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Exploring the Impact of Learning Management Systems on Learning Processes: Insights from Pre-Service PPG Students Responses

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Abstrak

Penggunaan LMS dalam proses pembelajaran mahasiswa PPG Prajabatan masih belum banyak diteliti. Penelitian ini bertujuan menganalisis dan memaparkan tanggapan mahasiswa Prajabatan PPG Universitas Muhammadiyah Makassar terhadap penggunaan Learning Management System (LMS) dalam proses pembelajaran. Penelitian ini dikategorisasi ke dalam jenis penelitian deskriptif kualitatif. Sebanyak 42 mahasiswa Pendidikan Profesi Guru Prajabatan (PPG) berpartisipasi dalam penelitian ini. Data dikumpulkan melalui angket dan wawancara tidak terstruktur, kemudian dianalisis melalui tahapan reduksi data, penyajian data, dan penarikan kesimpulan. Hasil penelitian ini menjukkan bahwa respon mahasiswa dari empat kategori utama, yaitu pengalaman menggunakan LMS, manfaat dan kelebihan LMS, tantangan yang dihadapi, dan pemahaman materi. Mayoritas mahasiswa menyatakan bahwa LMS memberikan kontribusi yang signifikan terhadap pemahaman materi pembelajaran, sebagian besar dari mereka menilai LMS sebagai alat yang "sangat membantu" atau "membantu" dalam proses pembelajaran. Penelitian ini juga menunjukkan bahwa tantangan utama yang dihadapi adalah terkait aksesibilitas terutama dari segi jaringan dan keterbatasan akses internet. Implikasi dari temuan ini meliputi perlunya perbaikan infrastruktur teknologi, peningkatan dukungan, dan pelatihan bagi mahasiswa dan dosen dalam penggunaan LMS. Selain itu, integrasi teknologi dalam kurikulum pendidikan tinggi juga menjadi aspek penting yang perlu diperhatikan.

Kata Kunci: *Learning managements systems (LMS), Mahasiswa ppg prajabatan, Respon mahasiswa, Proses pembelajaran.*

Abstract

The use of LMS in the learning process of PPG Pre-service students has not yet been widely researched. This research aims to analyze and explain the responses of Pre-Service PPG students at Muhammadiyah University of Makassar towards the use of the Learning Management System (LMS) in the learning process. This research is categorized into qualitative descriptive research. A total of 42 Pre-Service Teacher Professional Education (PPG) students participated in this research. Data was collected through questionnaires and unstructured interviews, then analyzed through the stages of data reduction, data presentation, and drawing conclusions. The results of this research show that student responses come from four categories, namely experience using LMS, benefits and advantages of LMS, challenges faced, and understanding of the material. The majority of students stated that the LMS made a significant contribution to understanding the learning material, most of them rated the LMS as a tool that was "very helpful" or "helpful" in the learning process. This research also shows that the main challenges faced are related to accessibility, especially in terms of networks and limited internet access. The implications of these findings include the need to improve technology infrastructure, increase support, and train students and lecturers in using the LMS. Apart from that, the integration of technology in the higher education curriculum is also an important aspect that needs to be considered.

Keywords: Learning Managements Systems (LMS), Pre-Service Ppg Students, Student Response, Learning Process.

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1. INTRODUCTION

Technological changes and developments, such as artificial intelligence, the Internet of Things (IoT), augmented reality, blockchain, and autonomous vehicles have changed the way we work, communicate, and live our daily lives (Ester Aflalo & Gabay, 2013; Herath &

Mittal, 2022; Kalenzi, 2022; Ross & Maynard, 2021; Sandner et al., 2020; Spöttl & Windelband, 2021). In the realm of education, for example, the use of technology has a quite significant impact. Technology has opened up wider accessibility to education, allowing individuals to learn flexibly without being limited by geographic or time constraints. Additionally, technology facilitates global collaboration, allowing students and educators to interact with individuals from different parts of the world, bringing diverse perspectives and supporting the creative exchange of ideas (Haleem et al., 2022). In addition, innovations in technology have enabled the development of more dynamic curricula and more interactive learning methods. The use of applications, online learning platforms, and other technology-based learning tools has changed the way learning is done in the classroom and outside the classroom (Guillén-Yparrea et al., 2023), and provides valuable opportunities to increase student engagement in the learning process (Haleem et al., 2022). Therefore, technological developments have not only changed the way we access and convey knowledge, but have also brought a number of benefits and opportunities to increase the effectiveness of learning at all levels of education, including in the tertiary environment.

It is widely recognized that the use of technology in the learning process in higher education plays an important role in improving the quality of education for students (Furqon et al., 2023; Herath & Mittal, 2022; Melek Koc, 2024; Prifti, 2022). With technology, access to learning materials becomes more flexible, no longer tied to time and space (Chaudhry et al., 2023; Sum & Oancea, 2022). Online learning platforms free students from the limitations of physical classes, allow them to study anywhere, and make students more enthusiastic about studying (Rachmawati et al., 2022). In addition, the use of technology allows educators to present various learning materials such as videos, animations and simulations thereby increasing students' interest and understanding of learning materials (Furqon et al., 2023). With the judicious application of technology, the learning process turns into a dynamic experience, turning the classroom into a smart learning environment (Firmin & Genesi, 2013). This learning environment enriches student experiences with more contextual, social, reflective and active learning (Firmin & Genesi, 2013). Therefore, the use of technology in the learning process has an important role for students in higher education.

Learning Management System (LMS) is a vital software platform in the context of higher education learning. LMS is an online solution that helps educational institutions in compiling, implementing and evaluating learning systems (Al-Mamary, 2022). This creates a virtual classroom that allows teachers and students to engage effectively in the learning process (Al-Mamary, 2022; Bradley, 2020). Teachers can easily manage learning materials, such as lecture materials, assignments, reading materials, and videos, by uploading and organizing these contents. On the other hand, for students, using an LMS makes it easy to access learning materials and interact with the platform from various locations and times, as long as there is an available internet connection. Features such as discussion forums, live chat, and other collaboration tools provided by an LMS enable effective interaction between teachers and students, supporting productive communication and collaboration in the learning process (E. Aflalo, 2012; Annamalai et al., 2021). Thus, LMS becomes an invaluable tool in supporting online learning by providing efficient teaching, interaction and assessment tools. The integration of Learning Management Systems (LMS) into the learning process is widely recognized for its positive influence on student academic performance. Recent studies have underscored this impact, with research by Furqon revealing the constructive effects of LMS utilization on students' academic achievements and fostering a favorable perception of its application in educational settings (Furqon et al., 2023). Central to achieving success in online education is the adept navigation of obstacles and the optimization of LMS features. Empirical findings emphasize the pivotal role of self-

confidence (self-efficacy) in enhancing e-learning implementation, particularly when complemented by instructor support to surmount challenges (Al-Mamary, 2022; B et al., 2023; Bradley, 2020; Melek Koc, 2024; Udin et al., 2022). Thus, this empirical evidence not only affirms the role of LMS in bolstering accessibility and flexibility in learning but also underscores its significance in enhancing student academic performance. However, despite the growing attention on LMS usage and student responses in educational research, there remains a dearth of literature concerning Pre-Service Teacher Professional Education Program (PPG) students. Addressing this gap is imperative as it provides valuable insights into the impact of LMS technology on their learning experiences. This research aims to delve into various aspects of PPG Pre-Service students' responses to LMS, including perceived benefits, encountered challenges, and comprehension of materials facilitated through its usage. By filling this void in the literature, this study has the potential to offer significant contributions to the advancement and implementation of LMSs in educational contexts.

2. METHODS

This research can be categorized as qualitative descriptive research. This type of research was chosen with the aim of presenting an in-depth and comprehensive picture of students' experiences and perspectives regarding the use of LMS in their learning context. In total there were 42 Pre-Service Professional Teacher Education (PPG) students currently studying at Muhammadiyah University of Makassar who were involved as respondents in this research. These respondents have different educational backgrounds, including primary school teacher education study programs, mathematics education, PPKN, and Indonesian language and literature education. The age range of respondents ranged from 24 to 29 years.

Data collection in this study was conducted through two primary instruments: questionnaires and unstructured interviews. The questionnaires aimed to obtain student responses regarding the use of Learning Management Systems (LMS) in the learning process, while the unstructured interviews were used to confirm findings from the student responses collected through the questionnaires. The questionnaires were designed with four main indicators: experience using LMS, benefits and advantages of LMS, challenges faced, and understanding of the material. The first indicator, experience using LMS, consisted of three questions covering: (a) the duration of LMS usage in the learning process, (b) the frequency of LMS access for learning purposes, and (c) student assessments of the accessibility of course materials via LMS. The second indicator, benefits and advantages of LMS, included two questions: (a) the main benefits perceived from using LMS in the learning process, and (b) the LMS features most frequently used in the learning process.

The third indicator, challenges faced, was represented by one question regarding the biggest challenges students encounter when using LMS as part of the learning process. Finally, the fourth indicator, understanding of the material, consisted of three questions: (a) whether using LMS has helped students better understand the lecture material, (b) how students rate the effectiveness of feedback received from instructors via LMS regarding assignments and exams, and (c) the effectiveness of the LMS progress monitoring feature in tracking their understanding of course materials. The questionnaire was validated by two language experts and two research content experts to ensure the accuracy and relevance of the questions. Once validated, the questionnaire was distributed via the Google Forms platform to facilitate access for students. The collected data was then analyzed through three stages: data reduction, data presentation, and conclusion drawing (Miles et al., 2014). The data reduction stage involved the selection, focusing, and simplification of raw data. Data presentation was conducted in a format that allowed for easier conclusion drawing, such as tables or graphs.

Conclusions were drawn based on patterns and themes that emerged from the presented data. This approach enables researchers to gain a deep understanding of the use of LMS in the student learning process.

3. RESULTS AND DISCUSSION

Result

The results of this research present the responses of Pre-Service PPG students at Muhammadiyah University of Makassar to the use of the Learning Management System (LMS) in the learning process. The student responses were classified into four main categories: experience of using the LMS, benefits and advantages of the LMS, challenges faced, and understanding of the material. Each of these categories is described further as follows. Student responses regarding their experience in using LMS in the learning process in this research have been classified into three main question formulations: first, how long have they used LMS as part of the learning process?; second, how often do they access the LMS for learning purposes?; and third, how do they assess the accessibility of course materials via the LMS? Below, data from student responses to these three questions is presented, which provides a comprehensive picture of their experiences and perceptions of the use of LMS in the learning context.

Based on data analysis showed that students who have only used LMS for less than 6 months have a striking percentage, namely 85.7%, which is much higher than other categories. In comparison, LMS users for 6 months to 1 year only reached 7.1%, while for periods of 1 to 2 years and more than 2 years it was 0.0% and 7.1% respectively. These results illustrate that the use of LMS in the learning process is still relatively new for PPG Pre-service students. This finding is supported by the results of interviews with PPG Pre-service students, where when asked whether they had used LMS in previous studies, only 6 of the 42 students who participated reported that they had used LMS before, while the rest had only used LMS when studying at PPG Pre-service. Student responses regarding how often they access the LMS for learning purposes showed in Figure 1.

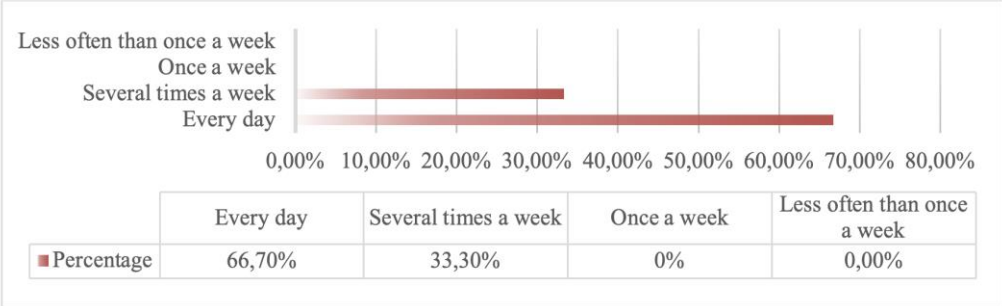


Figure 1. Student Responses Regarding How Often They Access the LMS for Learning Purposes

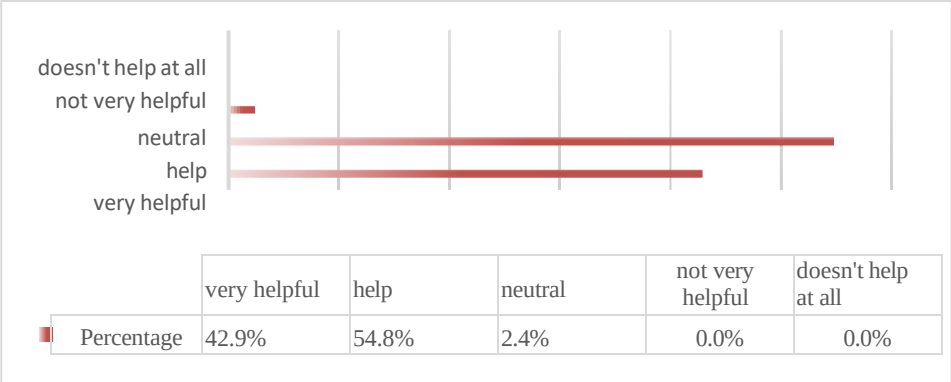
The findings illustrated in Figure 2 provide an in-depth understanding of the intensity of use of Learning Management Systems (LMS) by students for learning purposes. Data shows that the majority of students use LMS intensively, with 66.7% of them accessing it every day. This is in line with theories about the use of technology in learning, which emphasize the importance of easy and frequent access to learning resources to increase learning effectiveness. Previous research also supports these findings. The results of the data analysis provide provides an overview of student responses to the accessibility of course

material via LMS in the learning process. From the data that can be seen, the "very easy to access" category has a high percentage, reaching 57.7%, followed by the "easy to access" category with a percentage of 40.5%. Meanwhile, other categories showed lower percentages, with the "neutral" category at 2.4%, and the "difficult to access" and "very difficult to access" categories each having a percentage of 0%. This shows that the majority of students feel that the accessibility of course material via the LMS is quite good, even very easy to access for most of them. Student responses regarding the benefits and advantages of using a Learning Management System (LMS) in the learning process in this research were collected through two main question formulations: first, "What are the main benefits you feel from using LMS in the learning process?" and second, "What LMS features do you use most often in the learning process?" Below, data from student responses to these two questions is presented, which provides a comprehensive picture of their perceptions of the benefits and main features of LMS in the learning context. An overview of the results of student responses regarding the main benefits they feel from using the Learning Management System (LMS) in the learning process. Of the four categories provided, it can be seen that the category "ease of accessing learning materials" has a high percentage, namely 76.2%. This category is followed by two other categories, namely "the ability to learn independently and flexibly" with a percentage of 64.3%, and "availability of diverse learning resources" with a percentage of 38.1%. Meanwhile, the percentage for the "interaction with teachers and fellow participants" category was 26.2%, while the "other" category had a percentage of 4.8%. These results illustrate that students see ease of accessing learning materials as the main benefit of using an LMS, followed by the ability to learn independently and flexibly. Meanwhile, the aspect of the availability of diverse learning resources is also considered important by some students.

The results showed the use of Learning Management System (LMS) features by PPG Pre-service students reflect general trends in the use of technology in learning contexts. The dominance of the "Upload learning material" feature with a high percentage highlights the importance of easy access to learning material. In this research, student responses regarding the challenges faced in using the Learning Management System (LMS) in the learning process were collected through the following, "What is the biggest challenge you experienced in using the LMS as part of the learning process?".

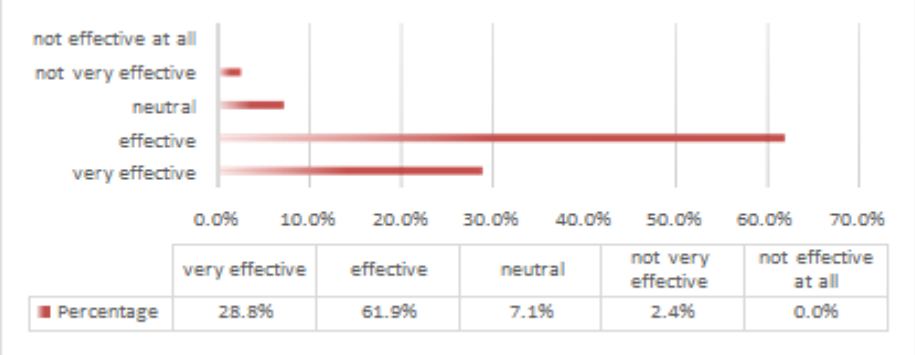
The “technical or accessibility issues” category ranked highest at 64.3%, followed by two other categories: “lack of interaction and collaboration” at 21.4% and “difficulty navigating the user interface” at 21.4%. Meanwhile, the category "mismatch between LMS features and learning needs" has a percentage of 2.4%, as well as other categories such as "network constraints" and "no constraints", both of which also have a percentage of 2.4%. From this data, it can be concluded that technical and accessibility problems are the main challenges faced by students in using LMS, followed by lack of interaction and collaboration, and difficulty navigating the user interface. Student responses to understanding the material in using the Learning Management System (LMS) in the learning process are divided into three question formulations. First, students were asked to respond to questions about the extent to which they felt that using the LMS had helped them understand the course material better. Second, they were asked to assess the effectiveness of feedback provided by teachers via the LMS regarding assignments and exams. Finally, they were asked to evaluate how effective the learning progress monitoring feature in the LMS was for tracking their progress in understanding the course material. Below are presented the results of student responses to these three questions. Student responses regarding whether they feel that using the LMS has helpd them understand the lecture material better showed in Figure 2. Figure 2 above shows that the majority of students feel that the use of the Learning Management System (LMS) has made a significant contribution to understanding the learning material. From the data

presented, it can be seen that the "helpful" category dominates with the highest percentage, namely 54.8%, followed by the "very helpful" category at 42.9%. Meanwhile, the percentage for the "neutral" category only reached 2.4%, while the "not very helpful" and "not helpful at all" categories each had a percentage of 0%. Student responses generally tend to be positive towards the use of LMS in the learning process, with the majority of them feeling that LMS has made a significant contribution in helping them understand the learning material showed in Figure 3.



	very helpful	help	neutral	not very helpful	doesn't help at all
Percentage	42.9%	54.8%	2.4%	0.0%	0.0%

Figure 2. Student Responses Regarding Whether They Feel that Using the LMS has Help Them Understand the Lecture Material Better



	very effective	effective	neutral	not very effective	not effective at all
Percentage	28.8%	61.9%	7.1%	2.4%	0.0%

Figure 3. Student Responses Regarding How They Rate the Effectiveness of Feedback Received from Instructors Via the LMS Regarding Assignments and Exams

The image presented depicts students' responses to assessing the effectiveness of the feedback they receive from teachers through the Learning Management System (LMS), especially related to assignments and exams. From the data listed, it can be seen that the "effective" category dominates with the highest percentage, namely 61.9%, followed by the "very effective" category at 26.6%. The percentage for the “neutral” category was 7.1%, while “not very effective” and “not effective at all” had percentages of 2.4% and 0%, respectively. How effective they think the learning progress monitoring feature in the LMS is for tracking their progress in understanding course material showed in Figure 3. The image above depicts student responses regarding how effective they think the learning progress monitoring feature in the Learning Management System (LMS) is for tracking their progress in understanding course material, which is classified into five categories. From this data, it can be seen that the "effective" category dominates with the highest percentage, namely 64.3%, compared to the other categories: "very effective" at 23.8%, "neutral" at 9.5%, "not very effective" amounted to 2.4%, and was not effective at all 0%. This analysis shows that the majority of students

consider the learning progress monitoring feature in the LMS to be effective in helping them track their learning progress.

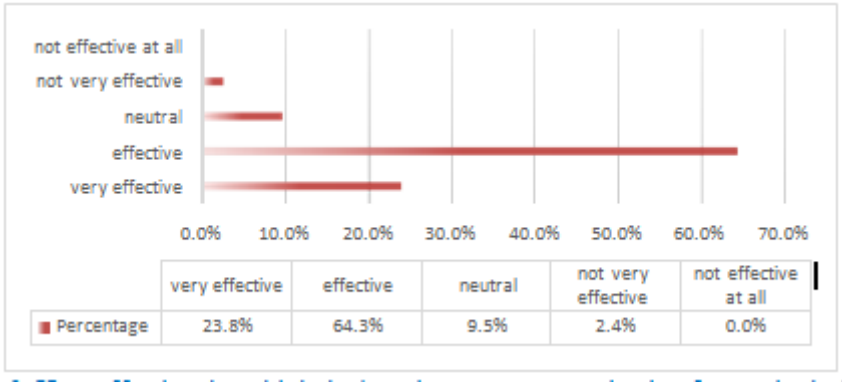


Figure 4. How Effective They Think the Learning Progress Monitoring Feature in the LMS is for Tracking Their Progress in Understanding Course Material

Discussions

The results of this research indicate that the use of Learning Management Systems (LMS) as part of the student learning process in higher education is still relatively new. Therefore, it is crucial to integrate the use of technology as an essential component of the academic curriculum in higher education. By enhancing the integration of technology in the learning process, students will become more adept and skilled in utilizing technology as a learning tool, allowing them to adapt naturally to ongoing technological advancements. This aligns with research, show that students accustomed to using an LMS tend to have better technology skills and are better prepared to meet the demands of a technology-driven job market (Alturki & Aldraiweesh, 2016; Rizal et al., 2020). Consequently, strengthening the integration of technology in higher education curricula not only prepares students for a future driven by technology but also improves the overall quality of teaching and learning.

The daily use of LMS by students also reflects a shift in traditional learning paradigms. With the ability to independently and flexibly access learning materials, assignments, and other resources, students can manage their own learning time and take initiative in the learning process. This supports the concept of flexible, self-directed learning in higher education, where students are seen as active agents responsible for their academic development (Chaubey & Bhattacharya, 2015; Chaudhry et al., 2023). However, it is important to note that intensive use of an LMS can pose challenges, especially if it is not balanced with good time management and awareness of personal needs. Excessive screen time can lead to fatigue and stress. Thus, while high-intensity LMS access increases learning accessibility and flexibility, educational institutions must provide adequate resources and support to help students manage their time and well-being effectively. This highlights the importance of LMS as a primary tool in providing students with access to necessary learning materials. These results align with previous research emphasizing the role of LMS in enhancing accessibility and flexibility in the learning process (Chaubey & Bhattacharya, 2015; Rajabalee et al., 2020; Santiago Jr et al., 2021; Williams & Whiting, 2016). Easy access enables students to more effectively engage with, study, and respond to learning materials according to their needs, thus supporting the achievement of their academic goals more efficiently. Therefore, it is vital to continue integrating and optimizing LMS usage in higher education to foster a better and more productive learning experience. The results of this research confirm the findings of previous studies that broadly reveal the benefits of using LMS in an educational context. LMS usage can increase accessibility to

learning materials, facilitate student-lecturer interactions, and enhance student engagement in the learning process (Furqon et al., 2023; Rizal et al., 2020). LMS usage can expedite communication between lecturers and students, allowing for quicker and more relevant feedback in distance learning (Chaubey & Bhattacharya, 2015; Santiago Jr et al., 2021). Similar findings were reported by Santiago, who found that LMS usage can improve administrative efficiency in course management and student performance evaluation (Santiago Jr et al., 2021). Thus, prior research provides an in-depth understanding of how LMS usage can yield significant benefits in modern educational settings The dominance of the "Upload learning material" feature with a high percentage underscores the importance of easy access to learning materials. This finding aligns with the theory that emphasizes the need for accessible learning resources to support an effective learning process (Alturki & Aldraiweesh, 2016). Additionally, the significant focus on the "Online assignments" feature indicates that students actively participate in online learning activities. Previous research has shown that online assignments in LMS can boost student engagement and academic performance (Furqon et al., 2023). However, the relatively low usage of the "discussion forum" and "quiz" features highlights differences in interaction preferences and types of learning activities on LMS platforms. This indicates the need for varied online learning designs to meet the diverse needs and preferences of students (Bradley, 2020; Udin et al., 2022). Thus, these findings offer valuable insights into student LMS usage

and its implications for designing effective and inclusive learning experiences.

The findings of this research indicate that the primary challenge faced by PPG Pre-service students in using LMS is accessibility. This is consistent with previous research confirming that technological and internet access challenges remain relevant issues in implementing e-learning (Singh et al., 2024). Students often encounter difficulties accessing LMS due to network issues or limited internet access (Barrot et al., 2021). This can impact their ability to effectively engage in the online learning process and utilize all the platform's features. Therefore, improving technological infrastructure and providing stable internet access are key to enhancing accessibility and ensuring students can effectively use LMS to improve their learning. The results of this study align with several previous studies. LMS usage positively impacts student satisfaction with their learning process (Prifti, 2022). Similarly, the findings presented in this study are consistent with other research highlighting LMS's significant contribution to improving students' understanding of learning materials (Chaubey & Bhattacharya, 2015). Overall, this research strengthens the understanding of LMS's vital role in enhancing the quality of teaching and learning in higher education environments. The results of this analysis correspond with the findings of several previous studies highlighting the crucial role of feedback in the learning process through LMS platforms. For instance, Udin et al., (2022) found that feedback provided directly through LMS enhanced students' understanding of learning materials. Additionally, Furqon et al., (2023) showed that regular feedback via LMS helps students improve their academic performance. Thus, using LMS as a tool for providing feedback has proven effective and widely accepted in learning contexts. This research supports previous findings, confirming the essential role of feedback in enhancing student learning experiences through LMS usage.

This study reveals that most students find the learning progress monitoring feature in LMS effective for tracking their learning progress. These results can be analyzed in the context of psychological theories of learning and previous research on technology use in education. One relevant theory is motivation theory, which states that providing clear control and feedback can increase students' intrinsic motivation. Ryan & Deci, (2000)supported this theory by emphasizing the importance of meeting basic individual needs, such as autonomy, competence, and relatedness, to boost motivation and engagement in learning. In the context

of LMS learning progress monitoring, this feature gives students control over their progress and provides immediate feedback on their learning efforts. Previous research also shows that technology use, including LMS features, can improve student engagement and learning outcomes. This study suggests three key implications for higher education: (a) Strengthening Technology Integration: Universities should continue to integrate and utilize LMS to improve material comprehension and the overall learning experience, (b) Improving Technological Infrastructure: Addressing network and internet accessibility issues is essential to ensure students can fully benefit from LMS, and (c) Providing Support and Training: Adequate support and training for both students and teaching staff in using LMS will help maximize its benefits and overcome technical challenges. These steps will foster a more innovative, inclusive, and effective learning environment, ultimately enhancing the quality of education and student learning experiences

4. CONCLUSION

The conclusion from the findings of this research is that Pre-Service PPG students at Muhammadiyah University of Makassar exhibit a positive response to using the Learning Management System (LMS) in their learning process. Students found LMS significantly helpful in understanding the learning material and enhancing their learning experience. However, accessibility issues, particularly related to network and internet access, remain a primary challenge.

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