Integration Of Technology In Curriculum Management

Mhd. Fuad Zaini Siregar[1]*, Rijal Sabri[2], Lilis Darmila[3], Mahanum[4], Naufal Muzhaffar[5]
[1,2,3,4,5] Universitas Dharmawangsa

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***Correspondence Address:**
fuadzaini06@gmail.com

Abstract:
This study is research aimed at examining how curriculum management and technology integration in universities are implemented. The research was conducted at three campuses using a qualitative research method (case study approach). The results of the study show that the integration of technology in education, particularly in curriculum management and the lecture system, has a significant impact on improving the effectiveness and efficiency of the teaching and learning process. Through technology, educational institutions such as Universitas Terbuka, UIN Sumatera Utara, and Universitas Dharmawangsa have implemented online platforms such as LMS, Google Classroom, and academic information systems to facilitate independent learning, attendance, and online assessments. Technology not only expands access and learning flexibility but also enables more transparent and accountable curriculum management.

INTRODUCTION

The positive impact of technology use in education includes serving as a reference for acquiring knowledge that is not provided by teachers or lecturers. The availability of electronic media such as the internet and online platforms helps learners in the learning process. In this context, teachers or lecturers are not the sole source of knowledge for students. Therefore, students do not need to rely solely on the information or knowledge delivered by educators, but can also access subject references directly from the internet (Athifah Nur Azizah, 2021). Students, university students, as well as teachers and lecturers in education will be assisted by technological advancements. They will be able to collaborate and integrate science and technology into a unified whole, which continues to innovate and create. Today, it is easier for students and university students to receive information or learning materials. This is due to the support of digital technology, the internet, and technological tools that provide quick access, convenience, and various other benefits (Kompasiana, 2022).

In the increasingly evolving digital era, technology has become an essential element in various sectors, including education. The development of information and communication technology has brought significant changes to the way education is delivered, particularly in curriculum management. Curriculum management, as an effort to plan, organize, implement, and evaluate learning activities, no longer relies solely on

conventional methods. Technology has provided opportunities to enhance the effectiveness and efficiency of curriculum management, enabling broader and easier access for educators, students, and all stakeholders (Syafaruddin & MS, 2017).

The integration of technology in curriculum management enables the creation of systems that are more transparent, accountable, and adaptive to the needs of learners and changes in the global environment. For example, Learning Management Systems (LMS) allow for centralized management of learning materials, schedules, and student evaluation results. With the support of technology, educators can make better decisions in designing materials, monitoring student progress, and adjusting curricula based on accurate, real-time data (Hamalik, 2008).

However, the implementation of technology in curriculum management is not without challenges. Some common obstacles include limited technological infrastructure in some schools, lack of training for educators, and resistance to change. Therefore, the integration of technology into curriculum management must be accompanied by careful planning and support from all related parties to ensure that it provides optimal benefits for the educational world (Arifin, 2018).

Thus, this study will discuss the concepts, implementation, standards, and challenges of integrating technology into curriculum management, aiming to provide a comprehensive insight into the positive impacts that can be achieved as well as the strategic steps needed to ensure the successful application of technology in this field.

RESEARCH METHODS

The research used is qualitative research with a case study approach, which is a research design that emphasizes an in-depth understanding of phenomena or events occurring in a specific context, involving data analysis in a holistic and comprehensive manner. Meanwhile, the research procedures include case selection, data collection, data analysis, and report preparation,

RESULTS AND DISCUSSION

Open University Lecture System

The learning system at Open University differs from other conventional universities because it adopts a distance learning system and open education. This concept allows

students to learn flexibly, independently, and without being tied to specific locations or times, making Open University highly suitable for those who are already working or have limitations in physically attending campus. Below are some of the key components of the learning system at Open University:

1. Independent Learning

   The learning system at Open University emphasizes independence. Students are expected to study independently using the modules or learning materials provided by Open University. These materials are available in both printed and digital formats, so they can be accessed anytime and anywhere. Independent learning allows students to manage their study time and location according to their individual schedules.

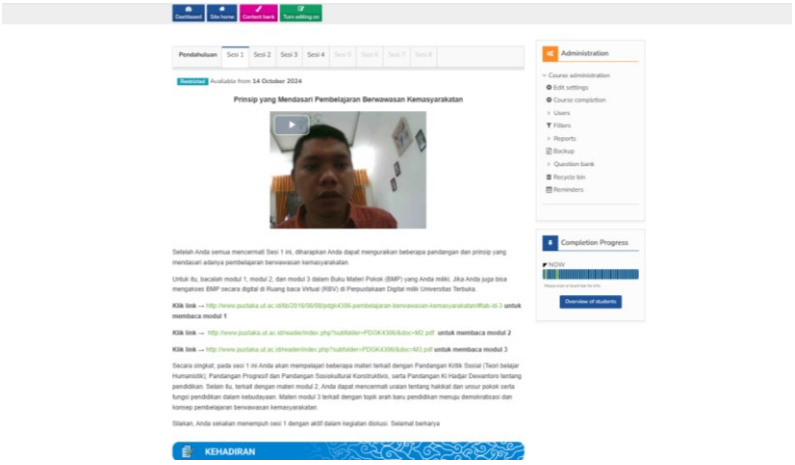

Figure 1. E-Learning Open University Lecture System

2. Learning Materials

   Open University provides learning materials specifically designed to support distance education, such as printed modules, digital learning materials, and additional learning resources like videos and audio lessons. These materials cover all the content needed to study the courses offered at the university.

3. Face-to-Face Tutorials and Online Tutorials

   In addition to independent learning, Open University also offers face-to-face tutorials in various cities or Open University branches across Indonesia for students who wish to gain a deeper understanding with the guidance of a tutor. Additionally, Open University provides online tutorials/Tuton, where students can discuss, ask questions, and interact with tutors and other students through the online platform provided.

4. Internet-Based Learning (Online Learning)

Open University offers an internet-based learning system through an e-learning platform. Students can access materials, download assignments, participate in forum discussions, and take exams online. This platform makes it easier for students who are far from UT centers or have limited time to attend in-person classes.

5. Evaluation and Final Semester Exams

Assessment at Open University is carried out through assignments, participation in tutorials, and the Final Semester Exam. Final Semester Exam are typically held in writing at various designated locations, but some exams may be conducted online. This evaluation system provides students with the opportunity to periodically assess their understanding of the material.

State Islamic University of North Sumatra Lecture System

State Islamic University of North Sumatra has adopted technology in the teaching and learning process through the implementation of online attendance and assessment systems. Here's an explanation of these two systems:

1. Online Attendance System (SI-DAHLIA)

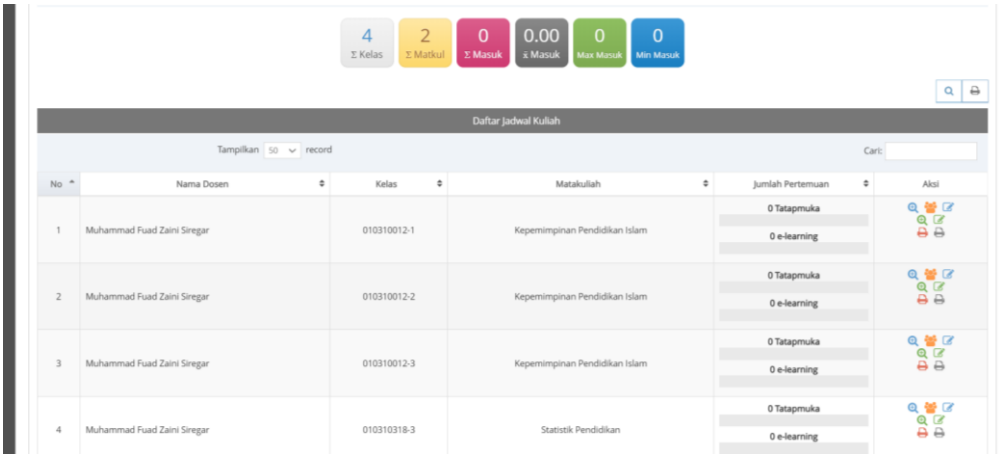

Figure 2. SI-DAHLIA in State Islamic University of North Sumatra Lecture System

State Islamic University of North Sumatra uses the SI-DAHLIA application to facilitate online class attendance. This application is designed to be used by both lecturers and students for recording attendance during lectures. Through SI-DAHLIA, lecturers can take student attendance online, and students can access information about their attendance. This system is integrated with the UKT/SPP payment system and the Academic Information System (SIA), ensuring accurate and up-to-date attendance data.

2. Online Assessment System

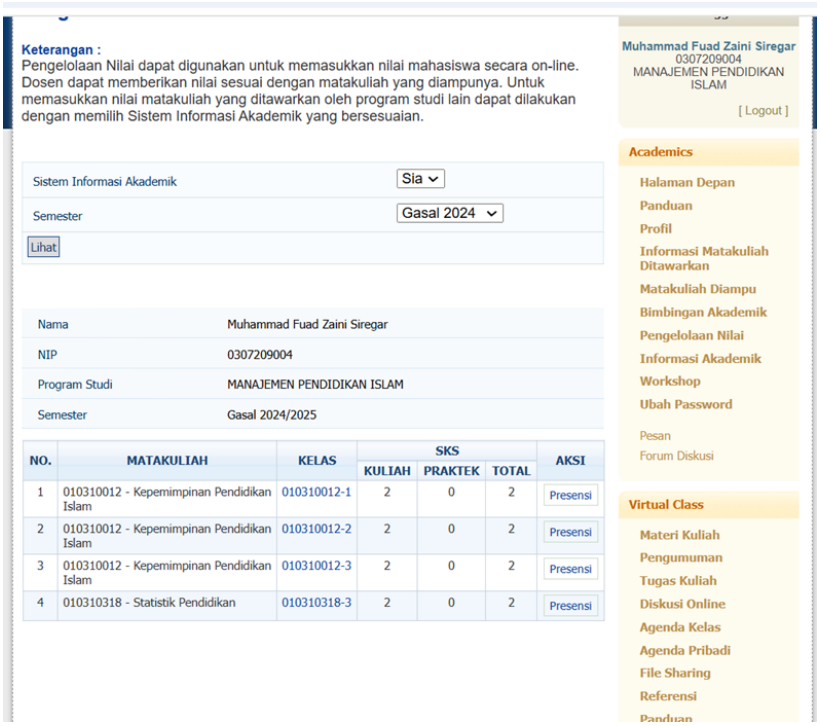

Figure 3. Portalsia in State Islamic University of North Sumatra Lecture System

For the assessment process, State Islamic University Of North Sumatra utilizes the Academic Information System, which allows lecturers to input student grades online. This system simplifies grade management and entry for lecturers, as well as provides students with real-time access to view their assessment results. Additionally, it enables efficient and transparent tracking of academic progress.

Dharmawangsa University Lecture System

Dharmawangsa University has integrated technology into the teaching and learning process by utilizing Google Classroom as an online learning platform and the Academic Information System (SIAKAD) for online assessment management. Below is an explanation of these two systems:

1. Google Classroom as an Online Learning Platform

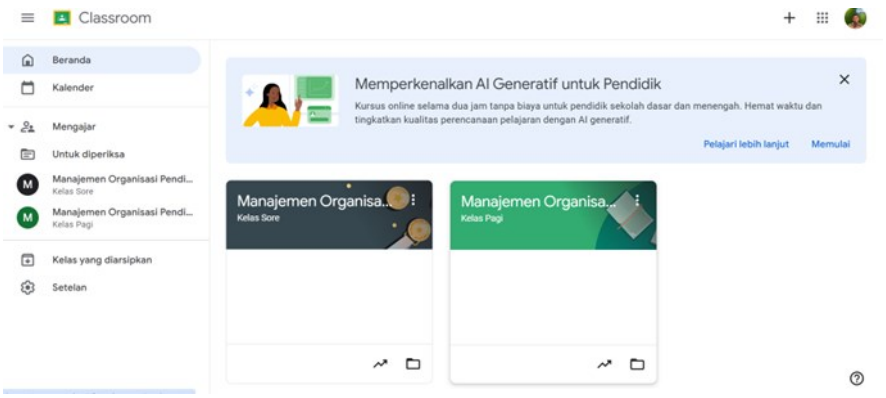

Figure 4. Google Classroom as an Online Learning Platform in Dharmawangsa University

To support distance learning, Dharmawangsa university uses Google Classroom as its Learning Management System (LMS). This platform allows lecturers and students to interact virtually, manage course materials, and submit and grade assignments efficiently. The use of Google Classroom facilitates effective communication between lecturers and students and provides easy access to various learning resources. Additionally, the university provides a guide for using Google Classroom to assist lecturers and students in maximizing the use of this platform.

2. Academic Information System/SIAKAD for Online Assessment

Figure 5. Information System/SIAKAD for Online Assessment in Dharmawangsa University

Dharmawangsa University implements the Academic Information System/SIAKAD as a platform for managing academic data, including student

assessments. Through SIAKAD, lecturers can input grades online, and students can access their academic information, including grades, attendance, and other academic records. This system simplifies the management of academic data and provides students with easy and real-time access to their performance information.

With the integration of Google Classroom and SIAKAD, Dharmawangsa University is committed to providing an adaptive and responsive learning experience in line with technological advancements, while ensuring that academic processes run smoothly even in situations that require distance learning.

Discussion

The concept of technology integration can be seen from two terms, namely integration and technology. The word integration comes from the English word "integration" which means integration or combination. According to the Indonesian dictionary, the word integration means unification. While technology comes from the Greek word 'techne' which means way and 'logos' which means knowledge, and can be interpreted as knowledge of how (Ucu et al., 2018). By looking at the meaning of the two words, technology integration means unification, combination of knowledge of how (Wartomo, 2018).

Heinich, Molenda and Russell quoted by (Supriyatno et al., 2020) said that technology as a knowledge is applied by humans to solve problems and carry out tasks systematically and scientifically, consisting of hardware and software technology. (Habibah et al., 2020) This meaning of technology is in line with the definition of educational technology put forward by AECT (2004), where in this definition the word technology contains the meaning of tools and methods or processes and sources that are used appropriately according to the learning situation (Syaharuddin, 2020). Based on these two views, technology integration becomes broader, namely integration in facilitating the learning process and improving teacher performance in teaching students. If the integration of technology in the learning system is visualized, then technology is a component of the learning system (Ansori, 2020).

Integration of technology into learning or a curriculum in schools according to Roblyer, Edwards and Havriluk in (Lies Sudibyo, 2011) because technology is used in various situations such as education systems (schools and classes), and technology (computers and other technologies) can help the effectiveness of learning. This is stated

by emphasizing the usefulness of technology in education, namely.

1. Increase motivation in learning.
2. Increase specific learning capabilities.
3. Support new/innovative learning approaches.
4. Increase teacher work productivity.

Technology that can be integrated into the curriculum or learning according to Seels and Richey in (Widianto, 2018; Zulfitria et al., 2020) consists of print technology, audiovisual technology, computer-based technology, and integrated technology by combining various learning system support facilities, between content and student reactions in learning. Meanwhile, Muijs and Reynolds in (Warsita, 2017) limit technology to information and communication technology using various supporting facilities, namely computer hardware, multimedia projectors, software, and the web or internet. Based on the explanation above, the intended technology integration is technology that is combined to present information, access information, complete routine tasks, assist direct interactivity and assist various student learning experiences both at school and outside school.

CONCLUSION

The integration of technology in education, particularly in curriculum management and the lecture system, has a significant impact on enhancing the effectiveness and efficiency of the teaching and learning process. Through technology, educational institutions such as Open University, State Islamic University of North Sumatra, and Dharmawangsa University have implemented online platforms like LMS, Google Classroom, and academic information systems to facilitate independent learning, attendance, and online assessment. Technology not only expands access and learning flexibility but also enables more transparent and accountable curriculum management.

Despite challenges such as infrastructure limitations and the need for teacher training, this integration supports the development of students' digital skills, enhances learning interactions, and creates personalized learning experiences. Therefore, the use of technology across various universities demonstrates a commitment to adaptive educational innovation that is responsive to the demands of the times.

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