Online Learning Training Management Model to Improve Teacher Pedagogical Competence

Djuni Posma Rouli[1], Paningkat Siburian[2], Yuniarto Mudjisusatyo[3]

{djuniposma@gmail.com 1, paningkatsiburian@gmail.com 2, yuniarto@unimed.ac.id3}

Universitas Negeri Medan, Jalan Willem Iskandar Pasar V Medan Estate [1], Universitas Negeri Medan, Jalan Willem Iskandar Pasar V Medan Estate [2] , Universitas Negeri Medan, Jalan Willem Iskandar Pasar V Medan Estate [3]

Abstract. Hybrid learning is a learning model where teachers teach face-to-face from school and online to students at home. Online learning is not implemented. Due to low pedagogical competence based on initial tests and the results of the 2022 learning environment survey. Nationally the score is 47.36. So it needs to be improved with an online learning training management model to improve teacher pedagogical competence, especially one-page learning implementation plans, video learning media, and learning evaluations with five types of questions. Research and development research method, research subjects 46 teachers from two high schools in Toba district. ADDIE training model, training needs analysis, training guide design, development, validation of pedagogical competencies, implementation, scheduled training, evaluation, and conducting tests. Through the management functions of planning, organizing, implementing, and evaluating, the effectiveness of the training model is based on the N-Gain analysis of the effective training model. Increased pedagogical competence results from independent samples t-test 2-tailed 0.792 and online learning 0.413. Pedagogical competence increases due to the online learning training management model.

Keywords: Management Functions, ADDIE Model, Pedagogical Competence.

1 Introduction

Face-to-face learning (PTM) is limited to 50 percent starting July 2021 based on the circular letter of the Governor of North Sumatra Number 421.3/873/CABDIS.MU/XII/2020. PTM is limited to 50 percent (hybrid learning) and is a learning model where teachers teach simultaneously to students who present at school with students who study online from home with the help of technology[1]. Online learning is not implemented. As a result, the impact of online learning for approximately three semesters and limited face-to-face learning (PTM)

[1] Ayu Sri Wahyuni, "Penerapan Model Hybrid Learning Dalam Ptm Terbatas Untuk Meningkatkan Motivasi Dan Hasil Belajar Siswa."

AISTEEL 2023, September 19, Medan, Indonesia

DOI 10.4108/eai.19-9-2023.2340406

reduces the learning outcomes of students specifically for classes X and Many UTS students do not achieve the KKM score. Figure 1.1. Results of the mid-term exam for class X Natural Sciences from five subjects from Indonesian, Chemistry, Mathematics, English and Economics.

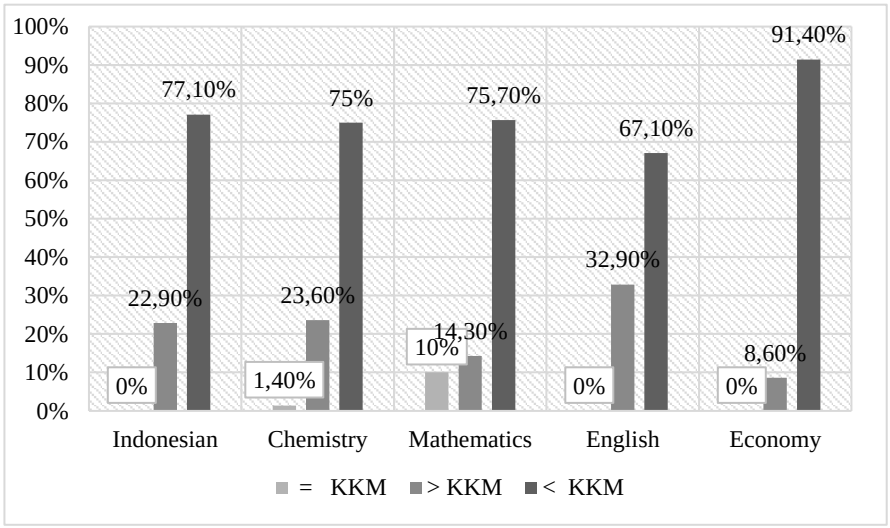

Fig. 1. PTS Scores from Five Subjects.

Based on research results, the low KKM score is due to low pedagogical competence, so teacher quality must be improved by increasing pedagogical competence[1].Pedagogical competence is the ability that teachers have in organizing learning material that is delivered well to students. If the teacher's pedagogical competence is good, it will result in good student learning outcomes. School quality is determined by student learning outcomes. If the teacher cannot carry out online learning simultaneously, it means the teacher has low pedagogical competence. This is in accordance with what Tyagita and Iriani (2021) said: good pedagogical competence means that teachers can organize and provide learning materials in accordance with their professional abilities[2]. With the professional competence of teachers, they can provide suitable learning methods, especially for limited learning. To determine the pedagogical competence of high school teachers at the research location, an initial pedagogical competency test was carried out with the aim of determining the initial pedagogical competence of the research subjects. Data supporting pedagogical competence is based on surlingkar (learning environment survey), namely standard pedagogical competence of 49.75. The results of the initial pedagogical competency test are in Figure 2

[2]Wijayanto, Adi dkk, Urgensi, Implementasi, Problematika, Dan Evaluasi Pembelajaran Tatap Muka Terbatas Pada Pen*didikan Jasmani Dan Olahraga*.
[3]Tyagita and Iriani, "Strategi Peningkatan Kompetensi Pedagogik Guru Untuk Meningkatkan Mutu Sekolah."

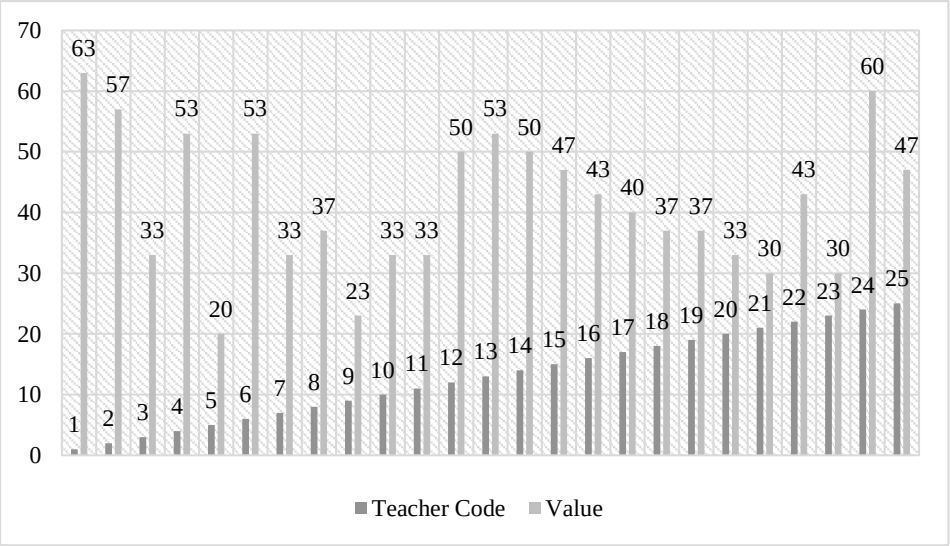

Fig. 2. Initial Teacher Competency Test Result.

Source: Preliminary Test 16 August 2022, National KKM Surlingkar 2022 47.36.
Initial test link: https://forms.gle/Ad8hmRzXUi11z1YYA
Answer:
https://docs.google.com/spreadsheets/d/1XGmMJyYFeTwVQvBej9wuXF8_7Risk1oxKCRCk5GweE4/edit?usp=sharing
Based on the initial test results of 25 teachers who took the initial pedagogical competency test, only 8 teachers achieved a km score > 49.75. The results of the 2015 UKG scores for SMAN 1 Silaen are in Figure 3. It can be seen that only two teachers obtained the KKM score which was set at 55 at the school studied in figure 3.

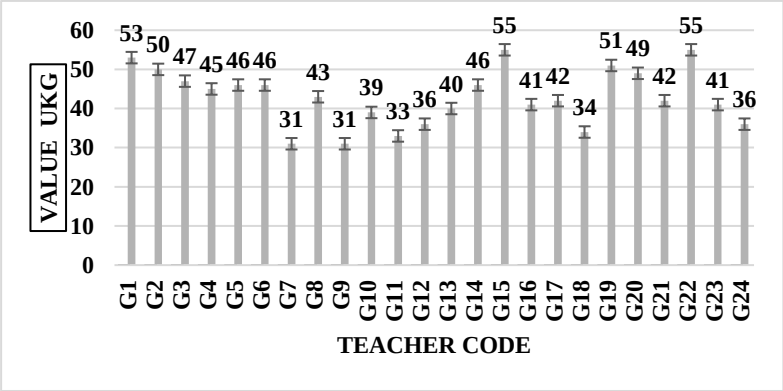

Fig. 3. UKG Values at One of the High Schools in Toba Regency 2015.

Source: Balige Education Office Branch Archives, North Sumatra Province, 7 July 2022)

To improve teacher pedagogical competence, it is necessary to provide a training model, namely the ADDIE, analysis, design, development, implementation and evaluation model. A training model that can revise each stage that we will carry out and evaluate. So researchers improve low pedagogical competence through an online learning training management model to improve pedagogical competence

2 Theoritical Review

2.1 Online Learning

The main text should be written using Times New Roman, 10pt, fully justified. Italics can be used for emphasis and bold typeset should be avoided.

The principles of online learning are: (1) suitability of material to the applicable curriculum, (2) inclusiveness, using other groups' points of view in understanding problems, (3) involving learning, (4) using innovative approaches, (5) using methods effective, (6) carry out regular evaluations, (7) teaching materials are coherent (logical), consistent (fixed) and transparent (clear), (8) use devices that are easy to operate and (9) Effective in terms of costs. Figure 4. Online learning interactions

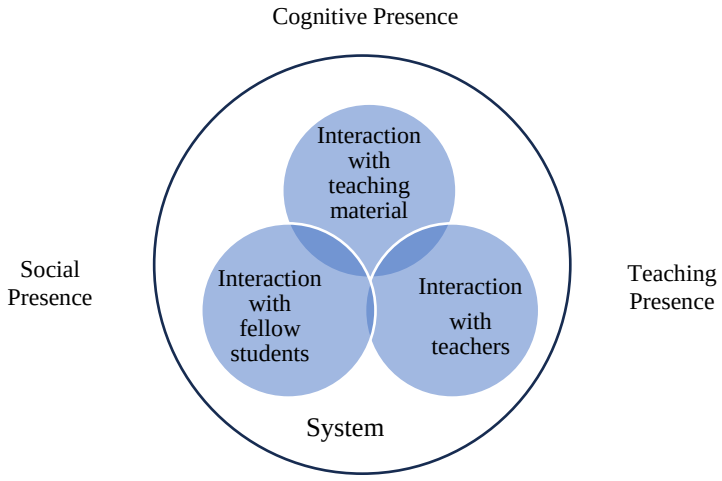

Fig. 4. Online Learning Interaction.

Source: Adisaputera et al (2020 : 4).

2.2 Manegement

Management is completing work through people's hands, to carry out several orders required by Arifin et al (2020:2). Management has a point of view: (1) as a tool or method to achieve learning goals (2) as energy/power, a teacher must have the power to carry out the learning process (3) as a system, a teacher must follow the existing system in the educational unit (4) as a process, to produce a learning process (5) as a function, the teacher must understand what the function of management is, (6) as a task, by carrying out PTM it is limited to students who have carried out our task (7) as an activity/business, as a step to try to produce quality

learning. Based on the definition above, it can be concluded: (1) management is a systematic, coordinated, and cooperative process in efforts to utilize human resources and other sources,

Management is completing work through people's hands, to carry out several orders required by Arifin et al (2020:2). Management has a point of view: (1) as a tool or method to achieve learning goals (2) as energy/power, a teacher must have the power to carry out the learning process (3) as a system, a teacher must follow the existing system in the educational unit (4) as a process, to produce a learning process (5) as a function, the teacher must understand what the function of management is, (6) as a task, by carrying out PTM it is limited to students who have carried out our task (7) as an activity/business, as a step to try to produce quality learning. Based on the definition above, it can be concluded: (1) management is a systematic, coordinated, and cooperative process in efforts to utilize human resources and other sources, (2) management is only a tool to achieve effective goals, (3) management has goals In particular, the success or failure of that goal depends on the ability to use all existing potential

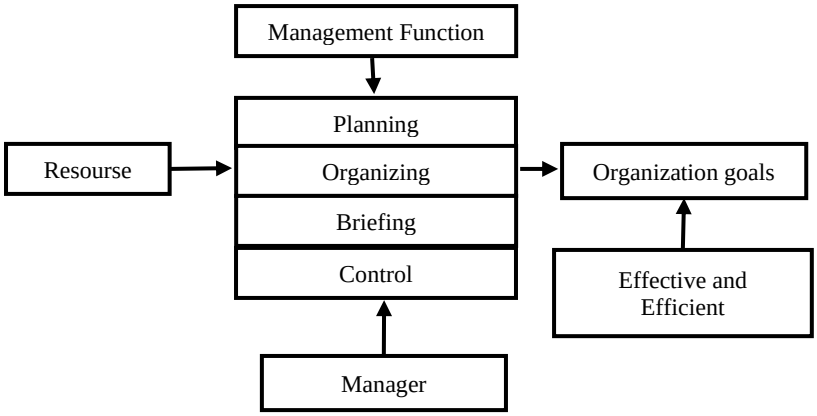

Fig. 5. Management.

Source: Hanafi (2015 : 7).

2.3 ADDIE Training Model

This design model is to produce a learning system that has a broad scope. Development design according to the ADDIE (analysis-design-develop-implement-evaluate) model. Figure 6. is the ADDIE training model

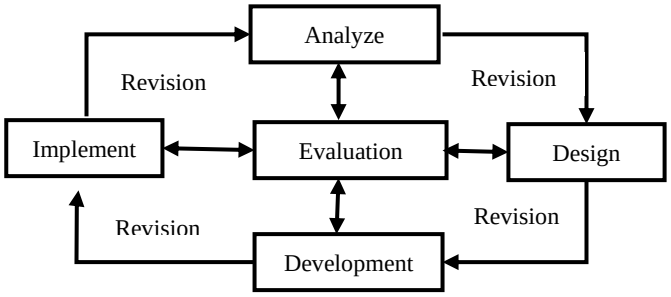

Fig. 6. ADDIE Model Steps.

Source: Branch Scheme quoted from Hidayat, (2021:3)

2.4 Pedagogical competency

Pedagogical competency is an educator's ability to manage student learning. According to Kurniasih & Sari (2017:98) indicators of pedagogical competence include

1. Ability to understand students, with indicators (a) understanding the characteristics of student development, such as understanding the cognitive level of students according to their age, (b) understanding the principles of student personality development, such as recognizing

student personality types, and recognize the stages of student development, (c) be able to identify students' initial provisions and recognize differences in potential that students have.

2. Ability to create learning plans, with indicators (a) being able to plan the management of teaching and learning activities, such as formulating learning objectives to be achieved, choosing a suitable type of learning strategy/mode, determining learning steps, and determining methods that can be used to motivating students, (b) being able to plan the organization of learning, such as being able to describe material that is appropriate to the learning objectives, and being able to organize learning materials in a coherent and systematic manner, (c) being able to plan the use of media and teaching resources which can be used to facilitate the achievement of competency , and others, (d) able to plan classroom management, such as being able to find allocations for teaching and learning, and being able to determine how to organize students so that they are actively involved in teaching and learning activities, (e) able to plan models for assessing learning outcomes, such as finding various form of assessment and create an instrument for assessing learning outcomes.

3. The ability to carry out educational and dialogical learning, with indicators (a) being able to open lessons, such as conveying the learning objectives to be achieved and motivating students and linking the material to be studied with prerequisite material, (b) being able to manage teaching and learning activities, such as being able to explaining the material, using teaching methods, giving examples that are appropriate to the material, using learning media, providing reinforcement, asking questions, and emphasizing things that foster positive habits in student behavior, (c) being able to communicate with students, such as being able to provide opportunities to students to understand the material, clarify instructions and

explanations if students misunderstand, give students the opportunity to ask questions, and use spoken and written language clearly and correctly, (d) able to organize the class and use time well, (e) able to carry out assessment during the teaching and learning process and carrying out assessments at the end of the lesson, (f) being able to close the lesson, such as drawing conclusions, reflecting or making summaries by involving students and carrying out follow-up by providing directions or assignments as part of remission/enrichment.

4. Ability to evaluate learning outcomes with indicators (a) able to design and carry out assessments such as assessment principles, such as understanding assessment principles, able to prepare various learning evaluation instruments, able to carry out evaluations, (b) able to analyze assessment results , such as being able to classify assessment results and concluding assessment results clearly, (c) being able to utilize assessment results to improve the quality of subsequent learning, such as being able to correct invalid questions and being able to identify the level of variation in learning outcomes.

5. The ability to develop students to actualize the various potentials they have with indicators (a) facilitating students to develop students' academic potential according to their abilities, being able to direct and developing students' academic potential, (b) being able to facilitate students to develop their non-academic potential. academic, such as channeling students' non-academic potential according to their abilities, being able to direct and develop students' non-academic potential.

3 Research Methods

This type of research is research and development (R & D), carried out using research and development methods and procedures including (1) testing existing products, (2) developing by perfecting existing ones so that they are practical, productive and efficient and (3) creating new products .Where research was conducted at SMAN 1 Silaen to improve learning pedagogical competence through a training management model with the ADDIE model. The model test was carried out at SMAN 1 Laguboti. The aim is to determine the effectiveness of the model and increase teacher pedagogical competence. The research was conducted on 23 randomly selected teachers and 23 teachers at SMAN 1 Laguboti.

4 Results and Discussion

4.1 Result

4.1.1 Management Model Design Process

Management model design obtained from factual models of management functions. In conducting training, as a training leader you must use management functions including: (1) planning, training must be budgeted in the RKAS (school budget activity plan) one year or six months before implementation. The training aims to support teaching and learning activities, training for teachers. The training program and resource persons are discussed by the principal and assistant principal in the curriculum department, then a committee is created. (2)

Organizing, the committee determines the materials, resource persons, training materials, and specified tools and materials, and division of work according to the committee formed. (3) implementation, training activities are determined according to the date and day adjusted to learning activities at school, how long the training takes, and the budget required. (4) Evaluation, after the training there is an evaluation of the results of the training, both practical and written, and a follow-up to the training.

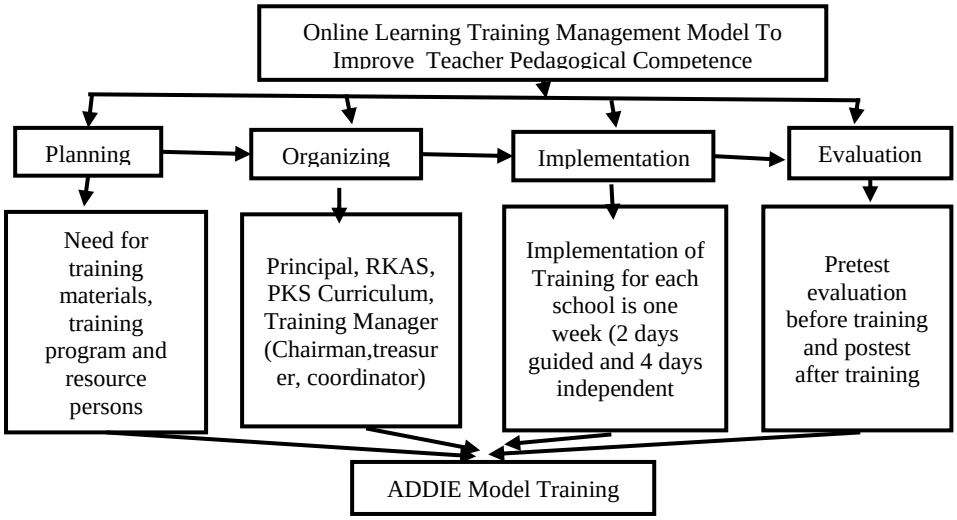

Fig. 1. Management Function Model

[4]Metode Penelitian & Pengembangan Research and Development.

4.1.2 ADDIE Model Training

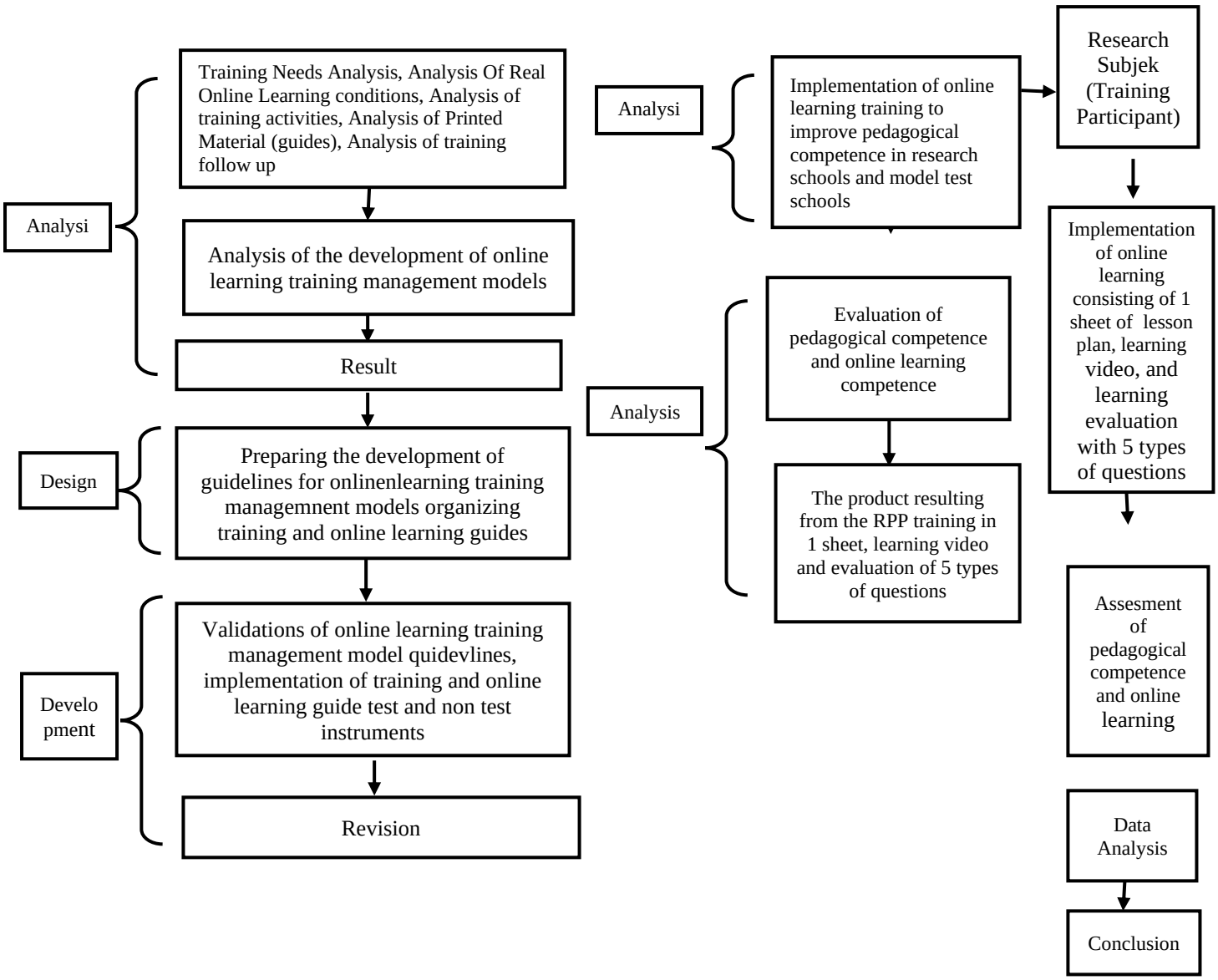

Figure. 2. ADDIE Model Training.

Analysis, training needs instruments are distributed to research subjects, the aim is to find out the program and material according to real conditions at the research location, scheduled and programmed training activities, during the training whether there is material as a guide to be distributed as well as a guide to the training model that will be implemented and a training guide about the structure of the training. training committee. Then it is necessary to analyze the online learning training model that has been designed. The results of the data obtained are

in terms of validity and reliability and the results are concluded. When analyzing invalid instruments, they can be eliminated or corrected. In future, they can be used in model test schools

The design, materials that have been prepared, training instructions and model guides, which have been prepared are distributed to the training participants before the training is carried out, the aim is that the training participants understand the objectives and implementation of the training

Development, this research is level 1 development research, creating a model design, but testing it. To determine the increase in pedagogical competence. The tests and training management models have been validated by experts. The competency tests used and instruments that have been validated are distributed at SMAN 1 Silaen. If when the data is analyzed there is something wrong or does not meet expectations, it can be revised before going to SMAN 1 Laguboti.

Implementation, this training model was carried out in two schools each for one week, namely two guided days with four independent days. Video recordings of face-to-face training can be seen on the Google Drive link and documentation of training activities can be seen on the YouTube link. Before the training and after the training, test and non-test instruments for both pedagogical competency and online learning competency are carried out. The results are analyzed and if there are any errors corrected, research is carried out. at SMAN 1 Laguboti
Online Learning Training Management Model at SMAN 1 Silaen
https://drive.google.com/file/d/1JJLDHckTnXbtqwEOVqMBCgovTa8Dktq6/view?usp=sharing
Online Learning Training Management Model at SMAN 1 Laguboti
https://drive.google.com/file/d/15fVfpv6b9wRC7ifw-5EVDMDTx__hiMpg/view?usp=sharing
Documentation of training activities at SMAN 1 Silaen
https://youtu.be/pyo8HhP0tjE
Comment on training activities at SMAN 1 Laguboti
https://youtu.be/NS3xoEQuung
Evaluation, evaluation is carried out cognitively and psychomotorically. Cognitive is through tests, while psychomotor is supervised by supervisors and school principals by implementing lesson plan training results, learning media, either video or power points, as well as learning evaluations with five types of questions in the guidebook that can be seen.

4.1.3 Online Learning Training

One week before the training, the trainees prepare a Canva account with the belajar.id email. The aim is that through Canva the teacher can make videos of 1-3 duration via another video account application. Teachers via their PKB SIM account (management information system for continuous professional development) create a sharing account. How to create a Canva account and share teachers in the online learning material guide.

Before training materials, online learning models, and online learning guides are distributed to training participants, an online learning pretest is held. Training participants are invited to read the guide before training.

The first day of training explained how to make a one-sheet lesson plan, explained learning media, and how to make a learning evaluation with five types of questions in the create based test (CBT) and Google Form. If trainees cannot understand the training, they are guided personally during free time, breaks, or in school groups. If the training participant can make a 1-page lesson plan, the participant continues to make learning media. The resulting video media will be used to create learning evaluations for video question types.

On the second day of practical training lesson plans, learning videos,, and learning evaluations. These three product results are collected in Google Classroom. If the training participant has not finished producing the training results. Participants are guided independently through school groups. After the training product is collected on Google Classroom. Training participants carry out a posttest. Posttests can be carried out on paper and online in Google Classroom. The results of the training product are implemented in the class attended by the training participants. The implementation of learning with these 3 products is supervised by the school principal or school supervisor. Learning outcomes can be evaluated for students with learning evaluations in CBT and Google forms with five types of multiple-choice questions. Learning evaluation with five types of questions is a product of the online learning management model, one of which is that teachers can make learning evaluations with five types of questions as an effort to improve teacher pedagogical competence.

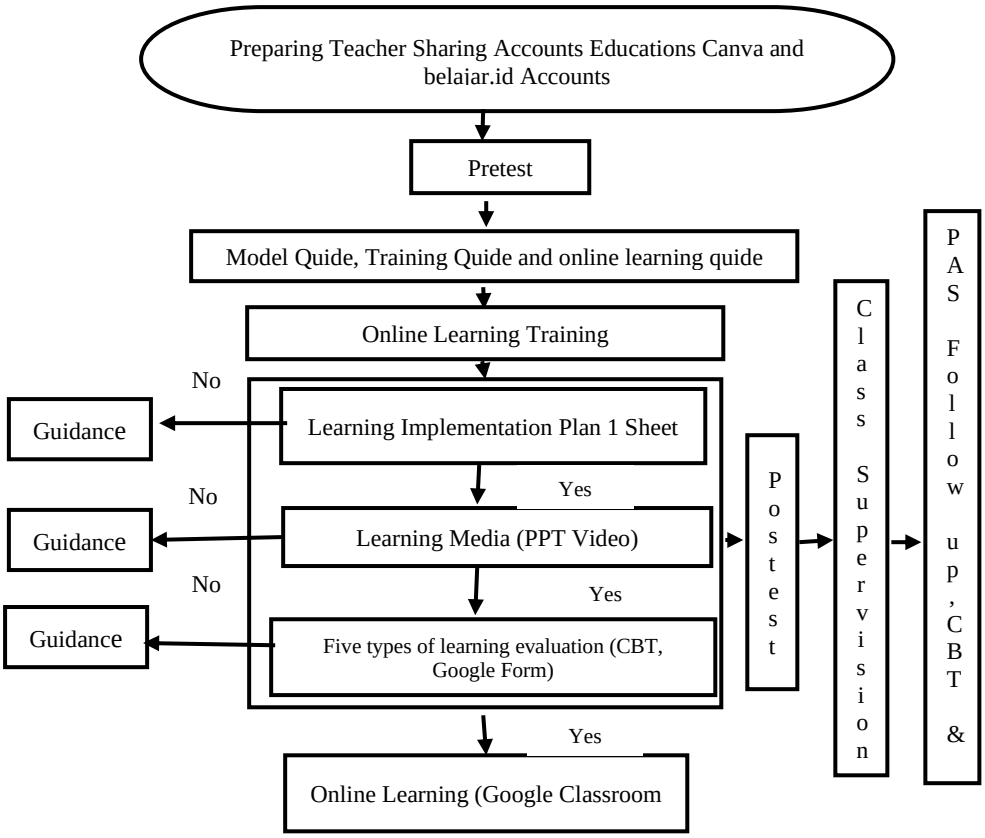

Fig. 3. Online Learning Training.

This evaluation is given to students to obtain learning outcomes. In Figures 10 and 11. As a result, teachers' pedagogical competence increases in making learning evaluations on five types of questions. Student learning outcomes also increased.

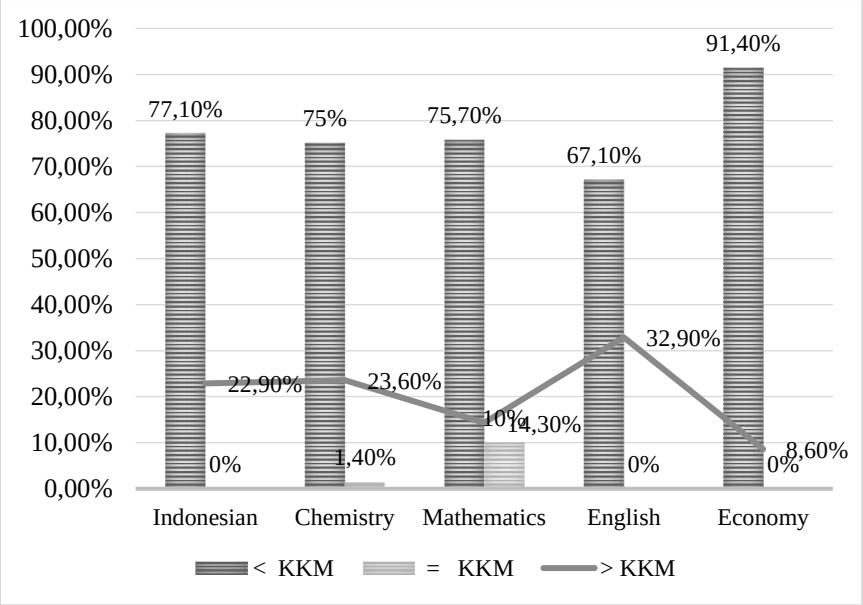

Fig. 4. Student KKM Value in PAS 2022/2023.

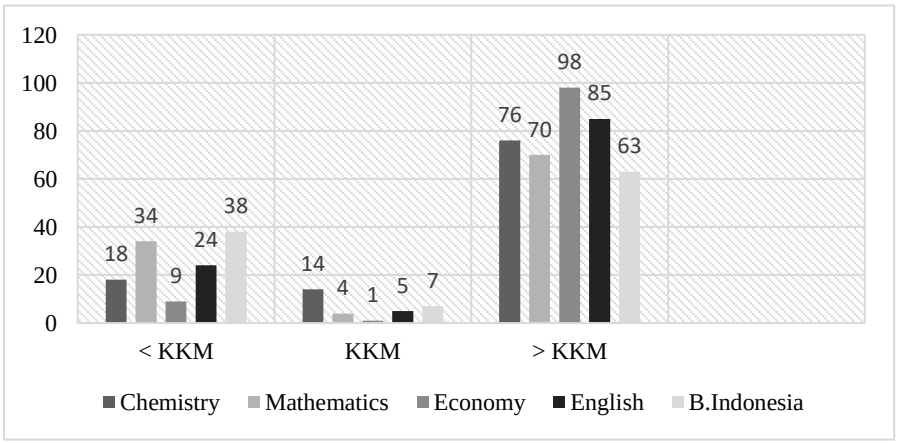

Fig. 5. Student Learning Outcomes After Training..

Pay attention to the students' learning outcomes. In terms of learning outcomes, there is an increase after being given 5 types of questions

Table 1. Student PAS Scores for Five Subjects

	Chemistry	%	Mathematics	%	Economy	%	English	%	Indonesian	%
<KKM	18	17	34	31	9	31	24	0,22	38	0,35
KKM	14	13	4	0,04	1	0,01	5	0,05	7	0,06
>KKM	76	70	70	65	98	91	85	0,79	63	0,58

Implementation of online learning model training, student learning outcomes increased before training, teacher pedagogical competence increased in online learning such as lesson plans, learning media (video) and evaluation of learning outcomes for five types of questions resulting in student learning outcomes for five subjects, the percentage of students did not reach KKM is higher than students who get KKM scores. After the teacher's pedagogical competence was improved through the training model, the percentage of students who obtained a score > KKM was greater. So it can be concluded that students can understand learning by being given a learning evaluation of 5 types of questions

4.2 Discussion

4.2.1 Online Learning Training Management Process

Based on the results of the discussion above, it can be concluded that online learning training can improve teachers' pedagogical competence, resulting in increased student learning outcomes. Online learning training with online learning management using the ADDIE model can improve the knowledge, attitudes and skills of training participants in influencing student learning outcomes, especially in implementing management functions in training management.

Based on the research results, the final online learning training management model was obtained which was obtained from the management function model, ADDIE training model and online learning training, all three of which were carried out in one stage as the final model as shown in figure 12.

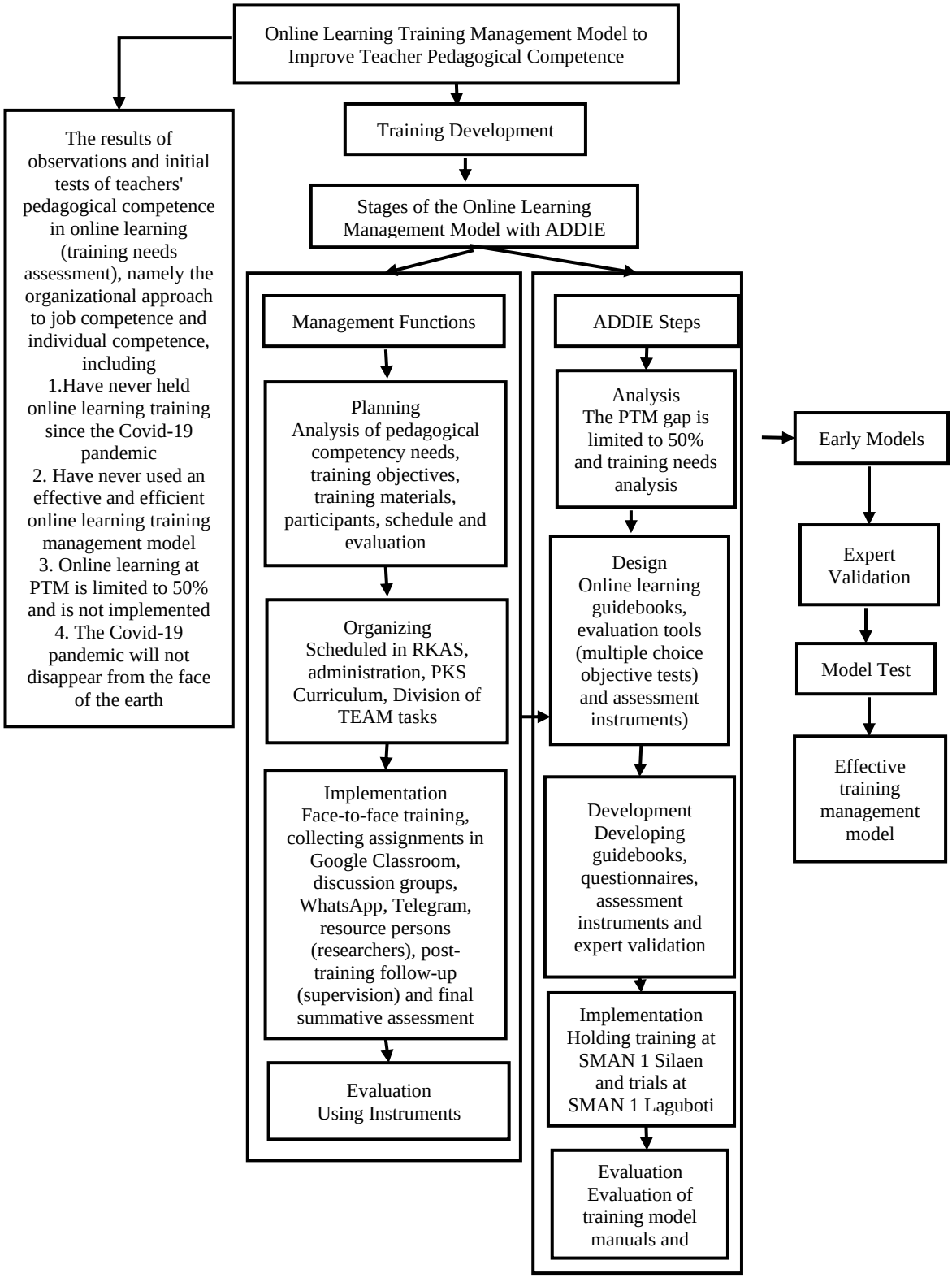

Figure 62. Final Online Learning Management Model..

4.2.2 Effectiveness of Online Learning Models

Based on the discussion above, the online learning training management model is effective for improving teacher pedagogical competence based on analysis of N-Gain Score research results on pretest and posttest pedagogical competence and online learning competence at SMAN 1 Silaen and SMAN 1 Laguboti

Based on research results from Sherly (2022:290), Sustainable Professional Development (PKB) through competency-based training management through stages (1) planning, (2) analysis, (3) design and development, (4) implementation, (5) implementation. All of these stages will produce good CPD training model results[3]. Based on the results of the research design, the Branch scheme is quoted from Hidayat (2021:3) and research results from Sherly (2022:290). This design can be used in online learning management models to improve teacher pedagogical competence through online learning management models.

Table 2. Value N Gain Postest SMAN 1 Silaen and SMAN 1 Laguboti.

Data	SMAN 1 Silaen	Criteria	SMAN 1 Laguboti	Criteria
N-Gain Pedagogical Competence	0,56	Currently	0,88	Tall
N-Gain Online Learning	0,48	Currently	0,73	Tall

The online learning training model can improve teachers' pedagogical competence, the results of the independent sample test analysis are moderate, while at SMAN 1 Laguboti is high, the ADDIE model training has the advantages of (1) a generic training design model which provides an organized process in developing the training materials used, (2) a model using a product approach with interactive steps, (3) a model for developing training materials in the verbal, intellectual skills, psychomotor and effective domains so that it is very suitable for developing blog media in appropriate subjects, (4) a model that provides opportunities for developers training design to collaborate with material, media and learning design experts to produce quality products

Based on research by Sherly (2022), the effectiveness of competency-based training management can be seen from the N-Gain Score. The effectiveness of the competency-based training management model can also be assessed from the aspects of training results, curriculum, delivery, assessment and documentation.

Based on the research results, supporting theories, research that has been carried out can be concluded that the online learning management model is effectively used based on the N-Gain Score obtained from SMAN 1 Silaen of 0.56 in pedagogical competence and 0.48 in online learning. Meanwhile, the effectiveness of the online learning training management model in the model trial at SMAN 1 Laguboti was 0.88 for pedagogical competence and 0.71 for online learning. The N-Gain Score for Online Learning is lower than pedagogical competency. This means that each teacher's competency in mastering literacy and science and technology is

[5]Sherly, "Model Pengembangan Keprofesian Berkelanjutan Guru Melalui Manajemen Pelatihan Berbasis Kompetensi Untuk Meningkatkan Mutu Pendidikan SMP Kota Pematangsiantar."

different depending on whether the teacher has mastered science and technology (science and technology). The effectiveness of the online learning training management model can improve teachers' pedagogical competence in developing classroom management skills, learning assistance and distance guidance.

4.2.3 Training Management Model Improves Pedagogical Competencies such as lesson plans, learning media and learning evaluation

Based on the discussion above, does the online learning training model improve teachers' pedagogical competence? The analysis used by the Independent Sample T-Test with SPSS 22 aims to whether the online learning management model increases teachers' pedagogical competence and online learning.

Table 3. Independent Samples Test Pedagogical Competence.

		Lavene"s Test For Equality Of Valance		**t-test for Equality Of means**						
		F	Sig	t	df	Sig (2-tailed)Mean Difrence	Mean Difference	Std error Difference	80% conference interval of the different	
									Lower	Upper
Pedagogical Competence	Equal variances assumed	0,074	0,787	-265	44	0,792	-1391	5,246	-11,956	9,182
	Equal variances notassumed			-265	43,991	0,792	-1391	5,246	-11,965	9,182

Based on the results of the sig analysis (2-tailed) > 0.05, namely 0.792, it means that there is no significant difference in the results of online learning training management model training in improving teachers' pedagogical competence at SMAN 1 Silaen and SMAN 1 Laguboti, meaning that teachers' pedagogical competence increases with the management model this training at both schools.

Table 4. Independent Samples Test Online Learning.

		Lavene"s Test For Equality Of Valance		**t-test for Equality Of means**					
		F	Sig	t	df	Sig (2-tailed)Mean Difrence	Mean Difference	Std error Difference	80% conference interval of the different Lower	Upper
Training Model Results	Equal variances assumed	1,813	185	-827	44	0,413	-5,652	6,836	-19,956	8,182
	Equal variances notassumed			-827	42,430	0,413	-6,652	6,836	-19,965	8,182

Based on the results of the sig analysis (2-tailed) > 0.05, namely 0.413, it means that there is no significant difference in the results of online learning management training model training in improving teachers' online learning competence at SMAN 1 Silaen and SMAN 1 Laguboti, meaning that teachers' online learning competence increases by this training management model at both schools.

5 Conclusions and Recommendations

5.1 Conclusion

5.1.1 The online learning training management process consists of planning, organizing, implementing and evaluating. Post-training follow-up through supervision and training planning is scheduled in the school's RKAS and the use of 5 types of evaluation questions for each learning evaluation can improve learning outcomes. Since the analysis of teacher pedagogical competency was carried out through initial pedagogical competency tests, interviews, observations and distribution of questionnaires, a factual model for online learning training management was created. Organization is planned through RKAS, assistant principal for curriculum, administration and the formation of a training management team (committee) responsible for organizing training. Evaluation is carried out using pretest and posttest. So a design for the online learning training management process is obtained using the figure 13 model

5.1.2 Based on the results of data analysis, the N Gain Score was obtained from both schools

Table 5. N Gain Score Value at SMAN 1 Silaen and SMAN 1 Laguboti.

Data	SMAN 1 Silaen	Criteria	SMAN 1 Laguboti	Criteria
N-Gain Pedagogical Competence	0,56	Currently	0,88	Tall
N-Gain Online Learning	0,48	Currently	0,73	Tall

The online learning training management model had a moderate effect on SMAN 1 Silaen and a high one on SMAN 1 Laguboti on teachers' pedagogical competence before the ADDIE model online learning training and after the online learning training. The online learning training management model is effective for improving teachers' pedagogical competence, including making learning implementation plans, create video learning media and make learning evaluations for 5 types of questions according to the online learning guidebook

5.1.3 Based on the results of the Independent Sample T-Test, sig (2-tailed) > 0.05, namely for pedagogical competency 0.792 and online learning 0.413, meaning there is no significant difference between the training results at SMAN 1 Silaen and SMAN 1 Laguboti. Online learning training improves teachers' pedagogical competence which includes learning implementation plans (RPP), learning media (video and pointer) and learning evaluation with 5 types of questions. The online learning training management model can improve teachers' pedagogical competence in making lesson plans, learning media and evaluation. learning 5 types of questions.

5.2 Recommendations

5.2.1 Contribution to the world of education in developing online learning training management models to improve teacher pedagogic competence.

5.2.2. Head of the Toba Regency Education and Culture Office, as general policy in secondary and general education (Dikmenum) to provide support for increasing teacher pedagogical competence through online learning training management models, both material and financial support for teachers

5.2.3 The SMA/SMK principal as the highest leader in the education unit can provide support for teachers to improve pedagogical competence through an online learning training management model in the form of facilities and financial assistance through the RKAS allocation of school operational assistance funds (BOS).

5.2.4 SMA/SMK teachers are committed to improving pedagogical competence like a professional teacher through implementing the online learning training management model.

5.2.5 Other researchers to conduct deeper studies regarding policies for implementing online learning training management models to improve teacher pedagogical competence by

conducting studies on the impact of developing pedagogical competence to improve teacher quality and the quality of education

Thank-you note

Dr.Arif Rahman.,M.Pd (Head of the PPS Department of Educational Administration) ; Dr.Yuniarto Mudjisusatyo.,M.Pd (Secretary of the PPS Department of Educational Administration and Supervisor II) ; Prof. Dr. Paningkat Siburian.,M.Pd (Supervisor I) ; Pasno Linga,S.Pd.,M.Si (Headmaster SMAN 1 Silaen); Togar Duharman Panjaitan,S.Pd.,M.Si (Headmaster SMAN 1 Laguboti), (My Husband Rikkar Simanjuntak, S.Pd)

References

[1] Ayu Sri Wahyuni. "Penerapan Model Hybrid Learning Dalam Ptm Terbatas Untuk Meningkatkan Motivasi Dan Hasil Belajar Siswa," November 22, 2021. https://doi.org/10.5281/ZENODO.5681376.

[2] Sherly. "Model Pengembangan Keprofesian Berkelanjutan Guru Melalui Manajemen Pelatihan Berbasis Kompetensi Untuk Meningkatkan Mutu Pendidikan SMP Kota Pematangsiantar." Thesis (Doctoral), Universitas Negeri Medan, n.d. http://digilib.unimed.ac.id/id/eprint/47116.

[3] Sugiyono. Metode Penelitian & Pengembangan Research and Development. Alfabeta, n.d.

[4] Tyagita, Brigitta Putri Atika, and Ade Iriani. "Strategi Peningkatan Kompetensi Pedagogik Guru Untuk Meningkatkan Mutu Sekolah." Kelola: Jurnal Manajemen Pendidikan 5, no. 2 (December 27, 2018): 165–76. https://doi.org/10.24246/j.jk.2018.v5.i2.p165-176.

[5] Wijayanto, Adi dkk. Urgensi, Implementasi, Problematika, Dan Evaluasi Pembelajaran Tatap Muka Terbatas Pada Pendidikan Jasmani Dan Olahraga. Pertama, Desember 2021. Akademia Pustaka, n.d.