

Effectiveness of Participatory Training Model for Development of Cognitive Ability in Scientific Articles Writing as Research Results

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Abstract—Productivity in the scientific article writing as research results for lecturers of midwifery diploma program at Private Colleges in Central Java is very low, and it's caused by lack of lecturer competence. Experimental research approach: 1) Comparative two related samples, cognitive ability data before and after training of the experimental group, data analysis techniques t-test of related; 2) Comparative two independent samples of data of cognitive ability after training of the experimental group with the control group, analysis of data with independent t-test techniques. Results: 1) Participatory training model effective to improve cognitive ability in the scientific article writing as research results for lecturer of midwifery diploma program at Private Colleges in Central Java; 2) Participatory training model more effective to improve cognitive ability in the scientific article writing as research results for lecturer of midwifery diploma program at Private Colleges in Central Java.

Index Terms—Conventional training models, participatory training model.

I. INTRODUCTION

The competence in the scientific article writing as research results so that entered into a scientific journal is necessity and should be developed in a sustainable way. This can be understood because: 1) Reports of the results of lecturer's research shall be changed to scientific article as research results is worthy proposed to accredited scientific journal; 2) Lecturer are professional educators and scientists with the main task of the transferring, developing and disseminating knowledge, technology, and the arts through education, research and services to the community; 3) Academic lecturer position is the position of career, which serves as technical functional implementers in the field of education, research, and service to the community.

Lack of competence of the lectures in the scientific article writing also results in low motivation for self-development lecturer, have no motivation to write scientific articles as research results in accredited journals, which impacted in no maintenance and development of her career.

For midwifery lecturer at the Private Colleges in Central Java, performance grants research recap in 2012 to 2014 as follow. In 2012, with the number of midwifery lecturer reach 511 people lecturer, no lecturer who're getting opportunities to do research grants; by 2013 the number of midwifery lecturer who reach 409 people lecturer, who took

of new research grants amounting to 5.87 % of midwifery lecturer; while an increase in 2014 although not the significance of the 6.6 % of the total number of lecturer midwifery 409 people lecturer (simlibtabmas.of higher education.gov).

Effort to improve the competence of the scientific article writing as research results actually already mostly done, particularly through the writing of a scientific article. Trainee data (public participants) in 2010 a number of 40 participants, in 2011 a number of 40 participants, in 2012 a number 50 participants, and in 2013 a number of 44 participants.

However, during this time associated with the writing of scientific articles have not been able to increase the productivity of the lecturer of midwifery diploma program in scientific article writing as research results. This is due to: 1) Training material trends towards researching ability; 2) No assessment of the training needs of the participants use to formulate training purposes, however, use to measure cognitive ability pretest participants; 3) The trainee does not participate actively in each training session; 4) Training centers on the coaches; 5) Participants are not widely practiced (learning model of lectures and classical); 6) The participants learned from the trainers; 7) The trainee feel have no responsibility in training; and 8) No follow-up evaluation of training results.

In order to be able increase the productivity of training trainees, supposed training using a model of participatory training. Participatory training relating to adults, and adults have had the foundation actively learning theory and principles of adult learning. The principles of participatory training include: 1) Training centers on the participants, so that each participants participate actively at any training activities; 2) Learning not deliver new knowledge, but also generate awareness (motivation) and building skills; 3) The experience obtained from study participants should be activated in the training process; 4) Coaches appreciate the opinion or experience of study participants and their experiences are valued; 5) The participants participation in the training process are appreciated so that participants can develop norms and value, and responsible for her education; 6) The assessment of the needs of the trainees, were used to formulate the goals of participants in training, and training purposes are arranged together participants and trainers; 7) The participants a lot of practice, in the form of clinical guidance as well as established scholarly articles as research results, and worthy proposed to the accredited scientific journals; 8) The follow-up evaluation and monitoring of the training, that the participants had been able to become self-directed person in the scientific article writing as research

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results independently.

II. LITERATURE REVIEW

The success of an organization depends on the opportunity to use the assets of the existing human resources in the organization, while other assets are supporting human resource assets. Human resource development and the completion of the internal and external changes, then the organization should concentrate on developing the abilities and skills of the workforce. Assets in the development of human resources, the training became his base. Training is a means to achieve individually, linked to the needs of the organization at a given task and also on the work culture of the group. An ideal training program which is expected to happen is a change in attitude, skills, and the development of vision participants in the task ahead [1].

The sustainable productivity of industrial components auto rather depends on the commitment of the affective and continuance commitment of the employees. The results showed that there is positive relationship between the three commitment (affective, normative, and continuance) with the sustainable productivity of the organization. In this research indicate the impact of the commitment of employees to the sustainable productivity of an organization [2].

There are two factors that affect to the performance of the employee, i.e. training and motivation within organization, and individual factors play a role in the enhancement of performance, all the factors influencing the performance of the employee. Any organization that want increase performance the organization of its employees should focus on training and motivation of employee to achieve higher levels of performance. In this study concluded that training contributes to greater performance when compared to other factors, such as motivation, technology, management behavior, and work environment. This research will be able to help other organization related, such as College and Banking sectors [3].

The training role playing is very importance in the success of the organizations, either directly or indirectly, which impacted on the performance of employees. Through training opportunity, employee can develop and maintain the necessary skills to work constantly to change in the workplace. With training, the employee will get reinforcement of skills and will contribute to the achievement of the objective for maximum organization. So the behavior of the employees has an important role in increasing productivity of the organization [4].

Training and development, on the job training, training design and delivery style has a significant influence on the performance of the organization and all of this has a positive impact on organizational performance [5].

Participation of the employees in decision making impacting on productivity in significance. The study also demonstrated that when employees are made to participated in making decisions, making them feel more responsible toward the activities and see themselves as stakeholders of their company or organization [6].

Global competition and speed changes emphasizes the

importance of human capital in organizations, as well as the speed and how to obtain the knowledge capital. In an economy with uncertainty, knowledge is becoming a reliable source of sustainable competitive advance. Modern organization are using their resources (money, time, energy, information) for the training and development of their employees, constantly creating new knowledge, extend through the entire organization and implement quickly in new technologies, developing good products and excellent service. Organization recognize that learning and new knowledge becomes the key to success. The prosperity of an organization depends on the intellectual capacity of its employees and the capacity of change and adapt to changes in the dynamic environments [7].

Participatory training deals with adults. Adults have theoretical base in the principles of active learning and adult learning. The principles of participatory training include: a) Participatory training is participant-centered; b) The learning is not only imparts new knowledge but also generates awareness (motivation) and builds skills); c) Learning is derived from the experiences of the learners; d) Their experience are valued so that they feel safe to share and try to create new ideas; e) Participation in the whole process of training participants appreciated so that they can develop norms and values, and responsible for their learning. The role of the adult educators is to ensure that the trainees and learning all centered on training [8].

Different productivity of production. Production refers to the increase in output over a given period while productivity related to the ratio of output to input. Productivity is not everything, but in the long run it is almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker [9]. In line with this, the Asian Productivity Organization, explains that productivity is not just about getting maximum efficiency by 'doing things right' but also achieving maximum effectiveness by 'doing the right things' [10]. Lecturer of midwifery diploma program can do the right thing, that is a lecturer in its functional position in addition to teaching and education should also do research including scientific articles writing as research results submitted to a scientific journal. Lecturer of midwifery diploma program that commitment, motivated and competence in scientific articles writing as research results, and proposed to scientific journals, that is a lecturer who has a high productivity in the writing of scientific articles as research results.

Productivity is an attitude of mind, which provide added value to a work process with their skills, team spirit, efficiency, pride in work and customer orientation. Productivity is not just about getting maximum efficiency by doing the right thing but also achieve maximum effectiveness by doing things right. Based on these studies, productivity of lecturer of midwifery diploma program at Private Colleges in Central Java is an attitude of mind every lecturer to improve competence through participatory training in scientific articles writing as research results and worthy proposed to the scientific journal.

Organizations realize that learning and new knowledge is key to success. Important finding in the study that factors: lecturer competence, training, organizational climate, work

motivation and job satisfaction positively influence significantly the productivity of lecturers in the field of research.

Commitment to the academic community about their own learning has made the emergence of different educational methodologies based on treatment elements such as students, lecturer, how participation in the learning process. Offer different between constructivism with classical instructional system. In a study comparing two groups (the period from year 2007 to 2012) in which only one of the group had been interfered with participation methodology and the results significant [11].

Training is the basis for the development of human assets. Training is a tool to achieve individual goals, needs of the organization relating to work performed and is also intended to improve the work culture. An ideal training program can be expected to change the attitudes, skills and develop a vision of the participants to the job.

III. RESEARCH AND METHOD

Experimental research approach: 1) Comparative two related samples, cognitive ability data before training (pretest) and after training (post-test) in the experimental group, data analysis techniques: Paired Sample Test (t-test of related); 2) Comparative two independent samples of data of cognitive ability after training in the experimental group with the control group, analysis of data with independent t-test techniques.

The instruments used to take data on cognitive ability trainee, previously conducted trials of instruments to do the validity test and reliability test of instruments.

On different test two sample, data must meet "normal" distribution, so its necessary test of the normality data. Normality test of the data in this study used Chi Square, with the help of SPSS computing. Chi squared value count compared to the Chi Squared table, when the price of the Chi squared countdown less than or equal to (\leq) Chi Squared table the data is normal distribution; and but the Chi Squared count is greater ($>$) than Chi Squared table, the data is not normal distribution.

Before training, participants are given a pretest to determine the initial cognitive abilities. The results are used to classify participants into groups of treatments and the

control group, so that the cognitive abilities before training balanced. Comparative data on cognitive ability before training on group experiments with control group performed an analysis t-test independent technique. Analysis results $t_{count} = 0.740 < t_{table} = 2.042 \alpha 0.05$ with df 31. Therefore H_0 accepted and H_a rejected, its means there was no different in the cognitive ability before training among experiments and control group.

Evaluation of cognitive ability tests design in a scientific article writing as reseach results on these studies is a True experimental design with this type of Pretest-Posttest Control Group Design, as shown in Fig. 1 as follow:

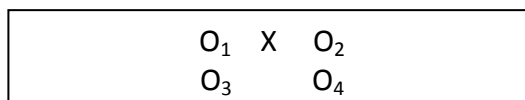


Fig. 1. Pretest-posttest control group design.

O₁: experimental group cognitive ability assessment before participatory training given

O₂: experimental group cognitive ability assessment after participatory training given

O₃: control group cognitive ability assessment before conventional training given

O₄: control group cognitive ability assessment after conventional training given

IV. RESULTS AND DISCUSSION

A. Results

Comparative two related samples, cognitive ability data before training (pretest) and after training (post-test) in the experimental group (Participatory Model Training) data analysis techniques: Paired Sample Test (t-test of related).

Statistical Hypothesis:

H₀: The model of participatory training "not effective" to improve cognitive ability in the writing of scientific articles for lecturer of midwifery diploma program at Private Colleges in Central Java.

H_a: The model of participatory training "effective" to improve cognitive ability in the writing of scientific articles for lecturer of midwifery diploma program at Private Colleges in Central Java.

TABLE I: PAIRED SAMPLES T-TEST OF EXPERIMENT GROUP

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95 % Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Pre-post Experiment. Participatory Training	63.42424	12.10380	2.10700	59.13242	67.71606	30.102	32	.000

The results obtained by analysis of scores Sig 0.000 < 0.05, or $t = 30.102 > t_{table} \alpha 0.05$ with df 32 = 2.040 Therefore H_0 is rejected and H_a is accepted. Its mean the participatory training model "effective" to improve cognitive ability in the writing of scientific articles for lecturer of midwifery diploma program at Private Colleges in Central Java.

Comparison of two independent samples, to compare the mean cognitive ability of lecturer in the experimental group and the control group (after training), t-test of two independent samples (Independent Sample t-test) using SPSS obtained the following results.

Statistical Hypotesis:

H₀: The model of participatory training "not more

effective" than the conventional training model to improve cognitive ability in the writing of scientific articles for lecturer of midwifery diploma program at Private Colleges in Central Java.

H_a: The model of participatory training "more effective"

than the conventional training model to improve cognitive ability in the writing of scientific articles for lecturer of midwifery diploma program at Private Colleges in Central Java.

TABLE II: INDEPENDENT SAMPLE T-TEST OF EXPERIMENTAL AND CONTROL GROUP

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95 % Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Posttest Cognitif: Equal Variances Assumed Equal Variances not Assumed	1.096	.303	-3.336	31	.002	-11.44485	3.43091	-18.44224	-4.44747
			-3.313	28.733	.003	-11.444485	3.45459	-18.51313	-4.37658

Results of analysis: Sig. score obtained $0.002 < 0.05$; $t_{count} = 3.336 > \text{than } t_{table} = 2.041 \alpha 0.05$ with df 31; thus H_0 is rejected, and H_a is accepted. Its mean that the model of participatory training "more effective" than the conventional training model to improve cognitive ability in the writing of scientific articles for lecturer of midwifery diploma program at Private Colleges in Central Java.

B. Discussion

Development of science that is based on the needs and expectations of the communities, and have a coherence is to be done through research up to report research results converted into scientific article as research results that worthy entered into accredited scientific journal. This will be done by a lecturer when have competency in cognitive ability to write scientific articles as research results. Found those competencies can be achieved through participatory training, therefore, lecturer of midwifery diploma program at Private Colleges in Central Java requires a participatory training in scientific article writing as research results.

The results: 1) Participatory training model "effective" to improve cognitive ability in the writing of scientific articles for lecturer of midwifery diploma program at Private Colleges in Central Java, by analysis of scores Sig $0.000 < 0.05$; And 2) The model of participatory training "more effective" than the conventional training model to improve cognitive ability in the writing of scientific articles for lecturer of midwifery diploma program at Private Colleges in Central Java.

Participatory training relating to adults, and lecturer of midwifery diploma program at Private Colleges in Central Java is a group of adults. Adults already have grounding in theory in the learning principles and actively learning adults. Adults learning behavior is also related to: 1) Self-concept of adults move from dependent to be independent (self-directed person); 2) During the process of growth and maturation, each individual accumulated a vast experience of life that can be potential resource for learning; 3) The willingness of the adults learners to learn better and faster, strengthened when the learning resource related to real-life problems and personal goals.

It's very necessary for the organization, like as midwifery diploma program at Private Colleges in Central Java to design the training very carefully for their lecturers, and should be according to the needs of the lecturer in developing and improving their cognitive ability competencies in the scientific article writing as research results, and used participatory training model for based of its.

V. CONCLUSIONS

Participatory training model "effective" to improve cognitive ability in the writing of scientific articles for lecturer of midwifery diploma program at Private Colleges in Central Java.

The model of participatory training is "more effective" than the conventional training model to improve cognitive ability in the writing of scientific articles for lecturer of midwifery diploma program at Private Colleges in Central Java.

VI. RECOMMENDATION

The model of participatory training of scientific article writing as research results to be applied by practitioners in training of education human resources development in generally, and particularly in education human resources development of midwifery diploma program at Private Colleges in Central Java, Indonesia.

An organization that have been development of their human resources by using conventional training model, Its suggested to use participatory training model in the next time.

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REFERENCES

- [1] C. Vijayabanu and R. Amudha, "A study on efficacy of employee training: review of literature," *Business: Theory and Practice*, vol. 13, no. 3, pp. 275-282.
- [2] V. Dixit and M. Bhati, "A study about employee commitment and its impact on sustainable productivity in indian auto-component industry," *European Journal of Business and Social Sciences*, vol. 1, no. 6, pp. 34-51, September 2012.
- [3] M. I. Khan. (July–December 2012). The impact of training and motivation on performance of employees. *Business Review*. International Oislamic University, Islamabad, Pakistan. [Online]. 7(2). Available: http://www.academia.edu/...of_Training_and_Motivation_on
- [4] S. Verma and R. Goyal, "A study of training in insurance and their impact on employee productivity," *IJRESS*, vol. 1, issue 1, pp. 31-45, October 2011.
- [5] R. A. G. Khan, F. A. Khan, and M. A. Khan, "Impact of training and development on organizational performance," *Global Journal of Management and Business Research*, Global Journals Inc. (USA), vol. 11, issue 7, version 1.0, pp. 1-6, July 2011.
- [6] I. A. Abdulai and A. B. Shafllwu, "Participatory decision making and employee productivity — A case study of community banks in the upper east region of Ghana," *Business and Economic Journal*, vol. 5, issue 3, June 10, 2014.
- [7] J. Vemić, "Employee training and development and the learning organization," *Economics and Organization*, vol. 4, no. 2, pp. 209-216, 2007.
- [8] M. Pant. (July 2014). "Participatory Training" Course 01 Participatory Lifelong Learning and Information and Communication Technologies. Group of Adult Educational School of Social Sciences, Jawaharlal Nehru University New Delhi. [Online]. pp. 118-120. Available: http://www.unesco.org/education/aladin/...unit_10.pdf
- [9] P. Krugman. (2014). Defining and measuring productivity. [Online]. Available: <http://www.Oecd.Org/Std/Productivity.../40526851.Pdf>
- [10] Asian Productivity Organization. (1992). Achieving higher productivity through GP. [Online]. p. 4. Available: http://www.apo-tokyo.org/.../files/ind_gp_ahptg.pdf
- [11] A. Rodriguez, E. Cavieres, and C. Negrete, "Effect of participatory methodologies in academic performance," *International Proceedings of Economics Development and Research (IPEDR)*, vol. 81, pp. 72-78, 2014.



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