Developing a Modular Material-Based Independent Training Model for Primary School Teacher Training

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A R T I C L E I N F O

A B S T R A C T

This study is based on the challenges related to the low quality of education in Indonesia. One of the reasons for these challenges is the low ability of teachers to conduct professional tasks. Future demands for teachers' professionalization will be higher, considering the rapid development of society, science and technology, and current global competitiveness. In aspiring for improved quality education in the future, efforts are needed to optimize teachers' professional development, particularly for primary school teachers, through continuous and comprehensive education and training with broader access. Basing on this, the present paper analyzes a model and material of education and training programs which is believed to improve teachers' competence on a broader scope and ensures quality training outcomes. The research method study used was research and development. It has been used depending on the objectives to be achieved, which included developing a training model aimed at improving the mastery of cognitive abilities in the pedagogical competence of elementary school teachers. The preliminary study indicates that the implementation of the existing teacher education and training program is sufficient. However, further improvements are needed to reach a broader scope. Teachers' perceptions concerning their mastery of competencies required to perform their professional tasks indicated weaknesses regarding several aspects of the pedagogic and professional competencies. This exists because the of education and training teachers undergone which varies; yet, some teachers still have not had the opportunity to attain sufficient education and training. Identifying the needs of primary school teachers training and education program highlights the importance of developing a training and education model which optimizes modular material-based independent learning.

1. Introduction

The Indonesian Law No. 14 of 2005 [1] on Teachers and Lecturers requires teachers to have suitable academic qualifications, academic competence, teaching certificate, physical and mental health, and capability to realize the objectives of the national education system. The competencies a teacher must have, according to the law, include pedagogic competence, personal competence, social competence, and professional competence.

Possession of those four competencies is expected to facilitate a condition that allows teachers to perform excellently during work, serve their functions, and play their roles as accountable and professional educators. To ensure that teacher's services, tasks, and responsibilities as professional educators are implemented under the existing law. A Teacher's Performance Assessment System (or PK Guru) was developed and applied to every teacher in every formal education unit (schools) by the central government, regional government, or society. The result of Teacher's Performance Assessment (PK Guru) becomes the basis for determining the amount of credit obtained by the teacher for teacher's career development, as set in the Decree of the Minister of Administrative and Bureaucratic Reform No. 16 of 2009 [2] concerning Teachers' Functional Positions and Their Credit Values.

Then, the result of PK Guru is utilized to develop a profile of teacher's performance as an input for the obligatory Sustainable

Profession Development (PKB) program held for teachers in every academic year. This program intends to ensure that teachers are always able to satisfy the standard of competence and improve their competencies to anticipate future demands. This will make all teachers gain the appropriate image, respect, honor, and welfare because their competencies will promote the improvement and development of high-quality education services. The Sustainable Profession Development program is obligatory for teachers from the III/a level of position, in which they have to undergo self-development; teachers in the III/b level are required to publish academic and or innovative works. To move from IV/c level to the IV/d rank, teachers must do an academic presentation.

The Decree of the Minister of Administrative and Bureaucratic Reform No 16 of 2009 [2] mentions three elements of teacher's activities in Sustainable Profession Development (PKB) that earn them credit value, i.e., self-development, scientific or academic publication, and innovative work. Self-development is essentially an effort to improve teachers' skills and capabilities through, among others, functional training and education that may develop teachers' competencies and or profession. With such self-development, teachers will be able to perform their main and additional tasks and responsibilities. Functional training and education are some of the in-job training, implemented so that teachers can achieve the required competencies appropriate for their type and level of functional position (Government Regulation No 101 of 2000 concerning In-Job Training and Education for Civil Servants)[3]. The Minister of Education Regulation No 35 of 2010 [4] defines functional training and education as teachers' activities participating in education or training aimed to improve the teachers' profession in question over a specified period. As a consequence of this policy, all future teachers who have to develop their professional careers must have physical evidence of participating in Functional Education and Training.

The data from the Directorate of Educators (PMPTK) in the Ministry of Education shows that the Ministry is responsible for 2,607,311 educators from all levels of education in Indonesia. With this large number of teachers, it is impossible to provide Functional Training and Education for all of them in the current conventional way. An alternative, more progressive form of training, with broader access while maintaining a high level of quality, is needed so that all teachers can participate in functional training without leaving their places of work and their primary responsibilities at schools.

One of the alternatives to conduct such training and education for the development of teachers' competencies is by utilizing the concept of independent learning using modular material. Therefore, the study and development of a modular material-based independent training model are needed to promote sustainable professional teacher development functional training.

The professional career improvement of future teachers is highly dependent on the result of teachers' performance assessments (PK Guru), which require sustainable professional development (PKB) through in-job functional training. Several problems that often hinder the implementation of teachers' in-job functional training are, among others: (a) the materials provided in training are not the ones the teachers need; (b) the trainers often do not have more qualified knowledge and are not more experienced than the trainees; (c) the training is commonly held in the effective working hours when teachers are supposed to teach; (d) teachers generally view training as merely a requirement to have an efficiency report; and (e) the training organizers are usually too project-oriented, which means that they often focus only on the delivery of the training, not the quality. Another problem concerning teacher training is that the training is usually delivered in lecture form, which tends to provide a comprehensive understanding of the competencies needed by the teachers. These problems lead to the low quality of teachers' performances and, in turn, affect the result of students' learning.

Many aspects of the main competencies are understood incomprehensively by the teachers. Besides, teachers do not have enough opportunity to develop their understanding while performing their jobs. The training that teachers have participated in intend to be short and not optimal, as well as focus directly on practical skills only, leaving the other aspects untouched.

Identifying these problems warrant a scientific and empirical study to deal with the obstacles in teachers' competencies development through various alternatives embedded in the teachers' training model. In general, this study aims to answer the main problems of "what kind of model and training material is effective in developing teachers' competencies in a wider scope, with quality, and without requiring teachers to leave their primary jobs?" The questions to be studied to answer the main research problem include: (1) How are the implementation of the existing teacher training, the type of training, and the teachers' mastery of competencies? (2) What training model and material design can be developed to improve the ability of teachers' competencies? (3) How is the effectiveness of the implementation of a teacher training model using a modular material-based learning approach?

2. Literature Review

To be a teacher is to be a professional, meaning that the duties and responsibilities therein cannot be carried out effectively without appropriate training. A profession is a job or activity carried out by a person as a source of income that requires expertise and skills that meet specific quality standards or norms and require professional education and training. In-Law Number 14 of 2005 [1] on Teachers and Lecturers, it is stated that a teacher is a professional educator whose primary task is to educate, teach, guide, direct, train, and evaluate students through formal education in the levels of early childhood education, primary education, and middle education. However, according to Supriadi [5], the teacher's position is still a growing / emerging profession and has not yet reached the level of being a profession in the real sense.

Professional teachers must have various abilities. Sukmadinata [6] groups these abilities into three general dimensions: professional, social, and personal. Supriadi [5] assesses that capability is too ideal, so it is not easy to achieve and be evaluated by measurable criteria. Various training is needed to improve the ability of teachers. The real challenges facing the world of teacher training in the present and future according to Hasan (2001) are mainly related to improving the quality of teachers in terms of (1) mastery of subject matter being taught, (2) teaching ability, (3) vision and attitude towards the profession, (4)

ability to develop a profession, (5) ability to communicate with educators, experts, and the community, (6) community appreciation of the teaching profession, and (7) high competitiveness and professionalism. According to Evans and Brueckner [7], to become a qualified and professional teacher is strongly influenced by (a) professional preparation, (b) continuing education, (c) professional involvement, and (d) commitment.

Teacher training is being carried out by various parties, both government and private; it is considered as an effort to develop a systematic attitude, knowledge, skills, and behavior patterns needed by someone to have the ability to perform the task appropriately. It is also affirmed by Bramley [8] that "Training is a systematic development of the attitude, knowledge, skills and behavior pattern required by an individual to perform a given task or job adequately."

In training teachers, adult education methods (andragogy) must be applied. According to Abdulhak [9], the scope of the technique in adult learning involves: giving encouragement, revealing the growth of learning interest, delivering learning materials, creating a conducive learning climate, stimulating creativity, encouraging self-assessment, and identification and tackling weaknesses in learning outcomes. Considering that trainee teachers are adults, a methodological study of how to conduct adult training is more effective in optimizing intended outcomes.

Several approaches in training programs that apply self-instruction have received considerable attention in adult education [10]. These approaches include programmed instruction, individualized instruction, personalized system of teaching, learner-controlled instruction, correspondence study, and self-study.

The self-instruction approach in teacher training is related to the application of instructional technology concepts. According to Miarso [11], this instructional technology uses an isomorphic approach, which combines two complex concepts, technology, and instruction, in an integrated concept. Both academics and practitioners have now developed the science of learning technology in developed countries, especially the United States. The emergence of a book called "Instructional Technology: The Definition and Domains of the Field" is one proof of the development of scientific learning technology. Instructional technology "is defined as" the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning [12]." The application of learning technology in teacher training, according to Mukminan [13], comprises four primary characteristics: applying a systems approach, using learning resources as broadly as possible, and improving the quality of human learning, and orientation towards individual learning activities.

Programmed learning is a form of curriculum implementation in view of technological education. Lapp [14] notes that there are several advantages of this programmed learning: (a) providing positive immediate feedback and reinforcement for students (immediate positive feedback and support for the student), (b) releasing the teacher from "drill" type teaching, and (c) individual student progressions. The type of programmed learning developed by Crowder is better than that

established by Skinner; however, it would be even more perfect if modified with other methods, in this case, with the tutorial learning method. Kemp and Dayton [15] put it that the "tutorial method attempts to emulate a human tutor. Instructions are provided via text or graphics on a screen. At appropriate points, a question or problem is posed. If the student's response is correct, the computer moves on to the next block of instructions. If the response is incorrect, the computer may recycle to the previous instruction or move to one of several sets of remedial instructions depending upon the nature of the error."

3. Methodology

The research method in this study uses research and development methods. It is following the objectives to be achieved that include developing a training model aimed at improving the mastery of cognitive abilities in the pedagogical competence of elementary school teachers. Research and Development (R&D) is essentially a process used to develop and validate learning products or prototypes of research-based learning tools [16]. The outcome in this research is a training development model that uses an independent learning approach to improve cognitive abilities in elementary school teachers. Research and development activities in this study are operationally carried out through three stages: the preliminary investigation, the development of a training model, and the validation test of the model. The detailed research and development procedures are described in Figure 1.

The study subjects were managers of the institutions/agencies that were given the task of organizing training of elementary school teachers in West Java Province and several elementary school teachers in cities across West Java province. Data collection techniques and instruments for gathering information on research points are adjusted to the three stages of the research activities. At the field study stage, the questionnaire was used as the data collection technique; in the limited trial stage, questionnaires and interview guidelines were used for the broader trial phase in addition to using questionnaires, and interview guidelines were used as comprehension test instruments. Finally, at the model validation test, the comprehension test instrument was used.

Data analysis techniques used were adapted to the stages of research and development carried out, the pre-survey, testing the application of the model, and testing the validation of the training model.

4. Results/Findings

4.1. Preliminary Study Results

The pre-survey results from the preliminary study were taken into consideration in developing the draft model of elementary school teacher training to address the problem in the focus of this study. The field pre-survey was conducted through interviews with the leadership of teacher training institutions. Information gathering was by questionnaire to elementary school teachers in the study sample in several districts/cities in West Java. Table 1 below sums up the results of the survey i56t7n teacher training institutions concerning the organization of teacher training.
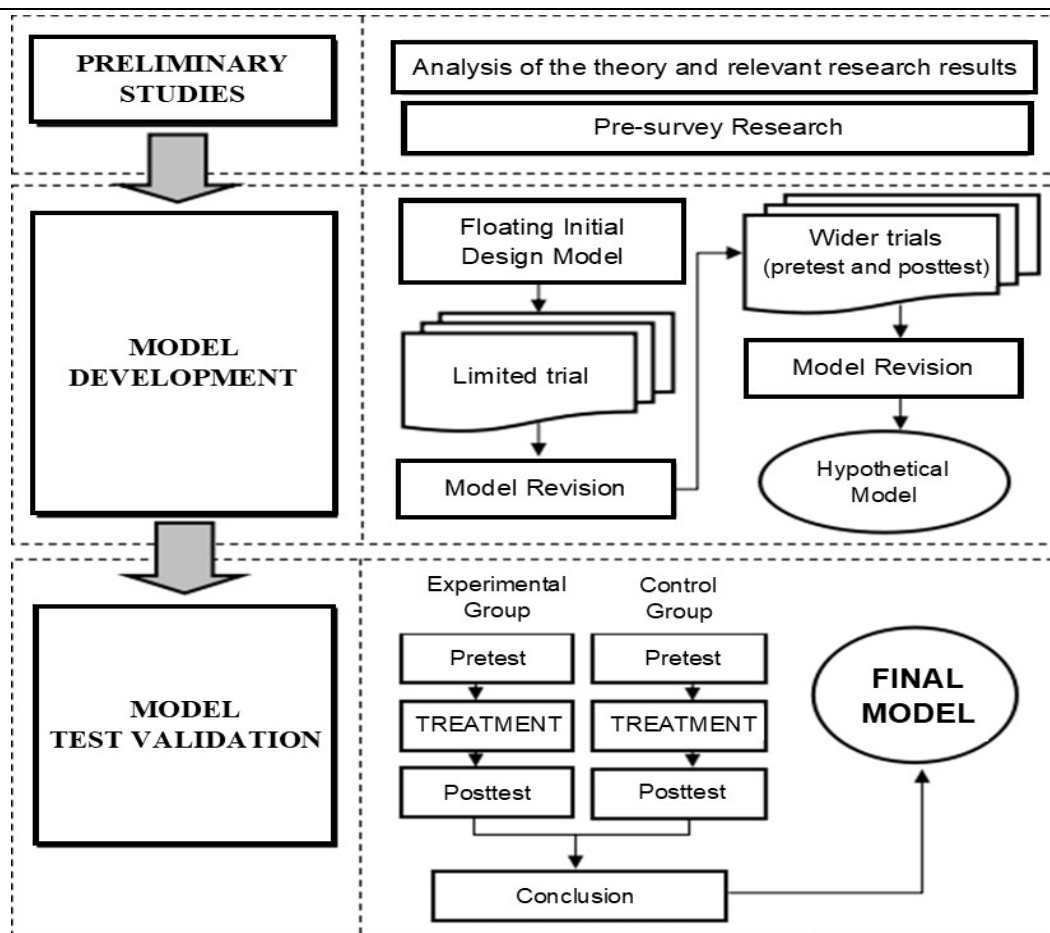
Figure 1: Research and Development Procedure

The following description is a synthesis of data obtained from the results of a survey of teachers as the basis for developing a modular model of teaching materials in elementary school teacher training. The study results on mastery of subject matter and pedagogical competencies can be seen in tables 2 and 3.

In table 2, almost all teachers stated that they had mastered teaching materials in the five primary subjects that were their responsibility. Only a small percentage of teachers still said they did not learn the teaching materials. There are no teachers who claim to be very ignorant of teaching material. However, there are only a few teachers who claim to be proficient in teaching material. With this description, according to perception, teachers, in general, have mastered the material in five elementary subjects.

If observed in table 3, it turns out that in general, teachers say that they have mastered the pedagogical competencies needed in elementary schools. A small proportion of teachers said that they had learned them. There are some interesting notes from the data

above, where for the mastery of teachers relating to how to communicate with students, it seems that as many as 70% of teachers have reached the level of proficiency to master it.

However, in three cases it was revealed that there were still teachers who did not learn the necessary educational / teacher knowledge, namely relating to (1) how to develop curriculum, (2) how to utilize information and communication technology, and (3) how to carry out thematic learning.

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Table 1: Results of a survey on the implementation of elementary school teacher training

Teacher training aspects	Conclusion of survey results
1. Teacher training needs assessment	The needs assessment results are rarely utilized in determining and sending prospective trainees following the training institution's requirements.
2. Teacher training programs and materials	Teacher training programs and materials are developed at the level of the training institution based on field needs analysis results. The focus of the

		training program is on the development of subjects taught in primary schools.
3.	Learning methods in teacher training	The training method applies the adult learning approach (andragogy) by optimizing the use of lecture and question and answer methods, simulation methods, problem-solving, practical activities, and field visits or practice.
4.	Teacher training instructor qualifications and competencies	Teacher training instructor qualifications are determined based on competency or mastery of subjects, experience, and educational background following the items. The appointment of instructors is determined by the directorate and or the teacher training institution.
5.	Recruitment of teacher training participants	Teacher training participants' recruitment is determined based on (a) direct appointment from the ordering party (directorate) and (b) based on training need assessment, although sometimes the local government with its authority determines itself without clear criteria.
6.	Assessment of the impact of teacher training	Impact assessments are carried out by monitoring the progress of the participants, both in the form of visits, correspondence, questionnaires, and direct observation of schools.
7.	Teacher training quality assurance program	Teacher training institutions do not explicitly develop quality assurance programs. It is usually done based on a review of various activities that are programmed.

Table 2: Levels of Teacher Mastery of Subject Materials

Subject	Teacher Mastery Level									
	STM		TM		CM		M		SM	
	f	%	f	%	f	%	f	%	f	%
PPKN	0	0	0	0	29	41.43	41	58.57	0	0
Religious Education	1	1.43	13	18.57	40	57.14	13	18.57	3	4.29
Indonesian	0	0	3	4.29	31	44.29	36	51.43	0	0
Mathematics	0	0	2	2.86	39	55.71	29	41.43	0	0
Science	0	0	0	0	42	60	28	40	0	0
Social Studies	0	0	6	8.57	40	57.14	24	34.29	0	0
Art and Crafts	0	0	10	14.29	42	60	18	25.71	0	0
Physical Education	5	7.14	21	30	37	52.86	7	10	0	0
Local content	5	7.14	5	7.14	40	57.14	20	28.57	0	0

Note: STM (very not mastered), TM (not mastering), CM (quite mastering), M (mastering), SM (very mastering).

Table 3: Mastery Competency Level of Elementary School Teacher Competence

Teacher's Pedagogical Competencies	Teacher Mastery Level									
	STM		TM		CM		M		SM	
	f	%	f	%	f	%	f	%	f	%
Educational foundation	0	0	7	10	40	57.14	23	32.86	0	0
Preparation of teaching plans	0	0	2	2.86	32	45.71	36	51.43	0	0
How to manage classes	0	0	1	1.43	30	42.86	39	55.71	0	0
Using media/learning resources	0	0	4	5.71	32	45.71	34	48.57	0	0
Manage Teaching and Learning Interactions	0	0	3	4.29	38	54.29	29	41.43	0	0
Assess Learning achievements	0	0	3	4.29	24	34.29	43	61.43	0	0
Counseling functions and services	0	0	6	8.57	34	48.57	30	42.86	0	0
School administration	0	0	7	10	34	48.57	29	41.43	0	0
Class Research	0	0	10	14.29	29	41.43	31	44.29	0	0

Note: STM (still not mastered), TM (not mastered), CM (quite mastered), M (mastered), SM (highly mastered).

If observed in table 3, it turns out that in general, teachers say that they have mastered the pedagogical competencies needed in elementary schools. A small proportion of teachers said that they had learned them. There are some interesting notes from the data above, where for the mastery of teachers relating to how to communicate with students, it seems that as many as 70% of teachers have reached the level of proficiency to master it. However, in three cases it was revealed that there were still teachers who did not learn the necessary educational / teacher knowledge, namely relating to (1) how to develop curriculum, (2) how to utilize information and communication technology, and (3) how to carry out thematic learning.

Based on the results of capturing information from teachers, information/data obtained about the frequency of training activities that have been attended by elementary school teachers are closely related to the main task area as a teacher. There is a tendency in the past five years. The frequency of teachers attending training is generally only 1-3 times, and only a small proportion of teachers participated in more than four training activities. There are still many teachers who have not attended training in the past five years (17.52% of 304 respondents). Based on the data obtained about the teacher's assessment of the training activities that he had participated in, there were still many teachers who stated that the training was unclear, for example relating to training on process evaluation techniques and the results of instruction used.

As for the expectations of teachers in the implementation of teacher training in the future, including:

- The existence of training material packages that have the characteristics of 1) using language adapted to the features of the participants, 2) optimizing the use of supporting media, 3) equipped with pictures and illustrations that are appropriate and interesting, 4) containing statements that are packaged in the form of disclosure of teacher problems, 5) the facts that are raised are actual, and 6) some questions are directed to solve the problem.
- Training places, in the opinion of some teachers, should not need an exceptional location, so teachers do not need to come to the training venue and do not need to leave their primary tasks. The method of training is to use material packages that can be done alone. Thus, in such training activities, there just a few instructors/trainers, but with expertise in their fields.
- According to some teachers, training time could be at any time as long as the form of training uses material packages and individualized instruction approaches.

5. Model Generated

Based on the pre-survey results, it was found that there were some loopholes the learning system implemented in elementary school teacher training activities at the time. Thus, a teacher training model that is more individualized and requires training participants to learn actively with the following characteristics is essential : (1) flexible in the sense of not needing a particular place, (2) opportunity and time are not so binding on the teacher, (3) learning adapted to the ability of learner and teacher, (4) broad-reaching and able to overcome geographical obstacles, (5) relatively cheaper training costs (on a large scale), (6) teachers do not need to come to the training site and do not need to leave their

main task at school, (7) able to overcome the limitations or availability of qualified instructors, (8) standardization of teacher quality; and (9) affect the independence, responsibility, discipline, tenacity, initiative, and creativity of teachers in carrying out their duties. The teacher training model's characteristics can be accommodated in training models that use programmable modular training materials.

The model design that resulted from this study was in the form of independent programmatic learning developed in elementary school teacher training, including planning design, implementation design, and assessment design, as illustrated in Figure 2.
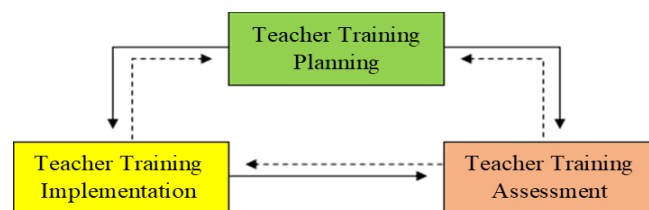

Figure 2: Teacher Training Development Model Design

5.1. Training Planning Design

The planning activity functions as a blueprint, providing an overview of what to do in teacher training activities. This model is an application of the concept of instructional technology in which the learning planning stage applies an approach that emphasizes systemic connectedness between various learning components. In this case, a systemic relationship means that all components in planning are integrated following their functions, related to one another, and form a unity. The training planning component consists of the objectives or competencies to be achieved, learning material, learning activities, and learning assessment. The training planning stage is illustrated in Figure 3.
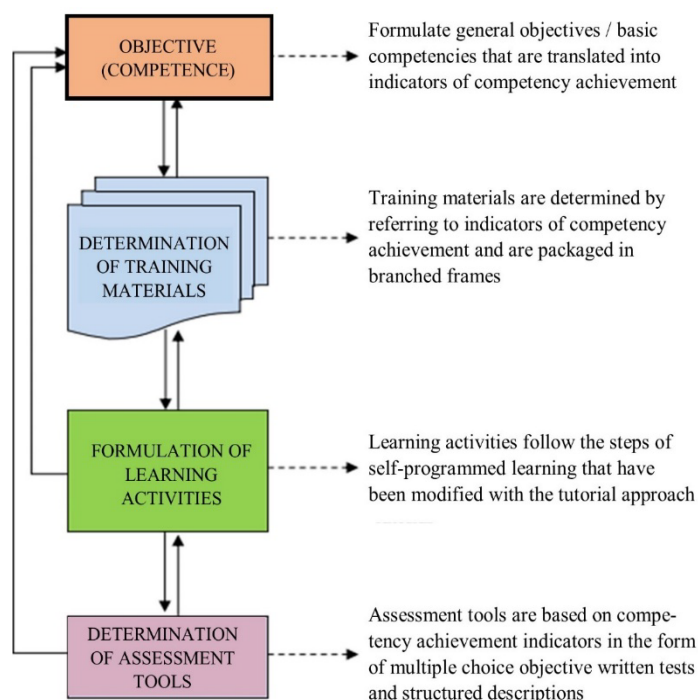

Figure 3: Teacher Training Planning Design

5.2. Training Implementation Design

The design of the implementation of learning developed in teacher training uses a self-instructional approach in which individual trainees carry out learning activities following prescribed instructions and procedures. The trainees actively interact with the training materials that have been packaged in such a way by reading instructions and presenting information, responding to questions, and seeing feedback on the alternative answers they choose. With this feedback, trainees without delay can determine whether the response given is correct or not, so mistakes can be corrected immediately. At the end of the activity, the trainees work on the tests prepared about the training objectives.

The amount of time spent by each participant in carrying out the training process may vary considerably. In this case, the trainees complete the learning at their own pace. Some participants can quickly complete, while slow participants can still finish even though not too fast. Adjustments are made in line with the principles of mastery learning.

The design of the programmed self-learning implementation developed as a modification of the model developed by Norman A. Crowder in 1962 called the Crowder's Intrinsic Program in the branching frame format. The characteristics of this type include: (a) broader and more information, (b) questions that are accompanied by several possible answers that can be chosen, and (c) checks that are accompanied by an explanation that explains why the answer/response true or false. Modifications to the learning model intended in this study emphasize improving the components or steps of the learning. The learning step applies the tutorial learning procedure developed by Allesi and Trollip [17] with the following eight stages: 1) Introduction, 2) Presentation of information, 3) Question of responses, 4) Judging responses, 5) Providing feedback about reactions, 6) Remediation, 7) Sequencing lesson segments, and 8) Closing. The procedure of implementing the self-learning program that must be taken by the trainees in this study follows the learning steps, as illustrated in Figure 4.
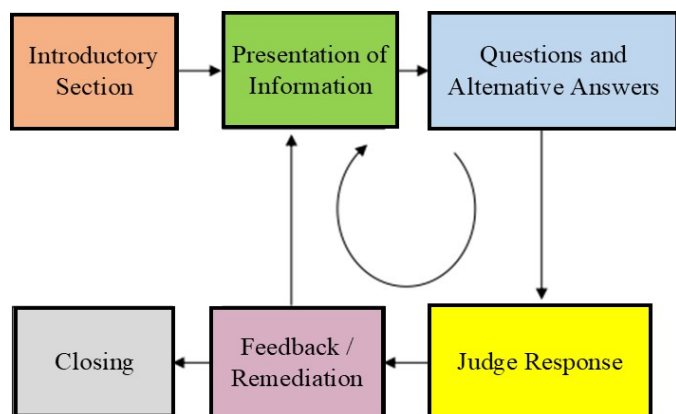

Figure 4: Design of Teacher Training Implementation

5.3. Teacher Training Assessment Design

Headings, or heads, are organizational devices that guide the reader through your paper. There are two types: component heads and text heads.

The assessment design used is guided by the learning planning developed in which the trainees must achieve some objectives/competencies. The characteristics of this model emphasize the ability and speed of learning of each trainee. Therefore, the assessment design used is more individualized and directed primarily to measure the cognitive abilities of trainees. The assessment takes the pretest and post-test procedures. The pretest determines the extent of training participants' abilities before studying the training material, while the final test determines the participants' abilities after investigating the training material. If the pretest demonstrates the trainees' mastery of the content presented, then there are several possibilities. For trainees who have mastered the entire learning material, there is no need to study the material. For trainees who have mastered some or part of the learning material, these participants do not need to learn it from the beginning. In this case, because the abilities of each participant differ, it is necessary to determine carefully, which participants must start from the beginning, which participants can begin in the middle, and so on.

The pretest (TA) and the pot-test (TF) in this model can be carried out with two variations. The first variation is when the two types of tests are carried out in each piece of training material (SM). In the second variation, the pretest is done before the trainee learns the presentation of the learning material. The post-test is done after the trainee completes the entire performance of the learning material. The type and form of assessment used are appropriate in measuring competence in cognitive aspects. Thus, the type of evaluation used is with an objective test and or structured description. The design of teacher training assessments can be seen in Figure 5.
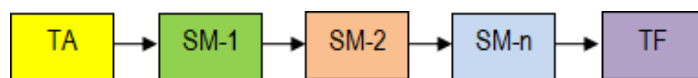

Figure 5: Teacher Training Assessment Design

5.4. The Effectiveness of the Teacher training Model

This teacher training model's effectiveness has been proven by a significant effect on improving cognitive abilities in pedagogical competence compared to conventional training models that are generally used today. To find out the description of the validity of the pretest and post-test treatment between the control group (trainees treated through the presentation with conventional procedures) and the experimental group (the trainees are given a treatment of serving with programmed modular teaching materials), the null hypothesis (Ho) proposed "there is no significant difference in ability between the control group post-test outcome variable and the experimental group post-test outcome variable." In contrast, the alternative hypothesis (Hi) proposed is that "there is a significant ability difference between the control group post-test result variable and the post-test result variable of the experimental group. "Acceptance of the null hypothesis (Ho) is done if the results of the calculation of significance are greater than 0.05 (> 0.05), and Acceptance of alternative hypotheses (Hi) is done if the results of the calculation of significance are less than 0.05 (<0.05). The calculation of the significance of the results of this post-test can be seen in table 3.

Table 3: Results of post-test calculation of control and experimental validation tests

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
POSTTEST CONTROL	36	7.2769	0.65877	0.10979	7.0540	7.4998	6.27	8.50
POSTTEST EXPRIMENT	36	8.1944	0.66845	0.11141	7.9683	8.4206	7.00	9.00
Total	72	7.7357	0.80474	0.09484	7.5466	7.9248	6.27	9.00

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15.153	1	15.153	34.406	0.000
Within Groups	30.828	70	0.440		
Total	45.981	71			

The significance calculation results are equal to 0.000, and F test results are 34.406. With the results of these calculations, the null hypothesis (Ho) is rejected. The alternative hypothesis (Hi) is accepted, meaning there is a significant difference between the control group's post-test outcome and the experimental group's post-test outcome variable. In this case, it can be concluded that the trainees who were given the treatment using the training development model using a modular programmatic model have higher abilities compared to the ability of trainees treated with ordinary procedures (conventional models).

The test results obtained instructions that the developed training material package can meet the requirements as an independent learning material that allows self-instruction. In reality, the use of training development models that are self-instruction is still a new thing that is considered relatively difficult to implement. Thus, an adaptation process needs sufficient time to provide awareness to the teacher training providers that training, which is more focused on acquiring cognitive abilities, does not always have to be done through face-to-face meetings with training instructors with a tight schedule and venue for training.

6. Discussion

Several assumptions underlying the choice of the teacher training model in this study include the following:

As a whole individual, the teacher inherently possesses self-learning capability by optimally utilizing his/her potentials. With sufficient time and opportunity, every teacher has the same chance to understand and master the knowledge and skills needed to perform his professional tasks.

Teachers are adults; therefore, the training model or approach should be relevant and based on adult learning theories and principles (andragogy learning). The implementation of an independent training model is essentially an implementation of adult learning theories and principles.

The self-instructional approach utilized in professional training is a better approach to develop human resources. It allows the trainees to self-instruct according to their own time and capabilities.

Learning with modular materials is a learning method or technology based on a system approach. It is primarily characterized by the progressive development of ideas to achieve the desired behavior. This approach's other characteristics include continuous evaluation, verification, and revision, varied and flexible delivery of easy-to-learn materials, and logistically easy to administer. Modular elements are equipped with various tasks and learning models, as well as continuous feedback. Slow learners will not lose their opportunity or be left behind, even if the materials get more complex and sophisticated.

6.1. Contribution of the Study to Teacher Training

In general, this study aims to analyze and develop a model for training primary school teachers using modular material-based learning. With new policies concerning the assessment of teachers' performance (PK Guru) and the sustainable profession development (PKB) and considering the vast number of teachers in Indonesia; makes it is impossible to satisfy teachers' needs for functional training using the existing conventional method. The development of a new model of teacher training is justified.

This study's significance and urgency on primary school teachers training using modular material-based learning are as follows:

The training model is based on the individual teacher's potential and skills. Thus, it will theoretically provide benefits for the development of future primary school teachers' training models.

This study's findings are expected to provide new principles for primary school teachers' training, based on the application of instructional technology concepts. These principles are expected to strengthen the benefit of self-instructional concepts in teacher training, which will help develop primary school teachers' competencies through maximizing independent learning without face-to-face learning.

This study's findings can be used to develop a model for initial teacher training in the future, mainly to develop the training system and materials. What is more, this training model will help improve teachers' mastery of their competencies because its learning is adjusted to individual learning characteristics and pace. They can learn the materials in training based on their capabilities, opportunities, and time.

For teachers living and working in remote areas, this model will free them from the geographical limitations to participate in competencies development training. Those teachers do not need to come to the training venue and do not have to leave their jobs at the schools.

For the primary school teachers training administrators, both at the regional and national level, this training model will go a long way in addressing various issues hindering the efforts of improving teachers' competencies and qualifications.

The dissemination and dissemination of new information or knowledge to develop teachers' competencies and improve teachers' professionalism and quality can be conducted on a broader scope. This model can reach more teachers, which will accelerate the development and equalization of primary school teachers' quality.

6.2. Output

The challenges and obstacles in future education, particularly at the primary school level, are expected to be more complicated than today. Therefore, it is essential to prepare teachers who are competent and able to understand their professional function and responsibilities to realize a high-quality education process. The targets to be achieved in this study are:

The profile of current primary school teachers training implementation, the types of training the primary school teachers, have participated in, and the level of teachers' competencies mastery.

The training model to improve primary school teachers' competency mastery consisted of the model of learning design, the model of learning implementation, and the learning assessment model.

Modular materials developed and used in the training model the dual-mode system.

Data and information concerning the effectiveness of the implementation of primary school teachers training model using the modular material-based approach, both in the aspects of comprehension and application.

The administration or implementation of primary school teachers' training focuses on the following aspects: Need assessment to compile data concerning various elements needed in teachers' training, supported by the result of teachers' competencies mapping as a measure of primary school teachers' competencies after the training.

The training program and materials are based on various aspects. The development of school subjects needs to focus on integrating those subjects with other essential skills. The learning method developed in primary school teachers' training should be supported by a more robust approach, focusing on adult learning principles.

Primary school teachers training in an uncoordinated training institution needs more proper management, including the recruitment and assignment of qualified instructors. The qualification of training instructors varies based on their competence/mastery of materials, experience, and educational background.

Training activities that can facilitate the improvement of competencies for numerous teachers require a significant amount of money. Teachers training with an independent learning approach can be a solution to widen access for teachers to participate in competency development training while reducing the costs.

Cognitive competencies of primary school teachers, including the mastery of the five primary subjects and educational/teaching discourses, are not comprehensively mastered by primary school teachers. This situation indicates the importance of a training system that develops teachers' motivation to learn those competencies according to their potentials. Decentralized training hinders teachers' mastery of competencies because they limit teachers' frequency and opportunity to participate and their time to master the competencies they need.

7. Conclusion

The implementation of primary school teachers' training has generally reflected the ideal condition of the efforts to improve teachers' competency. Further development to equalize the training opportunity for teachers is still needed. The obstacles to equalize the training and development opportunity include the discrepancy between the available training facilities and frequency of training with the number of primary school teachers whose competencies need to be improved.

The development of teacher training models should represent the interrelated nature of design, implementation, and assessment aspects as a whole system to improve teachers' cognitive, pedagogic, and professional competencies mastery. This training design utilizes a systemic approach that focuses on the interrelationship among the competencies to master, the training materials, the learning activities, and the learning evaluation. The designed training requires the trainees to perform the events based on defined procedures individually. The training design is more individual-oriented and aims at measuring teachers' cognitive skills in the pedagogic and professional competencies.

Ethical Statement: There is no conflict of interest. The author followed the right academic procedures. There is no human specimen used requiring a special declaration.

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