



## The Utilisation of Learning Management System (LMS) in Enhancing Learning Effectiveness in Secondary Schools

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### ARTICLE INFORMATION

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### ABSTRACT

The development of information and communication technology encourages the education sector to adapt through the use of digital learning technology. One of the developing innovations is the use of Learning Management System (LMS) in the learning process at secondary schools. This research aims to describe the utilisation of LMS in enhancing the effectiveness of learning. The method used is a qualitative descriptive approach with teachers and students as research subjects. Data collection techniques include observation, interviews, and documentation. The research results show that the use of LMS can significantly enhance the effectiveness of learning. This is marked by increased student participation in learning activities, the development of learning independence, and the ease for teachers in managing materials, assignments, and learning evaluations. LMS also supports the creation of more flexible, structured, and interactive learning because it can be accessed anytime and anywhere. However, the utilisation of LMS still faces several obstacles, such as limited technological infrastructure and differences in digital literacy levels between teachers and students. Therefore, adequate support in terms of facilities and infrastructure, as well as the enhancement of digital competencies, is necessary so that the implementation of LMS can run optimally, effectively, and sustainably in improving the quality of learning in secondary schools.

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### 1. INTRODUCTION

The development of information and communication technology has brought significant changes in various aspects of life, including in the field of education. The world of education is required to adapt to technological developments so that the learning process remains relevant to the needs of students in the digital era. Secondary schools, as an educational level that plays a strategic role in shaping the character, knowledge, and skills of students, are required to integrate technology into the learning process to improve the quality and effectiveness of education. (Fitriani 2020)

The use of technology in education not only serves as a supporting tool but also as a primary medium in creating innovative, interactive, and learner-centred learning. One form of technology implementation in education is the use of a Learning Management System (LMS). An LMS is a digital-based learning platform designed to manage, deliver, and evaluate the learning process in a structured manner. Through an LMS, teachers can organise learning materials, assign tasks, manage discussions, and conduct assessments online, while students can access learning materials flexibly according to their individual needs and learning pace. ([Fahrezi et al. 2024](#))

In the context of secondary school education, LMS has great potential to enhance the effectiveness of learning. The effectiveness of learning is not only measured by students' academic achievements but also by the level of participation, active engagement, learning motivation, and students' ability to understand and apply the learning material. LMS enables two-way interaction between teachers and students through discussion features, forums, and feedback available within the system, making the learning process more dynamic and not limited by space and time. ([Munir 2010](#))

In addition, the use of LMS can encourage students' learning independence. With the availability of learning materials that can be accessed at any time, students are required to take more responsibility for their own learning process. This is in line with the 21st-century learning concept, which emphasises the development of critical thinking, creativity, collaboration, and communication skills. LMS also provides students with the opportunity to learn according to their own learning styles and rhythms, making the learning experience more personal and meaningful. ([Pratomo and Wahanisa 2021](#))

However, in practice, the utilisation of LMS in secondary schools still faces various challenges. Not all schools have adequate technological facilities and infrastructure, such as the availability of devices and stable internet access. In addition, the difference in digital literacy levels between teachers and students also poses a challenge in optimising the use of LMS. Some teachers still have difficulty fully utilising the LMS features, while some students are not yet fully able to use the LMS as a means of independent learning. ([Wiragunawan 2022](#))

Based on the aforementioned issues, a more in-depth study is needed regarding the utilisation of LMS in the learning process and the extent of its contribution to improving the effectiveness of learning in secondary schools. This research is important to provide a real picture of the implementation of LMS, the benefits obtained, and the obstacles faced in its application. Thus, the research results are expected to serve as evaluation materials and recommendations for schools and educational stakeholders in developing more effective and sustainable technology-based learning strategies.

### **a. Sistema de Gestión de Aprendizaje (LMS)**

Learning Management System (LMS) is an information technology-based learning system designed to facilitate the planning, implementation, management, and evaluation of the learning process both online and blended learning. LMS functions as an integrated platform that connects teachers, students, and learning materials in one digital platform. Through LMS, all learning activities can be well-documented, making it easier for teachers to manage classes and monitor students' learning progress. ([Mahabu et al. 2025](#))

Conceptually, LMS not only serves as a medium for delivering materials but also as a means of interaction and collaboration between teachers and students. LMS provides various learning features such as uploading teaching materials in the form of text, videos, or interactive multimedia, assignments, quizzes, discussion forums, and even an automatic grading system. These features enable a more interactive, systematic, and structured learning process compared to conventional learning.

In the practice of learning in secondary schools, LMS plays an important role in supporting learning flexibility. Students can access learning materials anytime and anywhere without being

limited by time and classroom space. This flexibility provides students with the opportunity to review material they haven't understood and to manage their study time independently. On the other hand, teachers can manage learning more effectively by organising materials, schedules, and learning activities that meet the needs of students. ([Sudiana 2016](#))

The use of LMS also makes a significant contribution to the improvement of learning quality. LMS enables the implementation of student-centered learning, where students are encouraged to be active in the learning process through online discussions, reflections, and independent exploration of materials. The teacher acts as a facilitator who guides and provides feedback on students' learning activities. Thus, the learning process is no longer centred on the teacher, but rather on the activities and learning needs of the students. ([Fitriani 2020](#))

In addition, LMS has advantages in managing learning evaluations. Through the LMS, teachers can design assessment instruments such as quizzes and assignments online with a more objective and transparent grading system. The assessment results can be accessed directly by students, allowing them to understand their learning achievements and make continuous improvements. LMS also provides student activity data that teachers can use to analyse the level of student participation and engagement in learning.

Although it has many advantages, the use of LMS in secondary schools still faces several challenges. The limitations of technological infrastructure, such as unstable internet access and the availability of devices, are the main obstacles in the implementation of LMS. Additionally, the differences in digital literacy skills among teachers and students also affect the effectiveness of LMS usage. Therefore, continuous training and support are needed so that LMS can be optimally utilised in supporting the learning process.

Thus, the Learning Management System (LMS) can be understood as a technology-based learning innovation that has great potential in enhancing the effectiveness and quality of learning in secondary schools. The proper and sustainable use of LMS is expected to create a more adaptive, interactive, and relevant learning process in line with the demands of education in the digital era. ([Munir 2010](#))

## **b. Effectiveness of Learning**

The effectiveness of learning is one of the main indicators in assessing the success of the educational process. Learning is said to be effective if the established learning objectives can be achieved optimally, both in terms of cognitive, affective, and psychomotor aspects of the students. The effectiveness of learning is not only orientated towards learning outcomes but also takes into account the learning process, student engagement, and the quality of interaction between teachers and students during the teaching and learning activities. ([Pratama and Kusuma 2021](#))

Conceptually, the effectiveness of learning is related to the extent to which the strategies, methods, and media used can create conducive and meaningful learning conditions for students. Effective learning is characterised by clear learning objectives, systematic delivery of material, the use of varied methods, and the utilisation of learning media that align with the characteristics of the students. Additionally, the effectiveness of learning is also influenced by the teacher's ability to manage the classroom and provide constructive feedback to students. ([Larasati and Andayani 2019](#))

In the context of secondary school learning, the effectiveness of education is greatly influenced by the level of student participation and motivation. Students who are actively involved in the learning process tend to have a better understanding of the material being taught. Active participation can be realised through activities such as discussions, question and answer sessions, group work, and problem-solving. High learning motivation also plays an important role in enhancing the effectiveness of education, as students will be more enthusiastic and responsible for their learning process. ([Sedana and Wijaya 2009](#))

The effectiveness of learning can also be seen from the students' ability to apply the knowledge and skills acquired in everyday life. Effective learning not only produces students who can memorise material but also those who can think critically, creatively, and solution-oriented. Therefore, learning in secondary schools needs to be designed to develop higher order thinking skills and 21st-century skills.

In addition to the factors of students and teachers, the learning environment also affects the effectiveness of learning. A conducive learning environment, both physically and psychologically, can support the creation of a comfortable and enjoyable learning atmosphere. The use of media and learning technology, including Learning Management Systems (LMS), is one of the efforts to create an effective and adaptive learning environment in line with the times.

Thus, the effectiveness of learning is the result of the synergy of various learning components, from planning, implementation, to evaluation of learning. Efforts to improve the effectiveness of learning in secondary schools need to be carried out continuously through the innovation of teaching methods, enhancement of teacher competencies, and the appropriate use of educational technology. Optimal learning effectiveness is expected to produce graduates who are not only academically excellent but also possess character and skills relevant to future demands. ([Yudhana and Kusuma 2021](#))

### **c. LMS in Secondary School Learning**

Learning in secondary schools has characteristics that demand a balance between mastery of academic material, the development of thinking skills, and the formation of students' attitudes and character. At this level, students are in a phase of cognitive development that allows them to think more abstractly, critically, and reflectively. Therefore, a model and learning media that can accommodate these needs are required, one of which is through the utilisation of a Learning Management System (LMS). (Larasati and Andayani 2019) LMS in secondary school learning serves as a means that integrates conventional learning processes with digital technology. Through LMS, learning can be conducted online or through blended learning, thus not entirely relying on face-to-face classroom learning. Teachers can utilise the LMS to deliver learning materials in various formats, such as text, video, presentations, or other digital learning resources that are relevant to the competencies that students need to achieve. ([Subiyantoro and Ismail 2017](#))

The use of LMS also provides opportunities for teachers to implement more varied and innovative teaching strategies. LMS allows for the application of project-based learning models, collaborative learning, and problem-based learning. Through discussion and forum features, students can discuss, exchange opinions, and collaborate in completing learning tasks. This encourages the creation of more active interactions between students and between students and teachers. ([Listiyono et al. 2022](#))

In secondary school learning, LMS also plays an important role in enhancing students' independence and responsibility in learning. With LMS, students are required to manage their study time, access materials independently, and complete assignments according to the specified deadlines. This condition trains students to have study discipline and readiness to face learning at higher levels of education. ([Alifiyanti, Afifah, and Ramadoan 2019](#))

Selain itu, LMS memudahkan guru dalam melakukan pengelolaan dan evaluasi pembelajaran. Guru dapat memantau keaktifan siswa, mengelola tugas, serta memberikan penilaian dan umpan balik secara sistematis. Data aktivitas belajar siswa yang terekam dalam LMS dapat digunakan sebagai bahan evaluasi untuk mengetahui tingkat pemahaman, partisipasi, dan perkembangan belajar siswa. Dengan demikian, guru dapat melakukan perbaikan dan penyesuaian strategi pembelajaran secara berkelanjutan. ([Anggriawan 2019](#))

Nevertheless, the implementation of LMS in secondary school education still faces various challenges. The limitations of technological infrastructure, such as internet access and the availability of learning devices, are one of the main obstacles. Moreover, the readiness of

teachers and students to use learning technology is also a determining factor in the successful implementation of LMS. Therefore, support from schools and education policymakers is needed through the provision of facilities, training, and assistance in using LMS. Thus, the Learning Management System (LMS) plays a strategic role in improving the quality and effectiveness of learning in secondary schools. The optimal use of LMS can create more flexible, interactive, and student-centered learning. This aligns with the demands of modern education, which emphasises the use of technology as a means to enhance the quality and relevance of learning. Thus, the Learning Management System (LMS) plays a strategic role in improving the quality and effectiveness of learning in secondary schools. The optimal use of LMS can create more flexible, interactive, and student-centered learning. This aligns with the demands of modern education, which emphasises the use of technology as a means to enhance the quality and relevance of learning. ([Suaka et al., 2023](#)).

More specifically, the results of this study show that the impact of using LMS is not only visible in the technical aspects of learning but also in the changes in students' behaviour and learning patterns. LMS is able to significantly increase student participation, especially in task submission, online discussions, and engagement in structured learning activities. In addition, students become more independent because they have broad access to learning materials that can be reviewed according to their individual needs and pace. (Fahrezi et al. 2024) From the teacher's perspective, LMS provides ease in designing, managing, and evaluating learning more systematically. Teachers can utilise various features in the LMS to present diverse materials, provide quick feedback, and monitor students' learning progress in real-time. This has an impact on increasing the efficiency and professionalism of teachers in managing the learning process. ([Angreani, Dammar, and Mattalatta 2018](#))

However, this study also reveals obstacles that affect the optimisation of LMS, such as limited internet access, availability of devices, and differences in digital literacy levels. Therefore, continuous support from the school is needed in the form of adequate infrastructure provision and digital competency training for teachers and students so that the positive impact of LMS can be maximised sustainably. ([Dongoran and Hariani 2025](#))

## **2. RESEARCH METHOD**

This research uses a qualitative descriptive approach aimed at obtaining an in-depth understanding of the utilisation of Learning Management Systems (LMS) in enhancing the effectiveness of learning in secondary schools. This approach was chosen because the research focuses on understanding the processes, experiences, and perceptions of teachers and students regarding the use of LMS in learning activities without manipulating the variables being studied. ([Moleong 2020](#))

The research was conducted at one of the secondary schools that has implemented an LMS in the learning process. The research subjects consisted of teachers and students directly involved in the use of the LMS. Teachers served as the primary informants because they are responsible for the planning, implementation, and evaluation of LMS-based learning, while students acted as supporting informants to obtain data on responses, participation, and learning experiences using the LMS. ([Creswell and Clark 2007](#))

Data collection was conducted through observation, interviews, and documentation. Observation was used to directly observe the implementation of learning utilising the LMS, including interactions between teachers and students as well as learning activities taking place within the LMS platform. Semi-structured interviews were conducted with teachers and students to explore information regarding the benefits, challenges, and impact of using the LMS on the effectiveness of learning. Documentation is used as supporting data in the form of teaching materials, assignments, assessment results, and records of learning activities found in the LMS system. This data collection technique is a common procedure in qualitative research to obtain comprehensive data. ([Miles, Huberman, and Saldana 2014](#))

The data obtained were analysed using qualitative analysis techniques through the stages of data reduction, data presentation, and conclusion drawing. Data reduction was carried out by sorting and simplifying data relevant to the research focus, then the data were presented in the form of a systematic narrative description to facilitate understanding. The final stage is drawing conclusions, which is done by interpreting the data thoroughly in accordance with the research objectives. This analysis model refers to the interactive analysis of Miles and Huberman, which is widely used in qualitative research. (Denzin 2017)

To ensure the validity of the data, this study uses source and technique triangulation methods. Source triangulation is conducted by comparing data obtained from teachers and students, while technique triangulation is carried out by comparing the results of observations, interviews, and documentation. Thus, the data obtained are expected to have a high level of accuracy and reliability, making the research results scientifically accountable.

### **3. RESEARCH RESULTS AND DISCUSSION**

#### **a. Research Results**

The research results show that the utilisation of the Learning Management System (LMS) has been actively implemented in the learning process at the high school that was the research location. Based on the observation results, teachers use the LMS as the main medium for delivering learning materials, assigning tasks, and evaluating students' learning outcomes. Learning materials are presented in various formats, such as written documents, presentations, and educational videos, making it easier for students to understand the material being taught.

Research findings indicate that the majority of students regularly access the LMS according to the predetermined learning schedule. Students utilise the LMS to download learning materials, submit assignments, and participate in online discussions. Student activities in the LMS are recorded systematically, allowing teachers to monitor the level of student activity and engagement in the learning process. The activity data shows an increase in student participation, especially in task submission and participation in discussion forums.

The results of the interviews with teachers indicate that the use of LMS helps improve the efficiency of learning management. Teachers find it easier to manage learning schedules, organise materials, and assess students' learning outcomes. The assessment system available in the LMS allows teachers to provide quick and structured feedback to students. Teachers can also monitor individual student learning progress through reports generated by the system.

From the students' perspective, interview results show that the use of LMS provides ease and comfort in the learning process. Students stated that they can access learning materials anytime and review the material they haven't understood. This helps students prepare for learning evaluations. In addition, students feel more assisted with the presence of task reminders and schedules available in the LMS, making them more organised in managing their study time.

The research results also show an increase in students' learning independence. Students have become more responsible in completing tasks and following lessons independently through the LMS. Some students have shown initiative in seeking additional learning resources relevant to the material provided in the LMS. This indicates that the LMS contributes to fostering an independent learning attitude among high school students.

However, the research findings also identified several obstacles in the utilisation of the LMS. The most frequently encountered obstacles are limited internet access and differences in the ownership of learning devices among students. In addition, there are still some students who have difficulty operating certain features in the LMS. However, these obstacles do not significantly hinder the implementation of LMS-based learning, as teachers and school authorities strive to provide support and alternative solutions.

In general, the research results indicate that the utilisation of LMS has been quite successful and has a positive impact on the effectiveness of learning in secondary schools. LMS

helps improve participation, independence, and the regularity of the learning process, both from the perspective of teachers and students.

## **b. Discussion**

The discussion of this research results shows that the utilisation of Learning Management System (LMS) significantly contributes to the improvement of learning effectiveness in secondary schools. The research findings show that the LMS not only serves as a medium for delivering material but also as a system capable of organising the entire learning process in a more structured and systematic manner. This is evident from the ease with which teachers can design, implement, and evaluate learning through a single integrated platform.

The improvement in learning effectiveness is reflected in the increased participation and engagement of students in the learning process. Through the LMS, students have the opportunity to actively interact with the material, teachers, and fellow students through discussion forums and online assignments. This interaction creates a more dynamic learning environment and supports student-centered learning. These conditions align with modern learning principles that emphasise the importance of active student engagement in building knowledge.

The use of LMS also has a positive impact on students' learning independence. Students are required to manage their study time, access materials independently, and complete assignments according to the predetermined schedule. This independence becomes one of the important indicators of learning effectiveness, as students no longer rely entirely on the teacher as the sole source of learning. LMS provides space for students to learn at their own pace and according to their individual learning styles, making the learning experience more personal and meaningful.

From the teacher's perspective, LMS helps enhance professionalism in managing learning. Teachers can create more varied and engaging teaching materials, as well as provide objective and transparent assessments. The data on student activities recorded in the LMS provides accurate information regarding the level of student engagement and understanding. This information can be utilised by teachers to evaluate and continuously improve teaching strategies, thereby enhancing the quality of education.

Although the research results show a positive impact of LMS utilisation, there are several factors that influence the effectiveness of its use. The readiness of technological infrastructure, the digital competence of teachers, and the digital literacy of students are determining factors for the success of LMS implementation. When these factors are not optimally met, the utilisation of LMS tends to be suboptimal and is only used as a medium for collecting assignments. Therefore, efforts to improve competence and provide facilities support are needed so that the LMS can be utilised optimally.

This discussion also shows that the successful utilisation of LMS requires support from school policies and management. Schools need to provide adequate infrastructure, such as internet access and supporting devices, as well as conduct regular training on LMS usage for teachers and students. With adequate support, LMS can become an effective and sustainable learning solution, especially in facing educational challenges in the digital era.

Overall, the discussion of the research findings emphasises that the utilisation of Learning Management Systems (LMS) plays a strategic role in enhancing the effectiveness of learning in secondary schools. LMS is capable of creating more flexible, interactive, and student-centered learning. These findings reinforce previous research that states that the integration of technology in learning can enhance the quality of the learning process and student outcomes if supported by the readiness of human resources and adequate infrastructure.

## **4. CONCLUSION**

Based on the research and discussions that have been conducted, it can be concluded that the utilisation of a Learning Management System (LMS) contributes positively to the improvement of learning effectiveness in secondary schools. LMS serves as a digital learning tool that can support a more structured, flexible, and interactive learning process. The use of LMS makes it easier for teachers to deliver learning materials, manage assignments, and systematically evaluate students' learning outcomes. Additionally, LMS also increases student participation and engagement in the learning process through easy access to materials, online discussion activities, and a well-scheduled assignment system.

In addition to improving the effectiveness of learning, the use of LMS also encourages the development of student independence in learning at the secondary school level. Students become more responsible in managing their study time, accessing materials independently, and completing assignments according to the established guidelines. Although there are still obstacles such as limited technological infrastructure and varying levels of digital literacy, these obstacles do not diminish the potential of LMS as an effective learning medium. Therefore, continuous support from schools and educational stakeholders is needed through the provision of infrastructure, digital competency training, and policies that support the integration of technology in learning so that the utilisation of LMS can be optimised sustainably.

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