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Training Model based on Constructivism

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Abstract: ***The purpose of this study was to determine the differences in the cognitive abilities of vocational teachers before and after being given constructivism-based training.This study was a pre-experiment with the pretest-posttest group design. Samples were randomly selected as many as 40 people from Bengkulu SMK teachers. I The research instrument is a test of the cognitive abilities of vocational school teachers. Data were analyzed using correlated t test samples.The results were that the cognitive abilities of teachers trained with constructivism-based training models had a very significant increase.***

Keywords: Training model, constructivism, cognitive ability

1. Introduction

An important that is often employed when looking at the quality of teachers and teacher education is that of the professionalism of teachers(Grollmann, 2008). Thecompetence-based vocational education is based on a constructivist learning paradigm, where the development of teachers' personal professional knowledge is emphasized (Schaapa, Bruijna, Schaafa, & Kirschnerb, 2009).Teacher professional development is a career-long process that starts at university and ends in retirement. Teachers have a continuing commitment to maintaining their professional expertise (Nudsen, Babanja, Nelsen, Petkova, & Nikolovska, 2013). Therefore continuing professional development needs to be carried out as long as he becomes a teacher (Dewi Herawaty, 2017). They must be involved in a variety of balanced personal and professional development activities, enabling them to progress and learn in ways that are relevant to the needs of individuals and students throughout their careers (Nudsen et al., 2013).

According to (Simona, 2015), practical training is needed for vocational teachers to increase self-confidence and provide individual support for disadvantaged students, especially those relating to communication, problem solving, literacy, attitudes and resilience. The training program must be focused on helping teachers to develop positive attitudes of students towards work, entrepreneurial skills and job skills.Vocational education is subject to constant social changes, technical developments and organisational demands(Schaapa et al., 2009).

Result of the study(Endroyo, Yuwono, & Mardapi, 2015), one attempt to minimize the number of occupational accidents is through education and training. Learning/training method that uses Competency Based Learning, Cooperative Learning, and Contextual Learning, tool/equipment to learn the skills, and adequate media as well as maximum utilization of the environment.The implementation of industry-based learning model is more effective in improving learning outcomes in all domain (cognitive, affective,psychomotor) than the existing learning model.The shows that the constructivism-based training model can be a successful model of increasing teacher competence in carrying out its duties.

Constructivism-based training builds dynamic interactions between participants. According to(Trif, 2015), from interactions with master students, both during courses and seminar meetings, and data collected from questionnaires, we appreciate their positive attitude in applying the new training model in the classroom. Teaching strategies based on the development of fun scaffolding for master students; they build correctly, in terms of methodology, steps and linking learning activities.

The constructivism and social-constructivism learning approach, and the five elements of the strategic learning model: plugging in, powering up, synthesizing, outsourcing, and reflecting can be considered as part of the teaching strategies in implementing instructional in the knowledge era. Nevertheless, enriching a teacher‟s competencies in teaching strategies and other competencies that related to a workforce in the future is needed indeed through professional development activity(Djatmiko & S, 2014).

Implementation of constructivism-based training improves teacher competence. Therefore, effective training designs are made. According to(Karim, Huda, & Khan, 2012) training is a process to foster performance development learning new techniques and methods to perform jobs with full efficiency and effectiveness. Successful training and development programs assist the strategic requirements for individuals and also satisfying the individual needs of people working in it. Effective training programs also help employees to concentrate on their individual career development which ultimately assists to achieve organizational short and long run objectives. To improve efficiency in training programs, organizations should pay attention to employee participation in designing training methods and modules. Participatory training design motivates the workforce to learn objectively leading to incremental performance development and accelerated professional commitment. To ensure effectiveness of participant training programs, post training evaluations work as a tool to design, correct and improve existing and future training needs and methods.

Training conducted for the development of teacher professionalism must be based on the consideration that trainees are basically adults who have certain characteristics, different from other adults. Teachers are generally mature and have reached maturity in almost all aspects of personality: physical, social, emotional, value and intellectual. In order for optimal learning outcomes, each

teacher training event must be designed systematically and systemically tailored to the characteristics of adults(Susilana & Asep Hery, 2014).Quality technical and vocational teacher education and training, along with other influential factors such as curricula, learning-teaching materials and environmental context, can significantly improve the quality of technical and vocational education and training(Haolader, Cicioglu, & Kassim, 2017). There are strong relationship exists between training and development, employees' performance and competitive advantage(Falola, Osibanjo, & Ojo, 2014).

The training programs are going to be effective, they must meet the needs of participants. The ways to determine these needs common was ask the participants, ask the bosses of the participants, ask others who are familiar with the job and how it is being performed, including subordinates, peers, and customers, and test the participants,. Also analyze performance appraisal forms(Kirkpatrick & Kirkpatrick, 2009). According to (Kirkpatrick, 1994), the four levels of Kirkpatrick's evaluation model essentially measure was reaction of learner - what they thought and felt about the training; learning - the resulting increase in knowledge or capability; behaviour - extent of behaviour and capability improvement and implementation/application; results - the effects on the business or environment resulting from the trainee's performance.

Based on the quotation above, Kirkpatrick's model is a strong and effective evaluation method. This is suitable for evaluating the effectiveness of Coaching, especially because Coachee can play an active part in the design of the evaluation process (Kirkpatrick, 1994).

Training and development is one of the most important human resource tools that have been used since ancient times. The complexity of work, technical innovation, and work specialization has made it even more important. The training program has also experienced sea changes due to the complexity of the nature of work. Starting from job training to internships to work support is still far away. Today the whole nature of training and developing programs will change, because today is a mind that is more important than the hand (Hu, 2004).

Based on the previous description, this paper discusses the effectiveness of the implementation of a constructivism based training model for teachers in Vocational Schools in the Kota Bengkulu.

2. Methods

The research was experimenting with constructivism-based training models. The design is a pretest-posttest group design. The population is vocational teachers in Bengkulu. Samples were randomly selected as many as 40 teachers. It is a training participant. The research instrument was a test of the cognitive abilities of vocational school teachers. Before the training, participants were tested for their abilities. During the training a constructivism-based training model is implemented, and ends with a test equivalent to the initial test. Data were analyzed using correlated t-test samples.

3. Result and Discussions

Data on constructivist-based training participants' cognitive abilities were analyzed through correlated t-tests. Average pretest and posttest scores, see Figure 1.

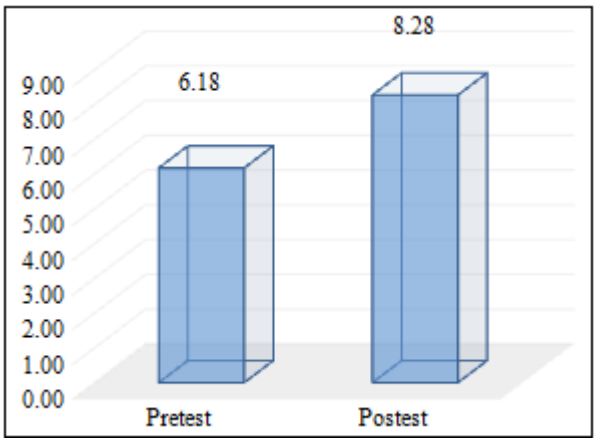

Figure 1: Pretest and posttest scores

Figure 1, states that the average increase in the cognitive abilities of vocational teachers who attend training through constructivism-based learning models is 2.10. This increase shows a pretty good thing.

The paired data is also highly correlated. These results can be considered the results of the paired data correlation test, see Table 1.

Table 1: Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	x2 & x1	40	0.616	0.000

Table 1 shows that the correlation is 0.616 with a significance of <0.000. This means that the correlation between the initial cognitive abilities of vocational teachers with cognitive abilities after training is positively strong and significant.

To determine the significance of this increase, we analyze statistics through correlated t-test, with posttest score (x2) and pretest score (X1). The results are as follows (see Table 2).

Table 2: Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	x2	8.28	40	.751	.11869
	x1	6.18	40	.781	.12345

Table 2 shows that the standard deviation of the vocational skills of vocational teachers before training is 0.781 and after training through constructivism-based learning of 0.751. Also the average score before the pretest was 6.18, and after that it was 8.28.Based on the mean and standard deviation, we do a paired t-test. The results are shown in Table 3.

Table 3: Paired Samples Test

		Paired Differences					t	df	Sig.
		Mean	Std. Dev.	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	x2 - x1	2.10000	.67178	.10622	1.88516	2.31484	19.771	39	.000

Based on Table 3, obtained t count = 19,771 with df (39) and significance <0,000, which means that Ho is rejected. Thus, the cognitive abilities of vocational teachers after being given training through constructivism-based learning models are better than their initial abilities. This shows that there is a significant increase in the cognitive abilities of vocational teachers if given training through constructivism-based learning models. Therefore, we recommend applying the learning model in an effort to improve the quality of vocational teachers.

These results provide support for many previous studies. As,(Trif, 2015) state that teaching strategies based on the development of scaffolding (techniques of constructivism) are fun for master students; they build correctly, in terms of methodology, steps and linking learning activities.Horizontal learning (through social constructivist) offers an effective and efficient framework for shared learning that is most useful when applied in an appropriate learning environment(Nudsen et al., 2013).Thus it is very feasible that we favor the constructivism-based training model for vocational teachers.

4. Conclusion

The conclusion of this study is that constructivism-based training models improve the cognitive abilities of vocational teachers. Thus it is suggested that to improve the cognitive abilities of vocational teachers, constructivism-based training should be implemented for vocational teachers.

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