Perception TrainingImprovement of Pedagogical Content Knowledge (PCK)Science Teacher at the Junior High School in Lampung

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Abstract:*This study aimed to describe the perception of junior high science teachers on training to improve PCK. Survey with purposive sampling technique, amounted to 254 teachers who are scattered in Lampung Province. Data taken with the teacher's perception questionnaires reveal about the impact, challenges and strategies that are expected by the teacher in training. Furthermore, the data were analyzed by gender, length of teaching and educational background. The results showed that a large part (86.3%) of teachers feel the impact of training on competence "small". Women teachers feel the impact of greater training than men. Teachers stated constraints are felt in the dominance of tutors (62.1%), the number of participants too much (69.1%) narrow time (55, 4%), and not all participants percentage (55.8%). The strategy is desired by the teacher in training is to use the approach Andragogy, more practice than theory and their peer tutors. Conclusions from this research that the perceived impact of teacher training "small" because there are several obstacles perceived current teacher training.*
Keywords:*Kurikulum 2013, PCK, Training of science teachers*

I.   Introduction

National Education System Number 20 of 2003 states that educators (teachers and lecturers) are professionals, so that as professionals, teachers must have academic qualifications and competence were good Kemdikbud[1] in an effort to achieve national education goals. The quality of a good teacher will greatly affect the success of students Azam et al[2], Bayar[3],Tanang et al [4], so the teacher must thoroughly understand the main task. Teachers who master the curriculum and skills in science teaching can be regarded as a professional science teacher NSES [5] as a science teacher professional competencies required of the pedagogic, professionalism, social and personality competence.

PCK science teacher relating to the teacher's knowledge of science content and how to make learning science on the classroomResbiantoro [6].In order to enhance the competence of government teachers held many teacher professional development program, including through training (In service training) Kabaday[7]. This is supported by a change in the curriculum of the Kurikulum Tingkat SatuanPendidikan (KTSP) into Kurikulum 2013 requires the government to a lot of training to improve the competence of teachers in accordance with the demands of Kurikulum 2013.

The training that is currently being widely carried out the training on Kurikulum2013 In service learning (In) and On the job learning (On) patterns. The training is based on the patterns made by, In-1, On, In-2 and so that means the activity of In-1 was conducted in the Parent School Cluster set together. Implementation is done by providing guidance material is BimbinganTeknik (Bimtek) Guru Sasaran 2017 adjusted to the existing syllabus, presented by the school principal or parent cluster instructors from education authorities or institutions.

On the activities carried out in each school, along with a companion visit to investigate the implementation of learning related to the implementation of Kurikulum 2013. Further, the In-2 activity is the meeting of all schools in one cluster to discuss the results of On. The implementation of In-2 is coordinated by the Parent School Cluster Kemdikbud[8].

In reality though training has been carried out with the pattern of In-On but the competency of teachers is not maximized, from the test results UjiKompetensiAwal(UKA) conducted by the Agency for Human Resources Development Education and Quality Assurance of Education stated that the competence of teachers is low, namely pedagogical and professional Anif et al [9]. Reinforced by the results UjiKompetensi Guru (UKG) 2015 test of professional competence and pedagogical, the results of the national average is 48.9 pedagogical competence is below the minimum competency standards Maulipaksi[10]. Under these conditions,

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this study will describe the impact of the strategies used in the training, the obstacles perceived by teachers in training as well as training strategies that fit the needs of teachers.

II. Method

This research was conducted from October to November 2017 in junior high schools in 11 regencies in Lampung Province, with a population of all science teachers in Lampung Province with a sample of 254 teachers with purposive sampling technique. The research method used descriptive survey method, describes the information that occurred in the field of impact, obstacles and strategies required of teachers in training. The type of data in the form of qualitative data obtained by questionnaire.

Data were analyzed to determine the impact, constraints and training needs perceived by the teacher. Performed with manual scoring. Every item diceklis interpreted teachers agree with the statement in the questionnaire so calculated 1. Calculate the percentage of each item questionnaire according to Purwanto[11]as follows:

$$S = \frac{R}{N} \times 100$$

Information :

S = pesentase teachers select items

R = the number of teachers who choose items

N = the total number of respondents teacher

Then the percentage of teachers who choose items grouped into the following criteria:

Table 1.Criteria percentage of teachers

interval	Category
100%	Wholly
76% -99%	Most of the
51% -75%	More than half
50%	Halved
26% -49%	Less than
1% -25%	Fraction
0%	No one

Source: Ali **[12]**

Data was analyzed qualitatively training impact by revealing the constraints felt by teachers. Indicators to be controlled by teachers to improve the PCK: (1) knowledge about the characteristics of students of the physical, moral, spiritual, social, cultural, emotional and intellectual; (2) master the theories and principles of learning to educate; (3) develop a curriculum related to each subject; (4) hold an educational learning and dialogue; (5) use of information technology and communications; (6) to facilitate the development of student potential; (7) communicate effectively, empathetic and polite; (8) to conduct research and evaluation of the process of learning outcomes; (9) use of research and evaluation; (10) perform reflective action Kemdikbud**[13]**.

Table 2.Criteria for the impact of training

Category	Information
Big	8-10 indicator reached
moderate	7-5 indicator reached
Small	4-1 indicator reached
There is no	Indicators fail

Source: Modified from Purwanto**[11]**

III. Result

The results of data analysis studies suggest that the overall impact is felt that the training of teachers in the vast majority of teachers stated the impact of the "small" (Table 3). Similarly, if the terms of gender differences, there are differences that are far from the percentage of both, is only slightly higher percentage of men (86.9%) than women (85.7%). This illustrates that gender does not affect the impact of training on PCK owned.

Table 3.Impact of gender based training (n = 254)

Gender	Impact (%)			
	There is no	Small	Moderate	Big
Woman	3.4	85.7	7.4	3.4
Man	0.18	86.9	8.4	0.28
Average	1.79	86.3	7.9	1.84

Based on Table 3 is very significant visible impact the percentage difference between the "small"and "big". Only a small percentage of teachers who feel the impact of the "big", female teachers feel a greater impact than male teachers.

Table 4. Impact of Training by the old teaching (n = 254)

Old teaching (year)	Impact (%)			
	There is no	Small	Moderate	Big
0-5	3.7	92.4	3.7	-
6-10	-	88.0	5.3	6.6
11-15	1.6	75.8	17.7	4.8
15-20	-	92.1	7.8	-
> 20	1.5	84.6	-	-
Average	4.1	86.6	6.9	2.3

Judging from Table 4 is based on the old teaching, teachers perceived impact of participation in training "small". Based on these data the majority of teachers who have been trained stating that competences not increased significantly, especially in the understanding of Kurikulum 2013. It draws from these results that teachers teach 0-5 year old felt the impact of the "small".

Table 5. Qualification last (n = 254)

Educational level	Impact (%)			
	There is no	Small	moderate	Big
S2	-	83.3	16.6	-
S1	2.9	85.9	7.6	3.4
D3	-	71.4	28.5	-
Average	0.9	80.2	17.5	1.1

Most of the teacher respondents with different levels of education stated that training had had a "small" impact. While the impact of "medium" is most felt by teachers with the last level of education D3

Table 6.The educational background (n = 254)

Educational background	Impact (%)			
	There is no	Small	moderate	Big
Science education	3.3	94.2	2.4	-
Non science education	-	48.8	33.3	17.7

Based on data obtained 209 respondents teachers have the educational background of science, most states have an impact training "small" against its competence. While the things that attract teachers IPA non-educational backgrounds are a fraction sensed a "big" impact on the competence of the changes.

Table 7. Obstacles perceived during training

No.	Statement	Agree (%)
1	The number of participants is too much (bulk)	69.1
2	There is no separation of participants based on educational background	41.4
3	There is no separation of participants based on competence	38.6
4	There is no separation of participants by age / experience teaching	32.0
5	Time is too narrow	55.4
6	Peer teaching for a limited time	40.6
7	Not all participants presentation of the / peerteaching, presenting only representative	55.8
8	Tutor / trainer too dominating activity	62.1
9	Tutor / trainer did not master the training materials	25.3

IV. Dicussion

Based on the results that in general the training held have been unable to provide a significant impact to the PCK teachers. It is seen most (86.3%) of teachers said that training only affects a "small" (Table 3) against the competency especially regarding Kurikulum 2013. The impact of the "small" is meant that after only a master teacher training 1-4 indicators pedagogical competence that is set by Permendiknas Number 16 of 2007 of the 10 indicators that exist. It is strengthened by the constraints felt by the teachers during the training. Some of the obstacles that cause a lack of effective training by the teacher (Table 7) the number of participants is too much (69.1%), Tutor / trainer too dominating activity (62.1%),

The impact of the training on analysis by gender, duration of teaching and education. The results obtained are feeling the effects of female teachers is greater (3.4%) than male teachers (0.28%). Results of the study found that male teachers more than half stated that dominates tutor training gives the impression of a dull, so training only as a form of presentation material. In addition the majority of male teachers feel that the training

is not all participants percentage of work / peerteaching, so do not know the right or wrong of tasks created. Basically, more men tend to like employment that involves physical, moving, express ideas, discuss and design a product Nuryoto[14].The learning process that just listening to the explanation from the coach / tutor will not have a significant impact on competence.While women tend to have an attitude that is conscientious, diligent, and willing to listen explanation well. Emotional attitude is more dominant compared to the physical abilities have placed women occupy most of the top 10 largest in any educational institution Nuryoto[14], Amir [15].

Moreover analyzed also by the old teaching. Teachers who feel the impact of the "big" (Table 4) was only felt by the teachers who taught him 6-10 years old (6.6%) and 11-15 years (4.8%). Only a small percentage of teachers who felt the full impact of the training, while most said impact "small" the teacher who taught him 0-5 years old and 15-20 years old. A total of 92.4% of the teachers (Table 4) to teach 0-5 year old did not feel a significant impact on its competence, it is because the teacher fresh out of undergraduate education thus making the learning tools and an understanding of the curriculum is still fresh. Research Ayuningtyas, et al [16]states that the provision of material that is less precise and well-planned can lead to a significant increase of the competency of teachers. Material that is too common and easy to make teachers get tired in training, while the material is too hard to make a teacher difficulties followed in the course of training. As with the old teachers who teach 15-20 (Table 4), these teachers have training many times and have more experience so that changes to the competency of insignificant felt.

Planning to create a science teacher training should be done carefully, organizers and instructors should determine the level of competency of each participant. It has also become one of the obstacles perceived (Table 7) in which there is no separation of training educational background and competence, so that training materials be generalized to all participants. It's important to separate the background of trainees for division of labor and division of the group, so that the trainees with different backgrounds and different competencies can get the same benefits in accordance with the training objectives. Research by Eliyantoet al [17]stated that the length of teaching and training did not have a significant impact on the teacher's competence because teachers did not use their working period to learn about teaching methods, were unable to utilize the experience that had been gained and could not adapt to the times.

Supporting previous explanation that the training should be no separation based on educational background and level of education. The results of the study noted that a minority of science teachers coming from non-educational undergraduate science. The results showed teachers of non-educational backgrounds fraction feel the impact of the "big" (Table 5) after mengukuti training. Teachers from non-educational basic science has not had during his education at undergraduate, so that the training materials is a new thing and affect their competence. Nevertheless, all teachers of non-educational science as well as most of the educational science teacher complained that the training that is held to be ineffective because the participants too much (bulk).

Number of training participants create a classroom climate that is uncomfortable, so the number of participants is an important factor to consider in training. The number of participants should also be adjusted by the area used for training. Research on the effects of classroom climate to improving the competence of learners stated that the form of classroom climate spacious room, air circulation, lighting levels, interaction with teachers, and interaction with peers can influence the level of competence of learners O'Brennan,et al [18], Sutha&Shirlin[19],Rathmann, et al[20].

In general the training has been held not effective for improving teacher PCK. Though the training is a container for teachers improve and update knowledge to support the learning process in the classroom. Research Eliyantoet al [17] express the causes of the ineffectiveness of training in improving the professionalism of teachers is the provision of material that is not quite right so it does not increase your knowledge and skills, less training planned carefully, training components such as the presentation of theory, feedback, and others do not do well , use of improper training methods, and low motivation in training. In addition the results of a meta-analysis conducted Sudana [21], there are several factors that lead to unproductive post-training teachers,

Ineffectiveness of such training became the basis that a training strategy needs to be developed based on the needs of teachers. Training model is currently being implemented yainiIn service training and On the job traning. In this study also revealed several strategies desired by teachers in inclusive service training states that all respondents science teacher expects training approach Andragogy, because basically the teacher is an adult human who has had their respective competences so that the learning process is not centered on the coach / instructor , so that the data transfer can not be equated with learning in the classroom Sunhaji[22]. Teachers need more real practices that produce products compared with the theory of learning, In service training as taken to perform simulations to avoid obstacles that may affect the course of the learning process Slameto et al [23]. In addition, teachers also need an evaluation of instructors to provide an assessment of the products are made, by providing an opportunity for groups or individuals mempersentasikan group's work so that it can be fundamental in the process of On-job training.

On the job trainingconducted in each school to implement a learning device products made at the time In service training. Most teachers expect the tutor was a friend seprofesi the school so it is not difficult to determine when would be a discussion. The use of peer tutors can improve the competence, self-regulation and metacognitive skills of participants (Lopez,et al **[24],**Backer, et al**[25]**, Backer, et al **[26].**

V. Conclusion

Conclusions from this research that the majority (86.3%) of teachers feel the impact of training on competence less than the maximum. More female teachers by gender tend to feel increased competence compared with men. Some of the obstacles perceived by the teacher while the dominance of tutor training, the number of participants too much, the time is narrow, there is no separation of educational background as well as not all the participants of the presentation. Teacher training strategy is expected that the use of andragogy approach, more practical training as well as their peer tutors.

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