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The Influence of the Use of Learning Management Systems and On-the-Job Training on Improving Teachers' Professional Competence in In-Depth Learning

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Abstract

The learning approach in the world of education has an important role in efforts to realize students who have skills that can meet the challenges of 21st century education. This study aims to determine the effect of the use of Learning Management System (LMS) and On the Job Training (OJT) on the professional competence of teachers in Bulukumba Regency, both partially and simultaneously. This study uses a quantitative approach with a survey method. The research data was obtained through the distribution of questionnaires to 18 respondents who were teachers in Bulukumba Regency. The data analysis technique used is multiple linear regression analysis which includes partial tests (t-test), simultaneous tests (F tests), and determination coefficients with the help of statistical data processing programs. The results showed that partially the use of LMS had a significant effect on teachers' professional competence, while the OJT variable also had a significant effect on teachers' professional competence. Simultaneously, the use of LMS and the implementation of OJT have a significant effect on teachers' professional competence. The Adjusted R Square value of 0.365 indicates that 36.5% of the variation in teachers' professional competence can be explained by these two variables, while the rest is influenced by other factors outside the research model. Thus, the use of the LMS and the implementation of OJT have a positive and significant influence on improving the professional competence of teachers in Bulukumba Regency.

Keywords Deep Learning, Learning Management System (LMS), On the Job Training (OJT), Teacher Professional Competence.

INTRODUCTION

The learning approach in the world of education has an important role in efforts to realize students who have skills that can meet the challenges of 21st century education. Now, these efforts are designed through an in-depth learning approach with the principles of

mindful, meaningful, and *joyful* learning by providing opportunities for students to understand, apply various contexts and reflect on what they learn (Suyanto et all, 2025). This principle has become a topic that has emerged in education in Indonesia after a statement delivered by the Minister of Basic Education of the Republic of Indonesia (Suyanto et all, 2025).

Deep learning initiates the existence of learning principles that foster student awareness, educator meaning, and the ideal of a learning environment that is able to provide motivation or positive encouragement for students (Suyanto et al, 2025). Quoting from the Norwegian Directorate for Education and Training, Deep Learning in the entire educational structure is a strategy to obtain information on how to act on changes around the world, on how to process data, about new technologies, and on how to interpret this information in a complex world (Suyanto et al, 2025).

Deep learning emphasizes 6 global competencies, namely; character, citizenship, collaboration, communication, creativity, and critical thinking. These competencies include empathy, social-emotional learning, compassion, entrepreneurship as well as related skills necessary to function well in a complex world (Fullan et al, 2018). The development of the 6 competencies emphasized in deep learning above is not only able to form individuals who are academically intelligent, socially caring, sensitive to emotional awareness, and adaptive to global needs (Maulana, 2025).

Based on interviews with teachers in Bulukumba Regency related to deep learning, around 90% of them think that deep learning is a new curriculum that will be implemented in 2025. In fact, deep learning is actually an approach that aims to provide a more meaningful learning experience for students. The results of this interview were then combined with data from the initial test (pre-test) given to 18 teachers at the elementary and junior high school levels, who were the subjects of this study. From the initial test conducted in October 2025, it was found that teachers' understanding of deep learning is still limited. A total of 8 people got a score below 70, 8 other people got a score below 80, and 2 people got a score below 90.

One approach that can be used to improve teachers' professional competence in understanding deep learning is the use of a *Learning Management System* (LMS). LMS offers a wide range of tools that can expand access to learning, allowing teachers to access training materials flexibly. Iriani et al (2025) show that the use of LMS can improve teachers' pedagogic competence, although the biggest challenge is the lack of teachers' skills in managing and optimizing these platforms for teaching purposes. On the other hand, *On-the-Job Training* (OJT), which is based on hands-on experience in the field, has also been proven to be effective in improving teachers' practical skills (Yulaekah, 2025). However, OJT is often limited to theoretical aspects that are applied directly in the classroom and lacks integration of technology-based learning (Yulaekah, 2025).

Many teachers face obstacles in accessing quality training, especially in remote areas. LMS is able to bridge this gap by providing a platform that allows them to access training materials online (Syihabuddin, 2017). With an LMS, teachers can take advantage of a variety of learning resources, including videos, *e-books*, and discussion forums, without having to

physically attend training. This makes the professional development process more accessible and affordable for all teachers. In addition, LMS also helps in the management of educational resources. Through this platform, teachers can access relevant training materials and share experiences with their peers (Chew et al., 2020).

Based on the background of the problems described above, this study aims to analyze the effect of the use of Learning Management Systems (LMS) and On-the-Job Training (OJT) on improving teachers' professional competence in implementing deep learning in Bulukumba Regency, both partially and simultaneously. In addition, this study also aims to identify the contribution of LMS and OJT in supporting teachers' abilities to design, implement, and evaluate technology-based and student-centered learning processes in accordance with the demands of 21st century education. The results of this study are expected to provide theoretical and practical benefits. Theoretically, this study can enrich the literature related to teacher professional competence development through the integration of digital learning technology and practice-based training. Practically, the findings of this study are expected to become references for schools, educational institutions, and policymakers in designing effective teacher professional development programs through the optimization of Learning Management Systems and sustainable On-the-Job Training programs to support the implementation of deep learning in schools.

METHODS

This study used a quantitative approach with a survey method to examine the influence of the use of Learning Management Systems (LMS) and On-the-Job Training (OJT) on improving teachers' professional competence in deep learning. The quantitative approach was chosen because this study aimed to measure the relationship and influence between variables objectively through statistical analysis. The survey method was considered appropriate because it allows researchers to obtain data directly from respondents regarding their perceptions, experiences, and understanding related to the implementation of LMS and OJT in the learning process. The study was conducted in Bulukumba Regency involving teachers at the elementary and junior high school levels as research subjects.

The population in this study consisted of teachers in Bulukumba Regency who had participated in activities related to deep learning implementation. The sampling technique used was purposive sampling, where respondents were selected based on specific criteria, namely teachers who had experience using Learning Management Systems and participating in On-the-Job Training activities. A total of 18 teachers were involved as respondents in this study. Data collection was carried out through questionnaires distributed directly to respondents. The questionnaire used a Likert scale consisting of several indicators related to LMS usage, OJT implementation, and teachers' professional competence. Before being distributed, the instrument was tested to ensure the validity and reliability of the questionnaire items so that the collected data could accurately reflect the variables studied.

The data analysis technique used in this study was multiple linear regression analysis with the assistance of statistical data processing software. Multiple linear regression analysis was employed to determine the partial and simultaneous effects of the independent variables, namely LMS usage and OJT, on the dependent variable, teachers' professional competence. Several statistical tests were conducted, including validity and reliability tests, classical assumption tests, partial tests (t-test), simultaneous tests (F-test), and coefficient of determination tests (Adjusted R Square). The t-test was used to determine the effect of each independent variable individually, while the F-test was used to determine the simultaneous effect of LMS and OJT on teachers' professional competence. Meanwhile, the coefficient of determination test was used to measure the extent to which the independent variables contributed to explaining variations in teachers' professional competence in implementing deep learning.

FINDINGS AND DISCUSSION

The Effect of the Use of Learning Management System (LMS) on Improving Teachers' Professional Competence in Deep Learning

Based on the results of the partial test (t-test) it was shown that the variable Using the Learning Management System (LMS) had a t_hitungsebesar value of 9.888 with a significance value of 0.000, which means it was smaller than the significance level of 0.05. This shows that the use of the Learning Management System has a significant effect on the professional competence of teachers in implementing deep learning in Bulukumba Regency.

The results of this study are in line with research conducted by Iriani et al (2025) which found that the use of the Learning Management System in the learning process is able to improve teacher competence, especially in the management of digital materials and technology-based learning evaluation. In addition, research by Hayati et al (2025) also shows that the optimal use of LMS can improve the quality of teacher learning in designing more innovative and interactive learning.

The Learning Management System provides convenience for teachers to manage learning materials, assign assignments, conduct evaluations, and access various learning resources digitally. Thus, the use of LMS can be one of the important strategies in improving the professional competence of teachers in dealing with technological developments in the field of education. In addition, the use of the Learning Management System (LMS) also encourages teachers to be more adaptive to the development of educational technology and digital transformation in the learning process. Through LMS, teachers not only play the role of delivering material, but also as facilitators who are able to design a more structured, collaborative, and student-centered learning experience. The integration of various features such as discussion forums, online quizzes, collection of digital assignments, and analysis of learning outcomes allows teachers to monitor student progress more systematically and efficiently. Therefore, the more optimal the use of LMS by teachers, the greater the opportunity

to improve teachers' professional competence, especially in designing, implementing, and evaluating technology-based learning in accordance with the demands of 21st century education.

The Effect of On the Job Training (OJT) on Improving Teachers' Professional Competencies in Deep Learning

Based on the results of the partial test (t-test), it was obtained that the On the Job Training (OJT) variable had a t_hitung value of 6.869 with a significance value of 0.000, which means it was smaller than the significance level of 0.05. Thus, it can be concluded that On the Job Training (OJT) has a significant effect on the professional competence of teachers in Bulukumba Regency.

The results of this study are in line with research conducted by Yulaekah (2023) who stated that On the Job Training and Off the Job Training training improves teachers' professional and pedagogic competence because the training process is carried out directly in the work environment. Another study by Siti Raudoh and Fitri Anisa Kusumastuti (2025) also shows that work-practice-based training can improve teachers' professional abilities in managing learning and improving teaching skills.

OJT training provides an opportunity for teachers to gain hands-on learning experience through work practices and guidance from more experienced parties. Thus, this training activity can help teachers in improving their teaching skills and professional competence in an ongoing manner. In addition, the implementation of On the Job Training (OJT) also provides opportunities for teachers to develop professional abilities through a practical and contextual learning process. Through OJT activities, teachers can directly observe, practice, and evaluate effective learning strategies in a real work environment. Interaction with peers and supervisors during the training process also allows for the exchange of knowledge and experience that can enrich teachers' professional insights. Therefore, the more often teachers participate in structured and sustainable OJT activities, the greater their contribution will be in improving teachers' professional competence, especially in developing learning methods that are more effective, innovative, and in accordance with the needs of students.

The Effect of the Combination of LMS and OJT on Teachers' Professional Competence in Deep Learning

Based on the results of the simultaneous test (F test), a F_hitung value of 154.698 was obtained with a significance value of 0.000, which means it is smaller than the significance level of 0.05. This shows that the use of the Learning Management System (LMS) and On the Job Training (OJT) together has a significant effect on the professional competence of teachers in deep learning in Bulukumba Regency. The results of this study are in line with research conducted by Zona Tanjung et al (2025) which found that the combination of the use of digital

learning technology and practice-based training can significantly improve teacher competence.

The results of the determination coefficient showed an Adjusted R Square value of 0.365, which means that 36.5% of the variation in teachers' professional competencies could be explained by the use of LMS and the implementation of OJT, while 63.5% were influenced by other factors outside the research model. This shows that the improvement of teachers' professional competence is not only influenced by learning technology and job training, but also by other factors such as teaching experience, work motivation, and educational institution support. In addition, the results of this study show that the use of Learning Management System (LMS) combined with On the Job Training (OJT) training can be an effective strategy in comprehensively improving teachers' professional competence. LMS plays a role in supporting technology-based learning processes and digital material management, while OJT provides hands-on experience that helps teachers develop teaching skills in a real-world work environment. The combination of the use of learning technology and practice-based training is able to strengthen teachers' ability to design, implement, and evaluate the learning process more innovatively and effectively. Therefore, the synergy between the use of LMS and the implementation of OJT needs to be improved as an effort to support the improvement of the quality of teachers' professional competencies in the digital era.

CONCLUSION

The use of the Learning Management System (LMS) has a significant effect on improving the professional competence of teachers in Bulukumba Regency. This is evidenced by the results of the partial test (t-test) which showed a t_hitung value of 9.888 with a significance value of 0.000 which is smaller than the significance level of 0.05. These results show that the more optimal the use of LMS in the learning process, the more professional competence of teachers in managing technology-based learning will also increase.

On the Job Training (OJT) has a significant effect on improving the professional competence of teachers in Bulukumba Regency. This is shown by the i t_hitung value of 6.869 with a significance value of 0.000 which is smaller than 0.05. Thus, the implementation of work practice-based training is directly able to improve teachers' teaching skills and professional abilities in carrying out the learning process.

The simultaneous use of the Learning Management System (LMS) and On the Job Training (OJT) has a significant effect on the professional competence of teachers in Bulukumba Regency. This is evidenced by the results of the simultaneous test (F test) which showed a value of i F_hitung of 154.698 with a significance value of 0.000 which is smaller than 0.05. In addition, the Adjusted R Square value of 0.365 showed that 36.5% of the variation in teachers' professional competence could be explained by the use of LMS and the implementation of OJT, while the rest were influenced by other factors outside the research model.

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