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Enhancing Teacher Competence in Learning Design through LMS-Based CMC Training Model with MKPS Flow: A School Supervisor-Led Approach

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ABSTRACT

Teacher competence is a critical factor in educational success, yet traditional training methods often lack interactive and contextual relevance. This study aimed to improve teacher competence by developing a novel training model facilitated by school supervisors. Employing a research and development (R&D) methodology, the study involved 15 teachers: 3 for small-group trials and 12 for large-group trials. Data were collected through interviews, observations, questionnaires, and Focus Group Discussions (FGDs). The research procedure included an analysis of current training practices, literature review on LMS-based Coaching, Mentoring, and Consulting (CMC) training using the MKPS flow, design and validation of the training model, iterative trials, and final model development. The study demonstrated that the LMS-based CMC training model effectively enhanced teacher competence. The model emphasized interactive mentoring by school supervisors and collaborative learning among teachers. It differed from conventional one-way training by fostering active engagement, contextual relevance, and problem-solving skills. The training addressed real-world challenges, enabling teachers to integrate learned skills into classroom practices. The CMC model promotes teacher reflection, independence, and continuous professional development. Unlike traditional methods, it encourages dynamic interaction and skill application in authentic teaching contexts, ensuring sustainability and relevance of the competencies developed. The LMS-based CMC training model provides a comprehensive and innovative approach to teacher development, supporting ongoing skill-building and collaboration, which are essential for long-term educational improvement.

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1. INTRODUCTION

Teachers are one of the important components in ensuring the quality of education. To obtain quality education, teachers are required to have certain adequate requirements. Teachers are required to have academic qualifications, competencies, teacher certificates, be physically and mentally healthy, and have the ability to realize national education goals. Competence is a set of knowledge, skills, and behaviors that must be possessed, internalized, and mastered by teachers or lecturers in carrying out professional duties (Dewan Perwakilan Rakyat Indonesia, 2005). The teacher competency model is a description of the knowledge, skills, and behavior of the teacher's technical competencies needed in carrying out professional duties. These competencies include pedagogical competence, personality competence, social competence, and professional competence. Professional competence is the ability to master subject matter broadly and deeply (Peraturan Direktur Jenderal Guru dan Tegana Kependidikan KeMenDikBud Riset dan Tekhnologi Nomor 2626/B/HK.04.01/2023, 2023).

Professional competence is the ability to master subject matter broadly and deeply. The ability to master the material is to set learning objectives and organize learning knowledge content that is centered on students *(Peraturan Direktur Jenderal Guru dan Tenaga Kependidikan KeMenDikBud Riset dan Tekhnologi Nomor* 2626/B/HK.04.01/2023, 2023). In helping teachers improve their professional competence, School Supervisors assist teachers through training methods. In the Regulation of the Director General of GTK No. 4831 of 2023 concerning the Role of School Supervisors in the Implementation of the Independent Learning Policy in Educational Units, training aims to teach a strategy or technique to someone that is relevant to the job. The scope of training is in the Learning Community, Practice of implementing training results, training tends to be more standard referring to the curriculum or training objectives. Training is needed by members of the learning community who will handle new positions or jobs or will learn a new strategy or technique, and it would be more appropriate if the number of people is large and time is limited, and by providing examples that can be learned and adopted (Kementerian Pendidikan, 2023).

Based on initial studies, it was found that teacher training carried out by school supervisors was carried out when invited to be IHT resource persons at schools or conducting training for teachers at fostered schools with activities carried out for one or two days with training materials consisting of several themes. Likewise, independent teacher training with full online mode found in several applications developed by the Ministry of Education and Culture still needs assistance. The training usually carried out by school supervisors is one-way, where the training material is delivered by the school supervisor to the teacher as a training participant. Teachers listen to the presentation from the school supervisor as a training resource person, ending with a question and answer process if there are things that the training participants want to ask. The training that usually takes place does not have comprehensively trained teacher competencies, especially professional competencies in terms of collaborating, discussing, and sharing with colleagues at school or in the training room. This is in line with what was found by research on teacher development that is oriented towards improving teacher professionalism in general is not optimal, this happens because the professional development activities carried out so far have been found to be ineffective and are considered irrelevant to teacher needs (Heti Aisah, Qiqi Yulianti Zaqiah, 2021). So, it is necessary to develop a training model carried out by school supervisors to improve teachers' professional competence and develop teachers' abilities in terms of working together, collaborating, and sharing with their colleagues.

The development of training models implemented by school supervisors is considered important to optimize, considering that teacher training is the main task and function of school supervisors. The chosen training is blended training, which is a mixture of face-to-face and online modes that utilizes digital technology to package both modes. This is because this training mode is considered effective and more flexible and does not interfere too much with teacher activities in carrying out teaching and learning activities at school. Online teaching and learning activities provide flexibility and collaborative learning opportunities for students for a better learning experience and better results. The combination of learning modalities related to face-to-face interaction and online learning constitutes blended learning. This is in line with Daryanto's opinion (2022), that blended learning is a method that uses two approaches at once.

In other words, this method uses an online system as well as face-to-face. So, even though teachers and supervisors conduct training remotely, both can still interact with each other. In blended training, there is a combination of learning delivery methods, including the most frequent face-to-face instruction, with asynchronous and/or synchronous computer technology.

The findings of this study emphasize the necessity of developing a teacher training model by school supervisors that integrates both offline and online approaches. To achieve this, a Learning Management System (LMS) serves as the platform to structure and deliver the training. This model incorporates three mentoring strategies—coaching, mentoring, and counseling—structured within the MKPS flow: independent, collaborative, strengthening, and implementation presentation stages. These stages include activities designed to foster collaboration, teamwork, and knowledge sharing among teachers. The LMS-based CMC training model, underpinned by the MKPS flow, was selected for its numerous benefits, including fostering effective interaction between teachers and supervisors, accessibility, flexibility, active learning, efficiency, and collaboration. Recognizing the potential of this model to enhance teacher professional competence, this research aims to develop and refine the LMS-based CMC training model using the MKPS framework.

2. METHODS

This study employs a Research and Development (R&D) design, which is aimed at creating specific products and evaluating their effectiveness (Sugiyono, 2022). The primary goal of this research is to develop a teacher training management model tailored for schools under the supervision of school supervisors. The anticipated outcome of this study is an effective and practical teacher training management model for such schools. According to Borg and Gall (2007), the R&D process comprises ten stages: preliminary studies, research planning, design development, initial field trials, revisions based on limited field test results, main field tests, revisions based on extensive field test results, feasibility tests, final revisions post-feasibility tests, and the dissemination and implementation of the final product. Based on these ten stages, the researcher developed a procedural framework specifically for designing the teacher training management model, which is presented schematically in Figure 1.

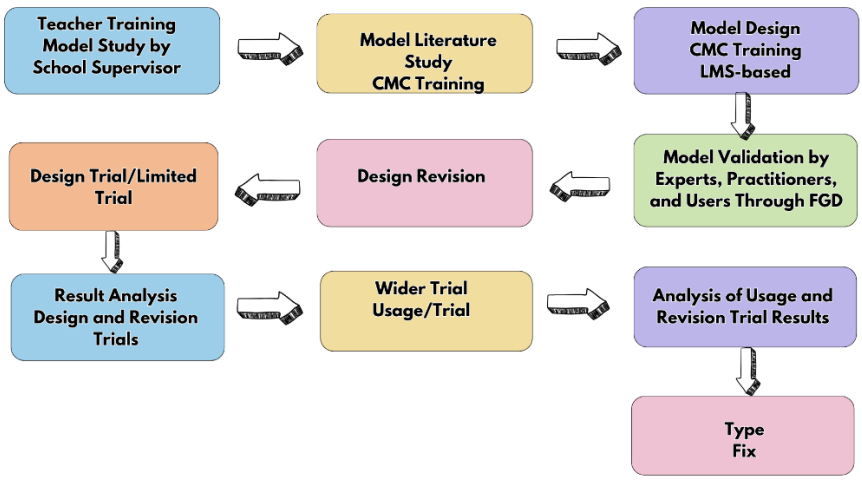

Figure 1. Schematic of research procedures and development of teacher training models

Data collection in this study was conducted using interviews, observations, documentation, and questionnaires. The instruments used for data collection included interview sheets, observation sheets, documentation sheets, and questionnaires. Prior to data collection, the validity of these instruments was tested through a construct validity test, which involved expert evaluation to ensure reliability and

accuracy. Quantitative descriptive analysis was employed to interpret data obtained during the preliminary research phase. This included analyzing questionnaire responses on the quality of teacher training in schools supported by school supervisors, the abilities of the trainees, training needs, and observations of trainees' skills. Additionally, questionnaires were used to assess the attitudes of teacher trainees toward the training facilitated by school supervisors. The analysis of training quality, needs, and participant competencies was presented in tables, along with calculations of averages, percentages, and descriptions of the achieved criteria.

3. FINDINGS AND DISCUSSION

3.1 Factual Conditions of Teacher Training by School Supervisors

School supervisors have the main task and function of carrying out training for teachers in their supervised schools. The factual conditions of teacher training that school supervisors usually carry out are conditions that describe the actual conditions, through various observation techniques that are viewed objectively based on empirical data results. The factual conditions of teacher training that are usually carried out by school supervisors are conditions that describe the actual conditions, through various observation techniques that are viewed objectively based on empirical results, not based on assumptions or opinions. What is obtained in the factual conditions of training carried out by school supervisors is the type of training carried out by school supervisors, namely in the form of coaching and In House Training (IHT), with materials related to the independent curriculum and according to the request of the school as the training organizer. The training time consists of one day or two days, with the training mode generally being offline. This shows that the school supervisor has not initiated the training, the training design does not yet describe the readiness and needs of teachers in supervised schools regarding the needs and regulations in force related to the professional competence of teachers needed in designing learning. The training model usually implemented by school supervisors does not accompany teachers in fostered schools with activities that train teachers to have the competence to work together, collaborate, and share with colleagues. This causes teacher competence in terms of collaboration not to be optimally improved.

3.2 Teacher Needs and Readiness to Follow Training

Teacher needs and readiness are important factors in implementing teacher training. Teacher needs for training are met by training organized by school supervisors who train all levels of teacher professional competency, namely at level one teacher knowledge competency about planning and assessment in learning, level two on fulfilling the need to improve teacher competency in using learning content, level three on evaluating learning content competency, level four on collaborating on learning content, and level five on sharing with colleagues about learning content.

Teacher readiness in conducting training is identified through a questionnaire in the form of a survey of teachers about the training mode they expect to make it easier for them to have the expected competency. Based on the results of a survey of teachers in fostered schools, it was found that most teachers wanted training by school supervisors to be carried out with a mixed mode as stated in the following survey results,

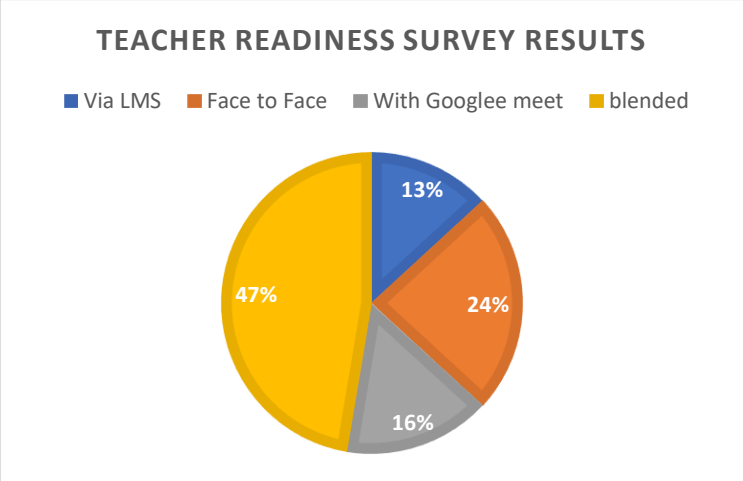

Figure 2. Teachers' needs and readiness to participate in training modes

The survey results indicate a need for mixed-mode training for teachers in schools supported by school supervisors. This aligns with findings by Phuong Thi Le and Hien Thu (Le & Pham, 2021), who emphasized the importance of a blended approach in addressing the common challenges of online learning, such as limited communication, feelings of isolation, alienation, reduced feedback, and decreased participant accountability. Blended training is essential for equipping teachers with the competencies required by current regulations to effectively serve their students.

3.3 Effectiveness of the LMS-Based CMC Training Model Compared to Conventional Training

The model trial was conducted by comparing the conditions before and after teachers participated in CMC training or comparing in a fixed group with conventional training. The following is an instrument for testing the design of the CMC training model with five indicators given to teachers as training participants before and after participating in CMC training.

Table 1. Performance Measurement of the CMC Training Model

Conventional Training				Aspects of Teacher Competence	Training CMC			
1	2	3	4	Train teachers to understand learning content	1	2	3	4
1	2	3	4	Train teachers to use learning content	1	2	3	4
1	2	3	4	Train teachers to evaluate learning content	1	2	3	4
1	2	3	4	Train teachers to collaborate on learning content	1	2	3	4
1	2	3	4	Train teachers to help colleagues learn content	1	2	3	4

Description: 4: very good, 3: good, 2: less good, 1: not good

After conducting a trial of the CMC training model, namely by comparing the results between the conventional training model and the CMC training model, a comparison of the training systems was obtained as shown in Table 2 as follows:

Table 2. CMC Training Model Performance

Conventional Training System	System Aspects of Teacher Competence	CMC Training System
79.69%	Train teachers to understand learning content	85.93%
72.92%	Train teachers to use learning content	84.37%
47.39%	Train teachers to evaluate learning content	82.81%
40.10%	Train teachers to collaborate in learning content	78.64%
34.38%	Train teachers to help colleagues in learning content	69.79%
54.89%	Average	80.31%

Table 2 clearly illustrates that the performance of the CMC training system significantly surpasses that of the conventional training system. The average performance score for the conventional system is 54.89%, while the CMC training system achieves an average of 80.31%. Specifically, in training teachers to understand learning content, the conventional system scores 79.69%, compared to 85.93% for the CMC system. For training teachers to use learning content, the scores are 72.92% for the conventional system and 84.37% for the CMC system. In evaluating learning content, the conventional system achieves 47.39%, whereas the CMC system scores 82.81%. Collaboration on learning content shows an even larger gap, with 40.10% for the conventional system and 78.64% for the CMC system. Finally, in helping colleagues with learning content, the conventional system scores 34.38%, compared to 69.79% for the CMC system. These results demonstrate that the CMC training system significantly enhances teachers' abilities in understanding, utilizing, evaluating, collaborating on, and supporting colleagues in learning content.

As for the significance test of the difference between the conventional training system and CMC training, a statistical test was carried out with a correlated t-test (related) so that the prices needed to calculate t were obtained as follows,

Table 3. Results of t-Test Calculation

	Conventional	CMC
Mean	54.896	80.308
Variance	408.94373	4194432
Observations	5	5
Pearson Correlation	0.828998686	
Hypothesized Mean Difference	0	
df	4	
t Stat	-3.716683603	
P(T<=t) one-tail	0.010266925	
t Critical one-tail	2.131846786	
P(T<=t) two-tail	0.02053385	
t Critical two-tail	2.776445105	

Based on the table above, it is found that the t-value obtained is -3.716. This value is smaller than the t table value at dk n-2 = 10 for a 5% error rate, which is 2.228. Therefore, it can be concluded that there is a significant difference between the conventional training model and the CMC training model. With the testing of the LMS-based CMC model with the MKPS flow, the model testing stage for this large group is complete, and the next stage is the revision of the product/model based on several things obtained when the large group trial process was carried out, namely in the form of deficiencies or obstacles that emerged during the large group trial for further improvement (Sugiyono, 2022).

The mixed-mode training model delivered through an LMS provides more comprehensive support for teachers compared to the conventional training models traditionally used by school supervisors. This approach enhances teacher competence, aligning with findings by Niam et al. (Wahzudik, Sulistio, & Nurussaadah, 2018), which highlighted the effectiveness of blended training in improving participants' skills. Similarly, research by Ismail and Salih (2018) demonstrated that LMS-based training enhances learning outcomes, while Zagouras, Egarchou, Skiniotis, and Fountana (2022) showed that teachers receiving blended training outperformed those in traditional face-to-face programs.

Blended learning, implemented through an LMS, integrates strategies to accommodate diverse learning styles and foster skill acquisition by motivating participants. Within this framework, the MKPS flow organizes coaching, mentoring, and consulting activities in the teacher training model under school supervisors. Coaching activities in the strengthening flow help teachers deepen their understanding and skill application in a more humane and empathetic manner, empowering them to realize their potential. Mentoring activities provide teachers with relevant examples and strategies to improve lesson planning and performance, equipping them for their roles effectively. Consulting activities offer personalized recommendations and feedback from supervisors, based on an analysis of teachers' lesson plans, further enhancing their professional growth.

3.4 Discussion

The training model developed in this study aligns with its primary objective: improving teachers' professional competence. The LMS-based CMC training model, structured with the MKPS flow, is designed to address the practical needs of teachers by providing a flexible, comprehensive framework that supports professional development. This model enables teachers to achieve competence not only at foundational levels but also at advanced levels (Levels 2 through 5), focusing on skills such as understanding, implementing, evaluating, collaborating, and sharing knowledge about critical learning components. These include Learning Achievements (CP), Learning Objectives (TP), Learning Objective Flow (ATP), lesson planning, and assessment through tools like Learning Implementation Plans (RPP) or teaching modules.

The design incorporates the roles of supervisors in the era of independent learning (Asga et al., 2023), specifically through coaching, mentoring, and counseling activities organized within the MKPS flow: independent, collaborative, strengthening, and implementation presentation. Utilizing an LMS provides distinct advantages, particularly in the context of the Industrial Revolution 4.0. These advantages include: (1) innovative strategic design through digital platforms in education, (2) inclusivity, allowing access to training for teachers in remote areas, and (3) cost-efficiency (Indarti & Nurdin, 2022).

This LMS-based CMC training model offers supervisors a practical tool to support teachers in target schools, fostering their professional competencies. Enhanced teacher competence is expected to improve classroom instruction, student learning outcomes, and overall educational quality in these schools. Disseminating this research through journal articles, book publications, and direct training for school supervisors will promote the adoption of this model as an alternative for professional development. However, successful implementation requires school supervisors to develop proficiency in using LMS platforms and mastering coaching, mentoring, and counseling skills.

Comparative studies have underscored the effectiveness of LMS-based training in improving teacher competence. Larsya et al. (2022) demonstrated the success of self-training programs with feedback mechanisms in enhancing preschool teachers' professional skills. Similarly, Pham (2021) highlighted the benefits of blended learning in mitigating the challenges of online training, such as isolation and reduced accountability, by balancing online and face-to-face components. Yanuar (2023) showed that RADEC-based online training effectively enhanced elementary teachers' ability to

cultivate creative thinking in students. These findings align with the results of this study, demonstrating that LMS-based training models significantly improve teacher competence.

The LMS-based CMC training model with the MKPS flow distinguishes itself by fostering strong collaboration among teachers, enhancing both individual and collective professional development. This collaborative approach makes it a robust alternative for addressing modern educational demands while empowering teachers to meet evolving regulatory and societal expectations.

4. CONCLUSION

The findings of this research demonstrate that the LMS-based CMC training model, designed with the MKPS flow, is an effective tool for school supervisors to enhance teacher professional competence in their supervised schools. This improvement in teacher competence is anticipated to positively impact classroom teaching quality, student learning outcomes, and the overall quality of education in these schools. The study emphasizes the vital role of school supervisors in planning and implementing training that aligns with teachers' needs and regulatory demands. Training conducted by supervisors, tailored to the readiness of teachers and incorporating the LMS-based CMC model, offers a cost-effective and scalable alternative to conventional training methods, ensuring broader and more direct teacher engagement. However, the study recognizes limitations, including the potential challenge of ensuring school supervisors' proficiency in using the LMS platform and conducting effective coaching, mentoring, and counseling.

The implications of this research highlight the integration of technological advancements in training while maintaining essential human interactions. The LMS-based CMC training model represents a balanced, mixed-mode approach, addressing both technological and practical teacher development needs. Future research should explore the application of this model in developing other teacher competencies, such as pedagogical skills, and evaluate its long-term impact on educational outcomes. Recommendations include urging education offices and teacher training institutions to adopt and optimize this model for more efficient and effective training. Additionally, further studies could investigate strategies to enhance school supervisors' readiness to implement such models and expand its reach across diverse educational contexts.

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