The Development of a Collaborative Training Model for Elementary School Teachers in Remote Area Indonesia

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Teachers in remote areas face many obstacles mainly related to the lack of professional development opportunities. This article proposes the development of an innovative training model (which was called a Collaborative Training Model or CTM) to help teachers use ICT to develop their teaching activities and to support their daily tasks. This study was a research and development which adapted a 4D model by Thiagarajan that was tried out on elementary school teachers in the remote area in Gunung Mas District, Central Kalimantan Province, Indonesia. The results showed that the CTM was valid based on expert judgement, the response of participants was categorised as very strong (positive), and the CTM that has been developed can help teachers achieve good learning outcomes. It can be stated that the CTM can be an alternative solution to overcome competency gaps of elementary school teachers in remote areas related to ICT skills for learning purposes and to achieve meaningful training.

Key words: *Collaborative Training Model, Teacher Training, Remote Area*

INTRODUCTION

The lack of teachers' quality, limited professional development programs (Gándara et al., 2001) and the inability to improve and maintain teachers' quality were main problems which were faced by teachers in remote areas (Arnold, 2001).The quality of education at the school level was highly correlated with the quality of teachers, especially at the level of elementary education;, the quality of elementary education was strongly influenced by the professional level of the teachers. Teachers' knowledge and competencies had a significant impact on the

academic performance of their students, so it could be concluded that the quality of education itself was unlikely to exceed the quality of teachers (Fauth et al., 2019).

Characteristics of remote areas appeared with different geographic characteristics, socio-cultural and educational distinctive, and thus required a separate approach in the handling of its education (Nugroho, 2018). The impact of living in a remote area should not be underrated because of the teachers who served in remote areas as well as task switching or devoted to other parts of the world (Heslop, 1996). Support and seriousness of the government in leading the teaching profession through a variety of innovative programs would largely determine the quality of education in those regions.

The training program is a form of continuous professional development mandated by the Ministry of Administrative and Bureaucratic Reform Regulation Number 16 of 2009, which is currently used as a trend model in improving teachers' competencies, as in fact it has not shown the expected results in improving teachers' competencies. Teacher training is a program which is planned to improve teachers' competencies; they are improving the knowledge, skills and attitudes so that teachers could carry out their duties professionally (Seufert et al., 2021). Various empirical evidence showed that the training programs which were implemented by the government have not been able to improve teacher competencies, especially for teachers who work in remote areas. The programs that had been implemented by the government failed to reach the needs of teachers in remote areas (Juharyanto, 2017). Another study found that remote area teachers had difficulties in increasing their competence because government programs did not reach their real needs (Dole et al., 2020). According to Nugroho (2012), in a remote area in the Gunung Mas District, which is one of the expanded Districts in the Central Kalimantan Province, he concluded that various forms of professional development for elementary school teachers in remote areas, included several trainings conducted by the Gunung Mas District Education Office and has not been able to improve teacher's competencies. This is due to geographical conditions where the schools are difficult to reach, inadequate facilities and infrastructure, development personnel who are not yet effective in carrying out their duties. In addition, lack of commitment from policy makers in remote areas which were indicated by the establishment of programs that were not well planned, sustainable and integrated, were as obstacles that hinder professional development of elementary school teachers in remote areas.

The ineffectiveness of training programs for elementary school teachers which were held in remote areas during this time, were also due to the establishment of programs based on the needs assessment of the form and teacher training activities, such as what was actually required by teachers in developing professionalism (Nugroho, 2014). Several other studies also revealed the similar things happened that the failure of various teacher training programs was due, among others, to the implementation of mass-based, project-oriented, budget-based programs (Jalmo & Rustaman, 2010), ignoring the individual teacher shortages (Department of National

Education, 2008); it also still generalised the problems, whereas the problems faced by teachers were local and contextual; it was also top-down designed by the central government where teachers only followed existing programs (Nugroho, 2018). This means that the implementation of training programs was not based on the real needs of teachers. A particular training model could be effectively implemented for teachers in a certain area, but on the contrary it is not necessarily effective if it is applied to other areas that have different characteristics and problems. For instance, it is impossible for the same training model to be provided for elementary school teachers in urban areas and elementary school teachers who work in remote areas, whereas in reality the needs of teachers and their level of competencies are very different. Darling-Hammond (2006) stated that training programs that are not based on the real needs of teachers, would not have an impact in increasing teacher competencies and could even reduce teacher motivation, and be a waste of time, energy and budget.

A study which was conducted by Nugroho (2014) recommended the need to develop an effective training model to improve the competencies of elementary school teachers in remote areas because so far there has not been a truly effective training model applied for elementary school teachers in remote areas. Through the innovative training model, which is a training model designed and developed based on the real conditions and based on the competencies gap of elementary school teachers in remote areas, it is hoped that it can improve teacher competence which in the end will indirectly lead to improve the quality of education in those regions.

Based on those facts explained above, this research and development was aimed to produce an innovative training model to improve the competencies of elementary school teachers in remote areas in the Gunung Mas District, Central Kalimantan Province, Indonesia.

METHOD

The development of the training model and its tools in this study was adapted from the development model proposed by Thiagarajan et al. (Ibrahim, 2001); they are define, design, and develop, as shown in Figure 1.

Figure 1. Stages of developing an innovative training model
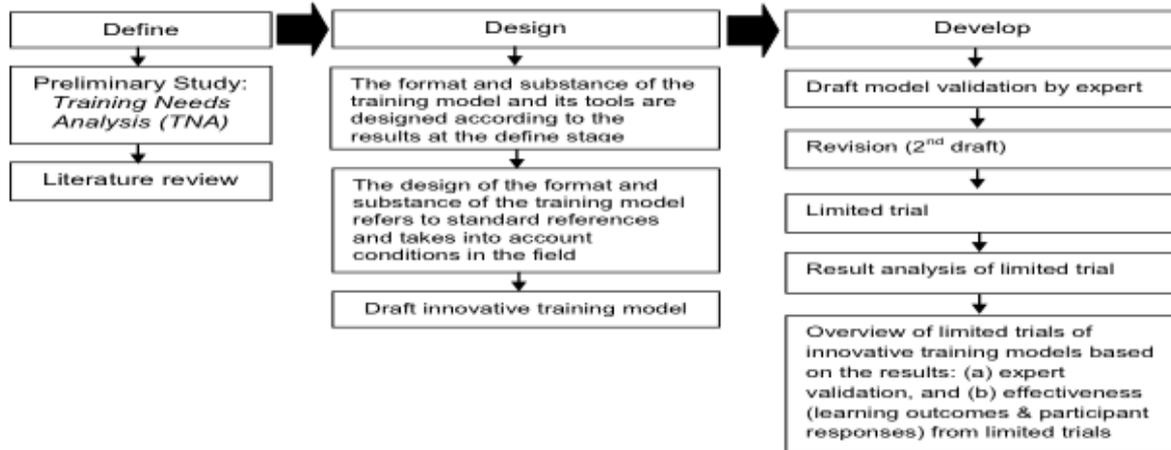
At the define stage, it was conducted out through a Training Needs Analysis (TNA). Through the analysis of training needs, the accurate information would be obtained from competencies and indicators of elementary school teacher competencies, which were also as training needs priority as well as being an innovative training model that would be developed in improving the competencies of elementary school teachers in remote areas.

In the design stage, a prototype (draft) of an innovative training model (draft 1) was designed and produced. The format and substance of the design refer to existing standard references, including the Parker Model and the Otto and Glaser Model; however, the scope and facilities for supporting activities were adapted from the context of elementary schools and the environment in Indonesia, especially in remote areas of the Gunung Mas District, Central Kalimantan. At this stage, the preparation of research instruments and supporting tools for the innovative training model was developed.

In the development stage, an external validator was conducted on the review (validation) for the first draft model which was being developed. The validator would read the first draft of the manuscript and provided comments on the sections needed. Validation was carried out by the experts of education management and the experts of training model development. According to the results of this validation then the model was revised. The revision result was in the form of second draft training tools. The next step was to carry out limited trials for elementary school teachers who work in the Miri Manasa and Damang Batu sub-District in the Gunung Mas District, Central Kalimantan Province, Indonesia.

The instruments used in this study were the participant activities, observation sheet, validation sheet, questionnaires, and participant evaluation sheet. The results of observations and data obtained from the limited trial of the training model were analysed descriptively and

quantitatively in the form of a percentage; so it was to find out that: (1) expert analysis (validation) of the training model, (2) participants' responses toward the developed training models, (3) activities of participants in training, and (4) knowing whether the tools developed actually help the training participants to achieve learning outcomes optimally.

RESULT AND DISCUSSION

RESULT

At the beginning of the development stage to produce an innovative training model, it was carried out through a TNA. The purpose of conducting TNA was to identify competency gaps by comparing current (actual) competencies to the desired (ideal) competencies which was in this case refering to the Ministry of National Education Regulation Number 16 of 2007 concerning Academic Qualification Standards and Teacher Competencies. The results of TNA would provide an overview of which competencies and indicators of the competency of elementary school teachers in remote areas, in the Gunung Mas District, experienced gaps and whether these gaps could be addressed through training or in addition to training.

The results of TNA showed that the fifth indicator of Pedagogic competence was: "Using Information and Communication Technology (ICT) for Learning Purposes". This was as an indicator that experiences the highest gaps as well as occupies a top priority that urgently needs to be addressed through training, which subsequently becomes a reference for the researcher in designing and developing innovative training models for elementary school teachers in remote areas.

Information technology is basically everything related to the process - used as a tool, manipulation, and information management. Meanwhile, Communication Technology is all things related to the use of tools to process and transfer data from one device to another. Based on this understanding, if it is related to the learning process, the mastery of ICT in the learning process is a processing tool used to manage and transfer lesson information through various media which are used by the teachers. In the context of elementary schools, the benefits of mastering ICT by the teachers can be used to support the implementation of teacher daily tasks (Uluyol & Şahin, 2016). This opinion implied that the mastery and the use of ICT for elementary school teachers is something that can be said to be "simple", but if it is related to the need of implementation of the teachers' professional duties in remote areas, it becomes something more important.

As the effort in identifying various training needs related to ICT content for the benefit of learning and the implementation of daily tasks for elementary school teachers in remote areas in the Gunung Mas District, as well as how the training should be carried out so that it could provide real and meaningful benefits in optimal acquisition in mastering the knowledge and

skills of the teachers, then a Focus Group Discussion (FGD) was conducted. The parties who were involved in the FGD activities consisted of the researcher as the developer of innovative training models, the Gunung Mas District Education Officer as the person in charge of education management in the Gunung Mas District, and elementary school teachers in remote areas who were involved as research respondents as in the previous stage.

Based on the results of the FGD, there were 2 (two) basic conclusions that became a reference for designers / developers of innovative training models. First, regarding the content of ICT training, that teachers were eager to understand and master skills about the use of word processing software, presentation processing software, and spreadsheet software (Microsoft Office) which could be used to support the implementation of their daily tasks in an elementary school in remote areas. The results of the FGD on the Microsoft Office Program along with the program content that the teachers wanted to master, are as presented in Table 1 as follows.

Table 1. Training content of the use of ICT for learning purposes of elementary school teachers in remote areas of the Gunung Mas District

Software program	Program content that teachers need
Utilisation of the word processing application	Cover making, page numbering, paper settings, creating charts using shapes, inserting pictures in text, and compiling automatic table of contents
Utilisation of number processing application	Processing student scores, creating charts, and creating a simple report
Utilisation of presentation processing application	Creating interactive presentation slides

Second, related to training patterns or models, which was based on the experiences of various training activities that have been attended by teachers, in reality they have not provided much benefit for the teachers. One of the reasons was related to the implementation of training programs that were carried out based on the perspective of the training organiser/instructor, both from the training content and the training implementation pattern itself which places the teacher as a training subject who must "submit" to the established training procedures by the training organiser/instructor (pedagogical); or the training program was perceived by the teacher simply as a "content transmission model" process. The existing training programs have also been assumed to provide less space for teachers to be able to develop their knowledge and skills maximally, because the implementation of existing training programs is full of content which, in fact, not all of them are needed by teachers. Besides that, there was also an opinion that the training must be finished quickly. Whether the teacher understands it or not during the process or after the training is not the main target that must be achieved. This reinforced the

notion that the teacher professionalism improvement program was still top-down, so that it did not concern the needs of teachers in the real situation (Widodo et al., 2011).

In general, the results of the TNA could be said to be understandable considering the use of ICT for learning purposes was not something "common" for teachers who worked in remote areas. Besides that, the lack of a program for mentoring and developing teacher competencies related to the use of ICT in learning was one of the factors that caused this to happen. However, this condition certainly cannot be used as an excuse, because mastery of ICT for the benefit of learning was one of the most important competencies for teachers to master in the 21st century (Saavedra & Opfer, 2012); besides that, specifically the Ministry of National Education Regulation Number 16 year 2007 mandates the use of ICT for the benefit of learning and self-development as an important indicator that must be mastered or possessed by a professional teacher, including for those who worked in remote areas.

The results obtained from the define stage (TNA) were used as a basis for reorienting the training process for teachers, in this case elementary school teachers in remote areas of Gunung Mas District, Central Kalimantan. The point of views and behaviours that placed training activities as a "content transmission model" must be eliminated. The training paradigm should emphasise learning, be participant-centred, shift from "the domination of the instructor and what will be trained" to "participants and what was needed". Training must create meaningful connections with real life (read: teacher needs in the real situation). The training must provide broad opportunities for participants (read: elementary school teachers in remote areas) to carry out activities to gain hands-on experience based on what they need related to ICT.

The developed model was a Collaborative Training Model (CTM) which was built from a supporting theoretical foundation; the objectives of the training model were developed; the steps / stages of the training model, and the training environment. Figure 2 showed the conceptual framework of the CTM developed.

Figure 2. The developed of CTM
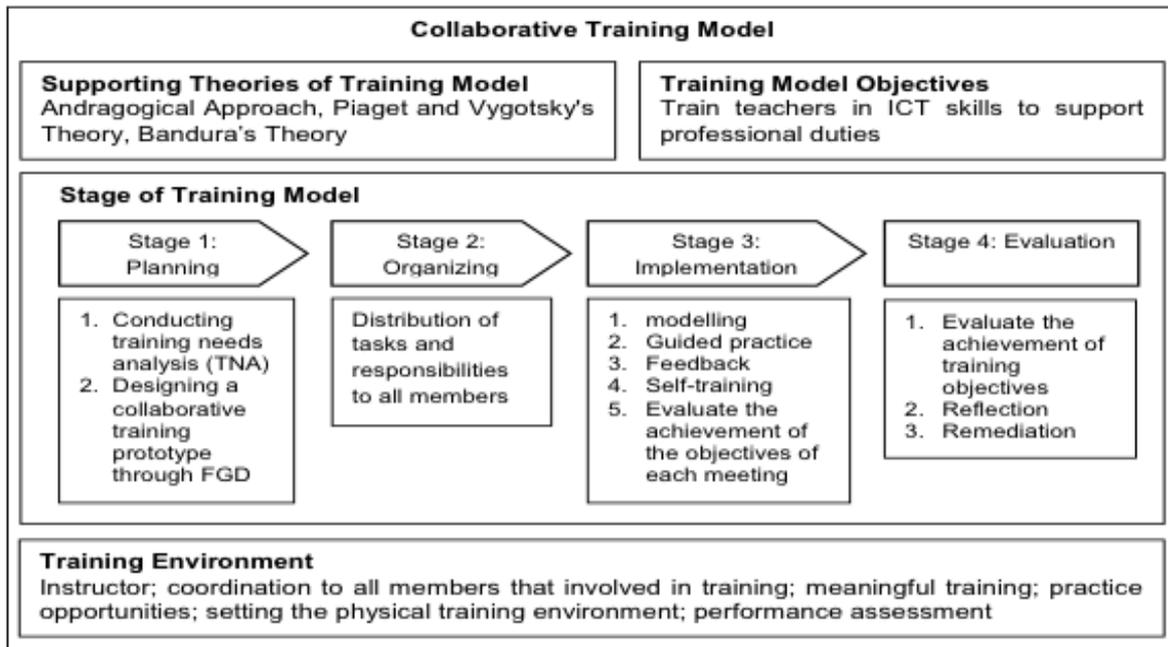
The theoretical of the CTM referred to several theories, including: (1) Andragogy theory: Adult training programs (read: teachers) were based on real needs or what was stated by Diep et al. (2019), a participant-centred training process as a training approach based on the principles of adult learning; (2) This model was developed from the opinion of Piaget and Vygotsky (Arends, 2012). that individuals in an effort to complete their tasks by help from others (interacting with others); (3) Bandura's theory (Arends, 2012) which emphasised modelling, where learning was done through observing the behaviour of others. Learning with modelling was learning that occurred when a person observed and imitated behaviour so that the person could have knowledge, skills, rules, strategies, beliefs, and attitudes (Arends, 2012).

The objectives of this CTM were set based on the real conditions of the needs of teachers in the real situation, especially elementary school teachers in remote areas in the Gunung Mas District, Central Kalimantan. The general objective of developing this model was to improve the competency of elementary school teachers in remote areas through collaborative training. The specific objectives were: (1) through this CTM it was hoped that it could improve the competence of elementary school teachers in remote areas of the Gunung Mas District who experienced gaps in competency based on the results of TNA, (2) Teachers could understand and apply ICT to support the implementation of their daily duties, especially for the benefit of learning and other professional duties.

The stages of implementing the CTM were divided into 4 (four) stages, namely: the planning stage, the organising stage, the implementation stage, and the evaluation stage. The planning stage was divided into 2 (two) activities, namely: (1) TNA, (2) joint design of training

objectives and design through FGD. The organising stage was carried out by determining the division of tasks and responsibilities in training activities. The implementation stage was divided into several activities, namely: (1) giving the information about training objectives, (2) giving examples (modelling) and guided training (guided practice) related to the ICT content being trained, (3) providing feedback, (4) giving independent training opportunities for participants, and (5) assessing each training content or review. The evaluation stages consisted of 3 (three) activities, namely: (1) conducting evaluation related to content through performance tests, (2) reflecting together on a series of training processes that have been implemented, (3) conducting remediation. The important characteristics of a learning environment that supported the CTM included learning objectives, meaningful learning materials, providing opportunities to practice, feedback, coordination in program implementation, competent instructors both in terms of content mastery and mastery of the management of training activities, performance-based assessments, and setting up a dynamic physical training environment.

Validation was intended to obtain consideration or judgement by the expert or practitioner. The validation of the CTM began by providing a text (book) containing a conceptual explanation of the CTM along with the Training Model Assessment Sheet for two validators from independent institutions who were considered to have expertise in the field of educational management, especially in developing training models. These experts provided input related to the correctness of the content and its suitability with the theoretical foundations that built the training tools. The results of the validator's assessment of the innovative training model were summarised as follows.

Table 2
Results of CTM validation

Model components	Score	Category
Supporting theories	4.25	Valid
Stage of the model	4	Valid
Social system of the model	4.5	Very valid
Support system	5	Very valid

Besides the conceptual of the CTM, validation was also carried out on the tools used in the CTM developed. The validated tools that were: (1) training plan, (2) participant worksheet, (3) module, and (4) assessment/evaluation sheet. The following is a summary of the results of the validator's assessment of these tools.

Table 3. Results of the validation of CTM tools

| Tools	Average score	Category
Training plan	4.46	Valid
Worksheet activity	3.68	Valid
Module	4.20	Valid
Assessment tool	4.23	Valid

Based on the data presented in Table 2 and Table 3, it could be concluded that conceptually the CTM and the tools that supported the developed model were categorised as valid or feasible to be tested in the class.

Generally, based on expert analysis (validators), the salient features of innovative training models and tools that have been developed are: helping participants and making it easy for participants to realise adult-based and participant-centred training, emphasising the application of information communication technology (ICT) to the real situation (learning and other teacher assignments) based on their needs, developing the thinking skills of participants, raising authentic performance-based assessments, and supporting the realisation of a democratic and interactive learning atmosphere.
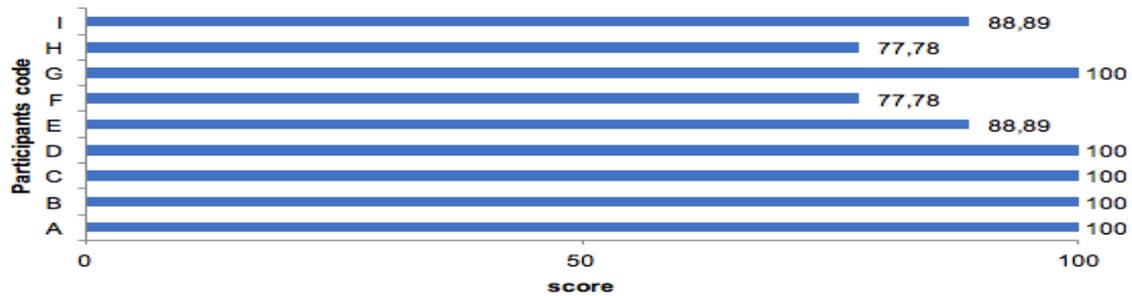
The analysis of the results of the implementation of the CTM was focused on three things, namely: (1) learning outcomes, (2) activities of training participants, and (3) participant responses to instructors and training implementation. The data of learning outcomes in training by using the CTM for each meeting and the final test were presented respectively in Figure 3a and 3b. Based on the results of the analysis of learning outcomes data in limited trials (as in Figure 3a and 3b), all participants obtained a score of more than 60, either from the test results of each meeting or based on the final test results. Thus, by referring to the predetermined criteria, the limited trial has achieved the expected learning outcomes from the results of implementing training with a CTM.

Figure 3

(a) Results of participants' assessment at each meeting; (b) Participant assessment results based on the final test
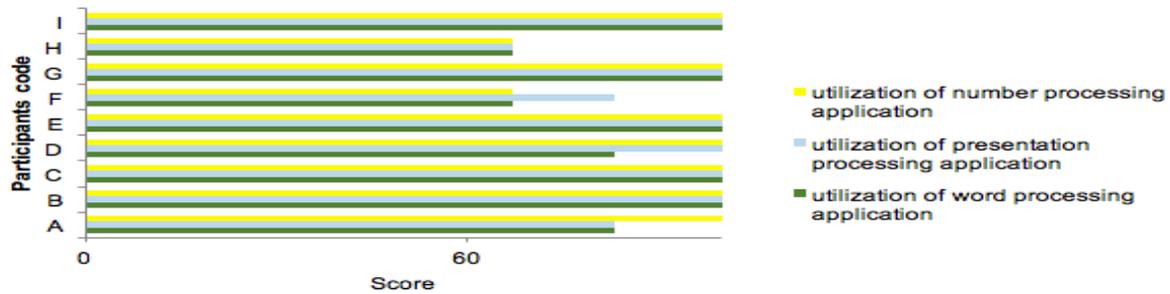

(a)

(b)

Figure 4 showed participant activity data when training was applied by using a CTM. Based on the results of the analysis of participant activity data on the limited trial, there were four types of activities that were expected to have been fulfilled (existed), they were; communicating the results of the work they get, trying to carry out activities contained in the worksheet, responding to ideas, answers, questions or opinions, and asking questions or stating the problem. Thus, by referring to predetermined criteria, the expected participant activities in the trial have been achieved.

Figure 4. Results of participants' activities at each meeting
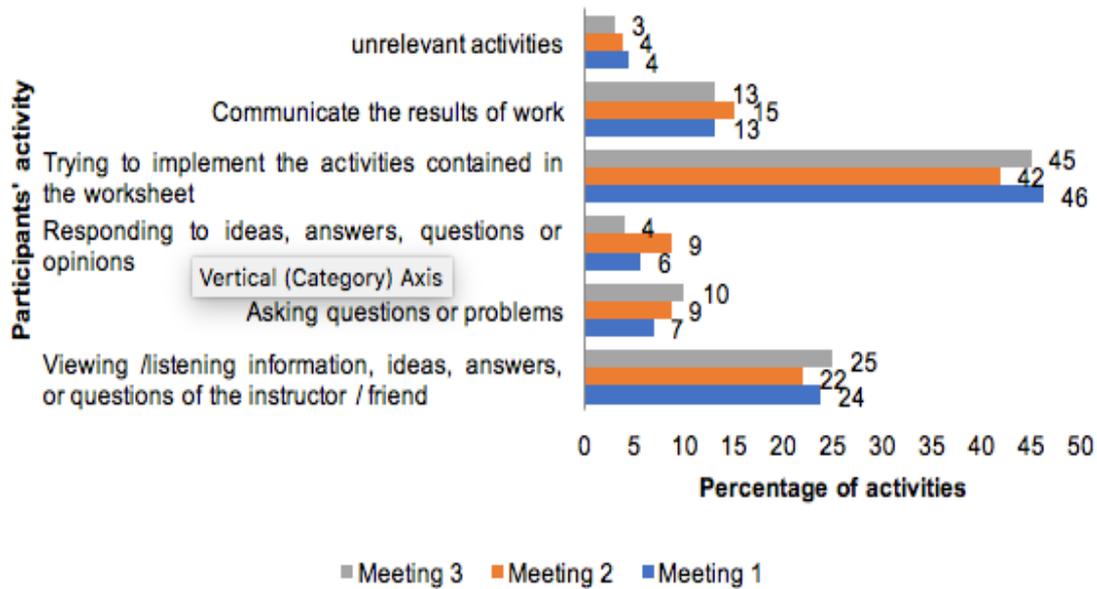
By implementing the CTM, based on the results of the research on this limited trial, it could change the instructor's habits in dominating the learning class. Through various activities, for example: practice (working on worksheets), discussions, presentations, doing assignments, most of the time in class was used by participants to build their own knowledge. Indeed, in these various activities, the instructor was still involved in the mentoring process but the guidance comes from questions or needs of the participants.

Regarding the implementation of the training model that has been developed, responses from the participants to the instructor and the implementation of the training were captured. The following figure showed the participant response data toward the instructor and the implementation of training using a CTM (Figure 5).

Figure 5. Results of responses to instructors and training implementation
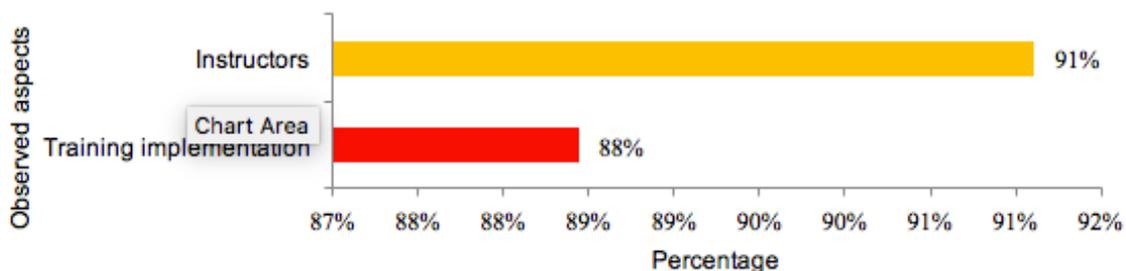
Based on the results of the analysis of the responses of training participants towards instructors and the implementation of training by implementing the CTM on limited trials, the percentage was 91% for training instructors and 88% for training implementation. The response of the participants to the instructor and the implementation of the training was categorised as very strong (positive response).

DISCUSSION

The old training paradigm which tended to be top down was designed by the central government, was en masse and did not concern to the real problems of teachers because in reality it was not based on a teacher needs analysis; as well this, its implementation models and practices which tended not to match the characteristics of adult learning and in its implementation was still dominated by instructors the training, had to be eliminated. The impact of teacher training that was far from the nature of adult learning, gave an impact on the low achievement of training objectives and the inability to have a significant impact in improving teachers' quality (Harris, 1990); it has not been able to make teachers more professional upon their return to their assignments (Asikin & Junaedi, 2014).

The training that was carried out to develop teacher professionalism must be based on the consideration that training participants are basically adults who have certain characteristics (Susilana, 2014). If in an educational or training process, there is a treatment that does not respect or does not give the opportunity to determine oneself, then there will be rejection or unenjoyable reactions from adult learners. The training participants need to be involved in every stage of training or the involvement of learning participants (learning citizens) in all activities of the learning process, so it will help accelerate strengthening for changes in themselves as well as on the basis of their own will, and help development in the future (Ayvaz-Tuncel & Çobanoğlu, 2018). Regarding that, the teachers training must be carried out with a training participant-centred learning activity approach, in the sense that the preparation of learning materials and the determination of the steps for learning activities are carried out jointly by participants and the training designer/developer.

The CTM developed has verified to be effective in overcoming the problem of teacher competency gaps, especially related to the skills in using ICT for learning purposes in remote areas. The research results as described in the previous discussion showed that the effectiveness of achieving the training objectives can be seen from the optimal learning outcomes of the training participants as well as the positive responses of training participants towards the instructors and the overall training implementation.

Why is the CTM up to the limited trial stage able to obtain optimal learning outcomes from training participants? One of the interesting things as well as one of the characteristics of the CTM, is that the training is participant-centred. It is the training participants who really know

what their needs are, how to learn effectively for them so they will be able to solve the problems that they face, especially related to the implementation of their daily tasks at school. The effectiveness of learning outcomes through a CTM that emphasises the active participation of participants in every training stage, especially in training planning that is possible to identify what to learn and how to learn effectively for teachers. Through joint planning, it will promote learning motivation for training participants because the learning design is prepared according to the conditions, needs and characteristics of the training participants (Onalan & Gursoy, 2020). The settlement of planning and learning objectives for adults must be determined and agreed upon by the learning community through a learning contract. In this way, the training participants consider the learning experiences as their own goal; it is caused by the process of formulating learning objectives taking into account of their own needs as well as the needs of the institution they work for as a consideration in this determination (Edosomwan, 2016).

A participant-centred training process is a training approach that is based on adult learning principles (Lauer et al., 2014). Through this approach, an instructor can help participants to develop the answers to their own questions, apply tools and techniques, use materials and find resources to solve problems encountered in training and realities in a real situation. In a participant-centred training approach, the learning process relied on the participants. Even though the instructor remained fully responsible, the responsibility of the training shifted to the participants; it was not only that they became creative or had experience, but also especially in creating action plans and how they used their new skills. One of the keys for this training approach lay on the enthusiasm of the participants. The instructors were not always ready to provide proper problem solving or answer every question. This approach departed from the assumption that participants know and understand their problems better, so that the role of a training instructor was more to help or facilitated the learning process of the participants. In this approach, the instructor provided a supportive environment for participants to explore, struggle and explore their thoughts, so that they achieved real insights, according to the problems faced by participants. This participant-centred training approach could show tangible benefits in the learning process. The application of this approach in training could increase the confidence of the participants. Research conducted by Fowlie (2001) used a training method that involved participant-centred activities that could increase the participants' self-confidence. The increasing of self-confidence was not the aim of the training, but was a side effect of using participant-centred training methods. The participants who actively participated in the training would have more opportunities to gain new experiences, reflect on and connect with previous experiences and knowledge. They would be more able to find and form new concepts, so they would have new understandings. They would also more easily remember what they have learned. In the memory process, they would get a generation effect; this is an effect where information would be easier to store and recall (remember) if they created the stored information them selves. They would also get a self-reference effect, which is an effect where a person will find it easier to retrieve the information they store if the information is linked to him/herself or his/her personal experiences (Morteza Karami et al., 2020).

The next question is whether the CTM really leaves pedagogical concepts? This is an interesting question for this research. In the design of the CTM which was developed, it cannot be separated from the concept of pedagogical education. The application of these two approaches in a learning (training) is very possible, as Edosomwan (2016) suggested that pedagogy and andragogy can be applied simultaneously in a learning situation depending on the objectives and expected results in a learning process; because basically adults also learn from modelling and observation as well as children in social learning theory. The concept of pedagogical education appears at the implementation stage which is related to modelling and the guided practice stage. At the first conceptual design of the CTM, modelling and guided practice are carried out separately, they are: (1) the instructor presents training content through modelling or demonstrating skills by demonstration and then (2) providing opportunities for participants to practise under the instructor's guidance. In the initial conceptual design of the CTM, modelling and guided practice are carried out separately, namely: (1) the instructor presents training content through modelling or demonstrating skills by demonstration and then (2) provides opportunities for participants to practice under the instructor's guidance. This is based on the theory that modelling emphasises demonstrating a procedure to others and then that person imitates what was demonstrated (Arends, 2012). Learning with modelling is learning that occurs when someone observes and imitates behaviour. However, the facts when the training process happened, the two stages (modelling and guided practice) are carried out simultaneously. Based on those observations, when the instructor models a skill, participants (automatically) follow/try/imitate what the instructor is modelling. The researcher assumed that it became a differentiator for modelling and guided practice in adult education (andragogy) and children's education (pedagogy). Participants in collaborative training had a tendency to take the initiative and be creative on what they learned.

There was an interesting note related to the implementation and training of instructors. Based on the research results, the participants gave a positive response to the implementation of the training and the instructors who were involved in the training activities. The participants gave a positive response to the instructor which were in mastering the material, how to present it, and the instructor's interaction to the training participants. In general, during the training implementation stage, the instructor was still involved in the mentoring process, but the guidance come from questions or needs of the training participants. In addition, participants also gave the same response to the implementation of the training. Themes and content (material) were very relevant to the participants' needs; while the atmosphere and the tools really helped the participants in their efforts to understand the content presented in the training.

CONCLUSION

Various empirical studies that show the ineffectiveness of elementary school teacher training, especially in remote areas, should get serious attention from the government in its handling efforts. CTM as a training model is an alternative solution that can be used by the Indonesian government to redesign teacher professional development policies through training for teachers who work in remote area elementary schools, especially those related to ICT skills for learning purposes and achieve meaningful training. The CTM that was developed has advantages as well as characteristics from the existing training model because it is designed based on the teachers' needs analysis related to competency gaps in the implementation of their professional duties in remote areas, and are participant centred based on how adults are learning because in essence teachers are adult learners who have different learning methods/styles from children (pedagogy). Underline finding in this research, although CTM was developed based on andragogy, in practice it does not completely abandon the concept of pedagogy, because the application of pedagogy and andragogy concepts in a learning/training is possible. The concepts of pedagogy and andragogy can be applied simultaneously in learning situations depending on the objectives and learning outcomes that was expected in a learning process; because basically adults also learn from modelling and observation as well as children in social learning theory.

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