ANALYSIS OF E-LEARNING APPLICATION USAGE IN THEORETICAL LEARNING FOR CADETS

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ABSTRACT

The utilization of a Learning Management System (LMS) in vocational education, including at the Civil Aviation Polytechnic of Surabaya, has become an essential strategy to support online and blended learning. However, the implementation of the Moodle-based LMS at this institution has not yet reached optimal performance, as reflected in the low completion rates of course materials and the limited integration with face-to-face learning. This study aims to analyze the use of the LMS by cadets and identify barriers and alternative solutions for improvement. A mixed-method approach was employed, with data collected through questionnaires, interviews, and documentation of the LMS platform. The analysis revealed that although the LMS offers a wide range of academic and technical courses, its use remains suboptimal due to limited socialization, lack of adequate devices, and low active participation among cadets. A comparative study with the Universitas Terbuka LMS highlighted the need for structured technical guidelines, continuous technical support, and mandatory LMS usage policies. The findings are expected to serve as a basis for developing more effective LMS implementation policies and strategies in vocational education environments.

Keywords: Learning Management System, e-learning, vocational education, optimization, Moodle

1. INTRODUCTION

The development of information and communication technology has brought significant changes to the field of education, including vocational education (Omar et al., 2021). One innovation that has increasingly gained attention is the use of online learning or e-learning based on a Learning Management System (LMS) (Andini et al., 2021). An LMS provides opportunities for educational institutions to manage the learning process in a more flexible, efficient, and well-documented manner (Syifqi, 2023). However, this potential is not always utilized optimally in various institutions, including at the Civil Aviation Polytechnic of Surabaya, which has unique characteristics as a vocational education institution in the aviation sector.

In recent years, the Civil Aviation Polytechnic of Surabaya has implemented an LMS to support theoretical learning for cadets. This system is expected to expand access to learning, accommodate diverse learning styles, and provide teaching materials that can be accessed at any time. Nevertheless, initial observations and feedback from cadets indicate that the use of LMS has not yet been fully effective. Many cadets rarely utilize features such as assignment submissions, discussion forums, or online exams. The available teaching materials are also often not updated regularly, which reduces the relevance and quality of learning. Other challenges that frequently arise include the

lack of clear usage guidelines, limited technical training for lecturers and cadets, as well as network infrastructure that does not yet fully support the system. As often mentioned, distance learning emphasizes learner autonomy (Amila et al., 2019). Educators can deliver lessons to their students without having to meet them directly in the same physical space. This type of learning can take place either synchronously or asynchronously. Distance learning (PJJ) is a form of education in which the tools used enable interaction between teachers and students (Elyas, 2018). Distance learning, also known as distance education, refers to instruction delivered to students or cadets who do not regularly gather in one place to receive direct instruction from their teachers (Dewi et al., 2023). Participants receive specific materials to complete assignments, which are then evaluated by the instructors (Maharani et al., 2023).

This issue indicates the existence of a gap between the potential of the technology available and its actual implementation in the field. On the one hand, LMS has a strategic function in enhancing interactivity and the effectiveness of theoretical learning; on the other hand, limited utilization poses risks such as decreased learning motivation, low participation, and suboptimal achievement of competencies. This situation requires a systematic study to identify the level of LMS usage, uncover the challenges faced, and formulate appropriate improvement strategies.

The proposed problem-solving plan in this research includes measuring the level of LMS utilization by cadets, analyzing user perceptions and experiences regarding the available features, and identifying technical as well as non-technical obstacles hinder the optimization of e-learning. The data obtained are expected to serve as the basis for developing practical recommendations, such as the establishment of SOPs for LMS use, the implementation of continuous training, the strengthening of infrastructure, and the development of more interactive and relevant teaching materials.

The specific objectives of this study are: (1) to analyze the level of utilization of LMS-based e-learning applications in theoretical learning at the Civil Aviation Polytechnic of Surabaya; (2) to identify the challenges faced by cadets and lecturers in using the LMS; and (3) to formulate strategies to enhance the effectiveness of e-learning in vocational education settings. The theoretical foundation of this study refers to the concept of e-learning as a technology-based learning model, principles of LMS design that influence user engagement as well as previous studies that highlight the challenges of integrating technology in vocational education.

The findings of this research are expected to provide benefits in two areas. Practically, the results and recommendations can assist the management of Civil Aviation Polytechnic of Surabaya in optimizing LMS utilization, improving the quality of theoretical learning, and fostering a collaborative digital learning culture. Academically, this study can enrich the body of literature on e-learning implementation in vocational education, particularly in institutions with specific characteristics and needs such as aviation education. Thus, this research is expected not only to provide direct contributions to the institution but also to the broader development of e-learning strategies in various higher vocational education contexts.

2. LITERATURE REVIEW

2.1. SUPPORTING THEORIES

2.1.1. Application

An application is a type of computer software designed to perform specific tasks, such as word processing, system management, gaming, and other functions. According to (Sukatmi & Pitri, 2018) an application is a system design that enables data processing based on predetermined programming language rules or protocols. In a broader context, an application can also be defined as software or computer programs developed to execute particular commands or operations (Nasution et al., 2023). The term "application" originates from the English word application, which means "use" or "implementation." Based on its development and deployment model, applications can be categorized into three main types: (1) Web applications, which are accessed through personal computers and require an internet connection; (2) Desktop applications, which are installed and run on personal computers or laptops without necessarily requiring an internet connection; and (3) Mobile applications, which operate on mobile devices such as smartphones.

2.1.2. Definition of E-learning

E-learning refers to a teaching and learning approach that utilizes information and communication technologies to deliver educational content and facilitate learning interactions. (Saitya, 2022) describes e-learning as a modern form of education that allows remote access to advanced electronic resources, enabling learners to participate without being physically present in a traditional classroom. Similarly, (Alia, 2022) emphasizes the integration of information technology with pedagogical principles, wherein the Learning Management System (LMS) enables content creation, resource uploading, assignment submission, question bank management, online assessments, and communication through tools such as blogs, forums, and chats. Additional interactive modules, including calendars and image galleries, may also be integrated to enhance user engagement.

2.1.3. E-learning Based Learning Models

E-learning can be implemented through various technological models, primarily categorized into: (1) Computer-Based Training (CBT), which presents materials in textual and multimedia formats such as videos and audio, often delivered in MOV, MPEG-1, or AVI formats. Interaction in this model is typically one-way (Magdalena et al., 2020); and (2) Learning Management System (LMS), which facilitates comprehensive learning management including content creation, resource distribution, assignment handling, online testing, and user communication. LMS platforms can also incorporate additional modules to enrich the learning experience.

2.1.4. Factors Affecting the Success of E-learning

The effectiveness of e-learning is influenced by interrelated factors. First, stable internet access and appropriate technological devices are essential to ensure seamless participation in online learning. Without adequate infrastructure, both students and instructors may struggle to engage effectively. Second, the digital literacy of instructors and learners is critical; technology-savvy instructors can deliver content more effectively, while digitally competent students can adapt more easily to online learning environments (Alia, 2022). Lastly, engaging and well-structured learning materials play a vital role in sustaining learner motivation and achieving instructional goals (Dhawan, 2020).

2.1.5. Benefits of E-learning in Education

E-learning offers numerous advantages for enhancing the effectiveness and efficiency of the educational process. According to Magdalena et al., (2020), it improves learning quality, fosters independent study habits, and provides a safe and convenient learning environment. E-learning also promotes environmental sustainability by reducing paper consumption and lowers transportation costs. Additionally, digital materials can be accessed repeatedly, enabling learners to review content at their own pace. The interactive features, such as discussion boards and e-moderating, facilitate broader communication between instructors and students, thereby enriching the learning experience.

2.1.6. Learning

Learning is the process through which individuals acquire knowledge and skills by engaging with various learning resources, whether directly or through technological mediation. Firman & Rahman, (2020) describe learning as an interaction between students and their learning environment that produces meaningful educational experiences. Nurhasanah et al., (2019) emphasize that learning involves active participation, self-directed study, and emotional engagement, making it a dynamic and two-way process rather than a passive transfer of knowledge from teacher to student.

2.1.7. Case Study

A case study is a research methodology that investigates a phenomenon in its real-world context using multiple sources of evidence (Sugiyono, 2019). In the instructional context, it involves analyzing actual situations to identify potential solutions. Dewi et al., (2023) differentiate between complete (open) and incomplete (closed) case studies. Complete case studies provide detailed descriptions and possible actions for real-life situations, while incomplete ones present only part of the scenario, leaving learners to analyze and propose solutions.

2.1.8. Optimization

Optimization is the process of improving a system or procedure to achieve desired outcomes more effectively and efficiently. Hidayat & Irvanda, (2022) define optimization as maximizing objective functions within existing constraints to enhance performance, such as increasing productivity, reducing processing time, or improving cost-effectiveness. In the context of e-learning, optimization involves refining platform usability, improving content quality, and increasing engagement to ensure the platform's educational impact is maximized.

2.1.9. Likert Scale

The Likert scale is a psychometric measurement tool commonly used in surveys to assess respondents' attitudes or opinions. Taluke et al., (2019) note that Likert scales can include positively or negatively worded statements to measure varying degrees of agreement or disagreement. Sugiyono, (2019) defines it as a scale for quantifying perceptions, opinions, and attitudes toward a particular phenomenon, often using categories such as Strongly Agree, Agree, Disagree, and Strongly Disagree.

2.1.10. Learning Management System (LMS)

An LMS is an educational technology platform used to manage online learning processes, including content delivery, communication, and assessment. Snoussi, (2019) explains that LMS platforms, such as Moodle and Blackboard, not only serve as repositories for course materials but also as interactive environments enabling

two-way communication between instructors and learners. Bradley, (2020) highlights that LMS usage promotes self-monitoring of learning progress, maintains motivation, and supports independent study.

2.1.11. Moodle (Modular Object-Oriented Dynamic Learning Environment)

Moodle is an open-source LMS designed to create dynamic, learner-centered courses accessible anytime and anywhere. Hariyanto, (2021) notes that Moodle includes interactive features such as assignments, quizzes, forums, and multimedia content uploads. Latief et al., (2022) emphasize its flexibility, allowing instructors to create secure online assessments, manage question banks, set time limits, and randomize questions to enhance assessment integrity.

2.1.12. Blended Learning

Blended learning combines face-to-face classroom instruction with online learning components. Omar et al., (2021) assert that this approach accommodates diverse learning styles, enhances learner autonomy, and increases engagement. By integrating both synchronous and asynchronous activities, blended learning offers flexibility while maintaining direct interaction between instructors and students.

2.1.13. Standard Operating Procedure (SOP)

An SOP is a written document outlining standardized steps for performing specific tasks within an organization. Subandi & Rahmawati, (2024) state that SOPs ensure efficiency, consistency, and accountability in operational activities. In educational contexts, SOPs for LMS usage can guide both instructors and students in navigating the platform effectively, thereby reducing technical and procedural barriers to learning.

2.2. Relevant Previous Studies

Previous research provides a strong foundation for understanding the role and effectiveness of e-learning in higher education, particularly within vocational and specialized training contexts. Elyas, (2018), in his study entitled E-learning Learning Model in Improving Learning Quality at Universitas Dharmawangsa, investigated how the structured and consistent use of e-learning could enhance the quality of university-level education. His findings demonstrated that well-designed e-learning models significantly increased students' active participation, broadened access to learning resources, and promoted greater independence and flexibility in the learning process.

A study conducted at the Civil Aviation Polytechnic of Surabaya by Amila et al., (2019), titled Optimization of E-learning Applications as a Supporting Tool for the Learning Process, specifically examined how e-learning could support the teaching and learning process within the institution. The researchers hypothesized that optimizing the use of e-learning applications would improve the efficiency and effectiveness of instructional delivery. Their results indicated that integrating e-learning into the curriculum enhanced both the direction and structure of the learning process, as well as increased engagement between instructors and cadets.

Ramadhani, (2021) from Universitas Bangka Belitung conducted research on Optimizing the Use of Academic Information Systems (Siakad) or E-learning in Online Learning. This study aimed to assess the extent to which Siakad or e-learning platforms were utilized to support remote learning during the COVID-19 pandemic. The results

revealed that these systems played a crucial role in delivering materials, conducting assessments, and facilitating instructor–student interaction, although challenges remained in terms of infrastructure readiness and digital literacy among users.

In addition, Universitas Terbuka (UT) has successfully implemented a large-scale Moodle-based LMS to support its distance education model. The platform, managed by the UT Learning Support Center, is used for various instructional formats, including face-to-face tutorials, webinar-based tutorials, and fully online learning sessions. UT's LMS integrates a wide range of features such as discussion forums, digital learning materials, and flexible learning schedules, enabling millions of students to access resources from different geographical locations each semester (Syifqi, 2023).

The comparison between UT's LMS and the LMS at the Civil Aviation Polytechnic of Surabaya reveals significant differences in terms of scale, instructional focus, and level of integration. While UT has developed a mature, widely accessible LMS to support nationwide distance education, the Civil Aviation Polytechnic of Surabaya is still in the process of optimizing its platform for a more specialized vocational setting. Current challenges at the Polytechnic include limited user training, incomplete instructional content, and institutional policies that restrict the use of essential supporting devices such as laptops in certain areas.

These previous studies collectively suggest that the successful adoption of e-learning in vocational education requires not only robust technological infrastructure but also continuous content development, comprehensive user training, and supportive institutional policies. Lessons from established systems like UT's LMS could inform

strategies for enhancing the Civil Aviation Polytechnic's e-learning platform, ensuring it becomes a more interactive, accessible, and effective tool for theoretical instruction.

3. METHODOLOGY

This study employs a descriptive quantitative approach aimed at providing an objective overview of the extent to which a Learning Management System (LMS)-based e-learning application is utilized in theoretical learning for cadets at the Civil Aviation Polytechnic of Surabaya. This design was chosen because it allows for the identification of the actual conditions of LMS utilization, the obstacles encountered, and serves as a foundation for formulating strategies to improve learning effectiveness.

The research population consists of all final-year cadets from five study programs at the Civil Aviation Polytechnic of Surabaya in the 2024/2025 academic year. The sample was selected using purposive sampling, involving only cadets who had prior experience using the LMS in theoretical learning for at least two semesters. Based on these criteria, 100 respondents were obtained, representing the diversity of study programs and learning experiences.

Research data were collected using a closed-ended questionnaire developed based on LMS utilization indicators, including: frequency of use, utilization of key features (assignment submission, discussion forums, online examinations), completeness of learning materials, and technical obstacles encountered. The instrument was validated through content validity testing by three lecturers with expertise in educational technology. The questionnaire was distributed online using electronic forms to facilitate data collection and processing.

The collected data were analyzed using descriptive statistics in the form of

frequency distributions, percentages, and mean values to illustrate patterns of LMS utilization and the obstacles encountered. The analysis was conducted with the aid of statistical data processing software to ensure the accuracy of calculations. The results of the analysis are presented in tables and diagrams to facilitate the interpretation of the research findings.

4. RESULTS AND DISCUSSION

4.1 Survey Results

This study employs a descriptive quantitative approach with a questionnaire instrument consisting of 20 items developed based on eight main indicators: LMS Features, E-Learning Materials, SOP, Platform Accessibility, Content Completeness, Communication Effectiveness, Learning Time, and Improvement Desire. The respondents comprised 100 final-year cadets from five study programs at the Civil Aviation Polytechnic of Surabaya.

The instrument used a 4-point Likert scale (4 = Strongly Agree; 3 = Agree; 2 = Disagree; 1 = Strongly Disagree). The data were processed by calculating the total score of each item, which was then converted into a percentage index using the following formula:

$$Indeks\ (100\%) = \frac{Jumlah\ Skor}{Jumlah\ Skor\ Tertinggi} \times 100$$

With a maximum score of 4 and 100 respondents, the highest possible score per item is 400. The index of each item was then averaged at the indicator level to obtain the mean percentage for each indicator.

The index analysis results show that all indicators fall into the "Low" category (25–49.99%), with the highest average found in the Learning Time indicator (41.6%) and the lowest in the Improvement Desire indicator (33.6%).

The detailed results per indicator are as follows:

Table 1. Average Index of LMS Utilization

No	Indicator	Average (%)	Category
1	LMS Features	39,8	Low
2	E-Learning Materials	39,25	Low
3	SOP	39,25	Low
4	Platform Accessibility	38,5	Low
5	Content Completeness	36,6	Low
6	Communication Effectiveness	38,9	Low
7	Study Time Flexibility	41,6	Low
8	Motivation for Improvement	33,6	Low

The criteria for index interpretation are: 0–24.99% (Very Low), 25–49.99% (Low), 50–74.99% (High), and 75–100% (Very High). These results indicate that none of the indicators reached the "High" or "Very High" categories. The majority of respondents assessed that LMS utilization remains suboptimal, whether in terms of feature completeness, material interactivity, clarity of SOPs, accessibility, or communication effectiveness. Even in the Improvement Desire indicator, the low score indicates a lack of awareness and motivation to maximize LMS, which may be caused by limited positive experiences in its use.

These findings imply the need for technical improvements (e.g., strengthening servers and device compatibility), enhanced pedagogical

support (such as lecturer training and the development of user guidelines), as well as the improvement of as well as the enhancement of user engagement so that the LMS can truly serve as an effective medium for theoretical learning at the Aviation Polytechnic of Surabaya.

4.2 Documentation

The documentation method was employed to collect supporting data in the form of records, reports, statistical tables, images, and visual works that represent the implementation of the Learning Management System (LMS) at the Civil Aviation Polytechnic of Surabaya. Documentation serves as secondary data that strengthens the primary findings and provides a contextual overview of the online learning system used (Amelia & Yateno, 2021).

The LMS of the Civil Aviation Polytechnic of Surabaya, accessible via an online platform, functions as an e-learning medium with core features such as material uploads, self-paced courses, online examinations, and discussion forums. Documentation illustrates the variety of courses offered, ranging from Human Factor in Aviation, Risk Management, and Prevention of Sexual Violence, to technical courses such as ATC Checker, Radiotelephony, and Performance-Based Navigation. The platform also provides general courses such as Elementary English and Computer Programming, reflecting inclusive efforts in the provision of learning materials.

Figure 1. LMS Homepage

Although the LMS is designed to provide a variety of theoretical courses and technical training, progress data indicate that its utilization remains suboptimal. For example, in the documentation of the Air Traffic Controller (D3) Study Program, only the Aerodrome Control Procedure course was completed 100%, while ATC Automation showed 0% progress. The low completion rates suggest a lack of integration between the LMS and face-to-face learning, as well as limited active engagement of cadets in independently utilizing the available materials.

A comparison with the Open University (UT) LMS reinforces this finding. UT, which is based on Moodle, has implemented an LMS that is fully integrated with its academic system and is equipped with technical guidelines such as the Online Tutorial Account Activation Guide and the Scientific Work Guidelines.

Figure 2. UT LMS Homepage

The UT system provides quick access, user-friendly navigation, and structured educational support, enabling all students to optimally access and utilize the LMS. This demonstrates that the success of an LMS depends not only on the availability of content but also on technical support, intensive socialization, and full integration into the learning system.

### 4.1.1 Discussion of Survey Findings

The findings from 100 third-year cadets at the Civil Aviation Polytechnic of Surabaya indicate that the utilization of e-

learning applications for theoretical learning remains at a low level. The index scores of all items ranged from 33% to 44.75%, with the average score per indicator between 36.6% and 41.6%. Based on the Likert scale interpretation, these figures fall into the "Low" category, suggesting that most respondents were either doubtful or disagreed with statements regarding the effectiveness, completeness, and ease of use of the Learning Management System (LMS).

Figure 3. Index Percentage Diagram
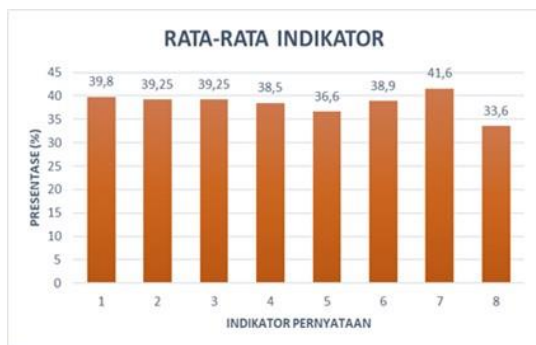
Figure 4. Average Indicator Diagram

Both diagrams illustrate the consistently low achievement across all tested indicators. The results confirm that the LMS has not yet become an optimal learning medium, either in terms of content provision or user engagement.

Low utilization of the LMS can be observed across several indicators. Interactive features such as quizzes and discussion forums were rarely used, while the available materials were incomplete, infrequently updated, and not considered the primary source of learning. The

absence of a Standard Operating Procedure (SOP) or official guidelines meant that most cadets lacked a comprehensive understanding of how to use the LMS, from initial access to feature utilization. On the technical side, device limitations and internet access constraints posed significant challenges, further compounded by campus policies restricting the use of personal devices in certain areas.

The available learning content was also considered insufficient, with only a limited number of courses providing online materials and very few assignments or exercises available. Communication between lecturers and cadets through the LMS was ineffective, as evidenced by the lack of feedback to questions or discussions. Moreover, the potential flexibility of study time—supposed to be one of the LMS's advantages—was not fully utilized, as most cadets preferred face-to-face learning. Enthusiasm for LMS development also appeared to be low, although there remained expectations that the platform could be optimized through training and technical guidance.

4.1.2 Discussion of Documentation Results

The documentation data obtained from screenshots of the Learning Management System (LMS) at the Civil Aviation Polytechnic of Surabaya show that the system has been structured and tailored to the areas of expertise of each study program. In the D3 Air Traffic Controller study program, for instance, courses are available such as a number of theoretical courses are available, such as Aerodrome Control Procedure, Aircraft Performance, ATC Automation, ATS Data Processing System, and Performance-Based Navigation. Each course is equipped with a learning progress indicator that can be monitored directly by both cadets and lecturers.

Nevertheless, observations revealed significant disparities in the completion rates of these courses. While some courses had been fully completed, others showed little to no progress. This finding indicates that LMS utilization among cadets remains uneven and has not yet been fully integrated into the learning process.

As a comparison, the Open University (UT) has implemented a Moodle-based LMS that is integrated with its academic system and requires active student participation. UT provides comprehensive technical guidelines, ranging from account activation to the submission of academic assignments, and facilitates user-friendly navigation access. This difference highlights that the success of LMS implementation depends not only on the availability of technology, but also on the presence of clear guidelines, the development of a digital culture, and continuous socialization efforts.

Thus, the challenges faced by the Civil Aviation Polytechnic of Surabaya are not only related to technical aspects or content availability, but also to the level of user awareness and engagement. The lack of official guidelines, limited learning materials, and low lecturer–cadet interaction through the LMS emerge as key obstacles that must be addressed in order for the platform to function optimally.

5. CONCLUSION

The results of the questionnaire and documentation analyses consistently indicate that the utilization of the Moodle-based LMS at the Civil Aviation Polytechnic of Surabaya remains at a low level. The average indicator scores were below 50%, suggesting that the system has not yet been effective in supporting theoretical learning.

To address this issue, several strategic steps are required. First, there should be an increase in socialization and training on LMS usage for both cadets and lecturers to improve their understanding of the platform's features and functions. Second, the development of Standard Operating Procedures (SOPs) is necessary to regulate mandatory material uploads, the provision of feedback, routine evaluations, and technical guidelines for LMS usage. Third, stronger integration between online and face-to-face learning is needed so that LMS materials can be directly incorporated into classroom activities.

The fourth step involves developing more interactive and varied learning content, including explanatory videos, interactive modules, practice exercises, and discussion forums. Finally, it is important to foster a digital academic culture within the campus environment, for example by providing recognition or incentives for lecturers and cadets who actively engage with the LMS.

These recommendations align with Regulation of the Minister of Education, Culture, Research, and Technology (Permendikbudristek) No. 53 of 2023 concerning the Internal Quality Assurance System (SPMI), which emphasizes the importance of student-centered learning, the use of information technology, and continuous evaluation (Peraturan Menteri Pendidikan, Kebudayaan, Riset, Dan Teknologi Indonesia 53 Tahun 2023 Penjaminan Mutu Pendidikan Tinggi, 2023). With the implementation of these measures, the LMS is expected not only to serve as a complementary tool but also to become a core component of the teaching and learning process at the Civil Aviation

Polytechnic of Surabaya, embedded within an effective, efficient, and sustainable learning strategy.

ACKNOWLEDGMENTS

This study reveals that the utilization of the Moodle-based Learning Management System (LMS) at the Civil Aviation Polytechnic of Surabaya in supporting theoretical learning remains at a relatively low level. The results of the questionnaire analysis conducted with third-year cadets show that the average index score for each indicator is below 50%, which, according to the Likert scale, falls into the "low" category. This finding indicates that key aspects such as features, completeness of materials, standard operating procedures (SOP), accessibility, communication, learning flexibility, and incentives for optimization have not yet been maximized.

Documentation data further supports these results by showing imbalances in course completion progress within the LMS, where only a small portion of courses were fully completed, while most recorded very low progress. The low level of cadet engagement in utilizing the LMS is also linked to limited socialization, insufficient technical guidance, and a lack of integration between online and face-to-face learning.
Based on these findings, it can be concluded that optimizing LMS use requires strategic measures, including enhanced socialization and training, the establishment of clear SOPs and user guidelines, strengthening the integration of blended learning, the development of more interactive learning content, and the cultivation of a digital academic culture. The implementation of these measures is expected not only to improve the technical utilization of the LMS but also to foster collective awareness of the importance of digital learning in supporting the quality of vocational education in the field of aviation.

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