected in one place.

2. Display of lecture journal data.

Lecture journal data is collected by the study programme quality assurance email account. Which is then saved in the form of a pdf file. To the account's google drive. Each data is checked for lecture meetings,

course names and others that are appropriate or not, if so, it is sorted to be put into each folder in the google drive.

3. Display of uploading lecture journal data on the study programme website
   The data stored on the google drive that has been managed by the study programme operator, then the upload process is carried out to the study programme website so that it is integrated when users want to see the contents of the lecture journal.

4. Monitor display of lecture journal entries and attendance.
   After all the data is uploaded by the study programme operator, all interested parties can see the results of the lecture journal entries by going to the study programme website address on the education menu then the lecture journal.

4. CONCLUSION

Based on the results and discussion in this study, the following conclusions can be drawn:

1. There are several models in developing the design of lecture journal information systems for monitoring and evaluating the learning process.
2. This research resulted in the design of an information system for monitoring and evaluating the learning process in Prodi in the form of online lecture journal filling services.
3. The design of this system can help Prodi and Quality Assurance to continue to evaluate the learning process in Prodi.

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