Enhancing the Understanding of Vocational School Curriculum Management Implementation through Blended Learning-Based Training Supported by Learning Development Tools

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The aim of this research is to investigate the improvement of the understanding of vocational school curriculum management implementation using blended learning-based training by comparing the results of the pre-test and the post-test. The purposive samples numbered 103 participants, consisted of 26 principals, 38 school curriculum managers and 39 teachers from various vocational schools in Kabupaten Bekasi. The method used in this research was participatory action research. The researcher categorized the samples into three classes. The data in this research tested using paired T-Test and the result shows Tcalc > Ttable which means that the pre-test and post-test score are statistically different. It is concluded that blended learning-based training achieved better effect in improving the understanding of vocational school curriculum management implementation. Further, blended learning-based training was found to have the same effectiveness for the teacher, curriculum manager and principal.

Key words: *blended learning, curriculum management, learning development tool.*

Introduction

The Ministry of Education and Culture of the Republic of Indonesia has a vision to form a Human Ecosystem of Education and Culture with Character based on Mutual Cooperation and its missions are: (1) Realizing strong education (2) cultural action; (3), creating quality learning (4) Realizing cultural preservation and (5) language development. As professionals, educators and education staff have an important and strategic role in the learning process to develop the potential of students. The task and obligation of the teacher is to manage learning well and be well organized; initiating from planning through implementation, including conducting evaluations. Management of this learning enhances the learning process so as to create quality education in achieving the learning objectives (Kemdikbud, 2018). However, unfortunately Indonesian education vision has not been achieved optimally as is shown from the high unemployment rate in Kabupaten bekasi and this statistic is dominated by vocational school students. This can be determined from the BPS West Java data which shows that the unemployment rate in Bekasi is ranked first at 10.97%.

The issue of the development of education and culture according to the Bureau of Planning and Foreign Cooperation is underpinned by several factorss: (1). The role of education development officers is not optimal (2). The role of cultural actors is still not significant in preserving culture (3) Not all residents have access to quality ECD access services (4). The reasonable implementation of 12 years of quality education is not maximal (5). Improving the quality of learning is not maximal (6). Improvement of teacher management and teacher education / tendencies has not been maximized (7) waning student character and national identity is symptomatic (8) Improvement of family education has not been as expected.

According to Olubu (2015) the poor performance of students attests to the fact that the teaching and learning process has not been effective enough in that the implementation of the curriculum has not been optimal and does not correspond with expectations. As a result, curriculum management implementation as the foundation for education needs to be investigated and needs remidy or improvement. In response to these problems, to find a solution, this research focus is on training and mentoring in the application of the 2013 Curriculum in Kabupaten Bekasi by implementing training through "blended learning". The research will be implemented for educators, through "blended learning". Blended learning in this context is a mixed style of learning that blends classical learning (collaborators and advanced / face-to-face learners) with web-based online learning using the internet and social networks. Blending learning is optimal as it facilitates collaboration, in particular where learners are limited learners distance and space and allows students choice between independent learning and discussion and or collaboration. Blended learning as defined in this research, is also supported by research developed design tools or IDAFI (*Instruction Design Aids for Implementation*), learning development tools for lesson plan design specific designed

to the requirements of the 2013 Indonesia Curriculum.

Various researches has been conducted to test the effectiveness on Blended learning, such as the research conducted by David A Back, Nicole Haberstroh, Andrea Antolic, Kai Sostmann, Gerhard Schmidmaier and Eike Hoff detected the teaching effects of blended learning programs on students. Ahmad Al-Huneidi and Jeanne Schreurs in 2013, submitted a model that connects Constructivism Theory and Conversation in a Blended Learning environment. That research proposed a model of varied learning activities and scenarios, differentiated for working students and regular students, where learning is supported by information technology and facilitates the application of Constructivism theory and Conversations to increase the level of communication and interaction between students. It was found that as a result, quality learning, experience and results increase effectively.

Jun Tong, Jun Han, Jing Liu, Fan Yang, and Shuo Chen in 2012 compared the characteristics of face-to-face learning, online learning and blended learning. They conducted comparative analysis of student learning influences factors from three types of learning modes, from the level of student independence, enthusiasm for learning, level of concentration of attention, learning communication, emotional communication, efficiency of problem solving, learning resources and evaluation of achievement. Their findings were that blended learning is the most effective way of learning and details its advantages in student learning. Elizabeth Stacey, Philippa Gerbic Stacey, E., Garbic, P, state that teaching practice uses the concept of blended learning effectively.

Such research further suggests changes to educational standards and practices. If blended learning can improve students' outcomes in several topics and for several participants, then similar strategies hopefully could work in other topics and for other age groups. So, in contrast to previous research, this research was initiated to evaluate the effectiveness of using blended learning among education staff in terms of vocational school curriculum management implementation.

The Methods

The research method used in this research is Participatory Action Research (PAR). Participatory Action Research is research that is conducted in real social conditions because the researcher cannot artificially create groups for the experiment. This method is appropriate with the purpose of this research which investigates the effect of blended learning-based training by comparing the results of a pre-test and post-test on the topic of vocational school curriculum management implementation supported by learning development tools. The design that will be used in this research is pre-test and post-test design, see Table 1 below. The

researcher assigns intact groups based on their categories, administers a pre-test to all groups, conducts treatment activities with the experiment and then administers a post-test to assess and analyze the improvement gains (Creswell, 2012).

Table 1: Pre-test and post-test design

Pre-test	Blended Learning-based Training on Curriculum Management Implementation	Post-test

This research was conducted in Kabupaten Bekasi. The sample for this research is 103 education staff participants who are from 40 vocational schools. The research participant samples were categorized into three groups according to Stringer, 2007. Thus, the stakeholder group in this study consisted of three groups divided according to status in the education unit: groups of principals, school curriculum managers and teachers. The participants age ranged between 25 to 50 years old. The sampling technique that used is purposive sampling. Purposive sampling is a non random sampling technique where the researcher determines the sample by specifying characteristics that are suitable with the objectives of the study to answer the research problems (Fraenkel, Hyun and Wallen, 2007).

Results and Discussion

To explore the relative effectiveness of blended learning-based training in this research, the score results of pre-test and post-test based on the interval are shown in Table 2 below. The average of the score gained was determined for each class. Using the pre-test and post-test as the unit of analysis, effect sizes were calculated statistically to describe the magnitude of the difference mean between pre-test and post-test score.

Table 2: The score interval and average score of pre-test

| Score Interval	Teacher		Curriculum Manager		Principal	
	F	%	F	%	F	%
90-100	0	0,00	0	0,00	0	0,00
75-89	1	2,50	1	2,56	0	0,00
60-74	6	15,00	12	30,77	3	11,54
45-59	11	27,50	12	30,77	8	30,77
0-44	22	55,00	14	35,90	15	57,69
Total	40	100	39	100	26	100
Average Score	46,47		50,93		40,79	

From the table above, it can be seen that before each class was given treatment through the study, the curriculum manager class gained the highest score compared to the other classes and the principal class returned the lowest score which can be determined from the average score. More than half (55%) of the teacher participants rated the lowest score, while the curriculum manager and principal class score was mostly distributed in three different intervals as described in Table 3 below.

Table 3: The score interval and average score of post-test

Score Interval	Teacher		Curriculum Manager		Principal	
	F	%	F	%	F	%
90-100	1	2,5	1	2,56	0	0,00
75-89	11	27,5	13	33,33	8	30,77
60-74	15	37,5	19	48,72	12	46,15
45-59	8	20,0	5	12,82	5	19,23
0-44	5	12,5	1	2,56	1	3,85
Total	40	100	39	100	26	100
Average Score	65,43		68,89		66,61	

In the post-test score, the curriculum manager class is still shown with the highest score compared to the other two classes, however the scores of the three classes were not significantly different and most of the participants from each classes scored a post-test score around 60-74 as depicted in Figure 1 below.

Figure 1. The graphic of pre-test and post-test score
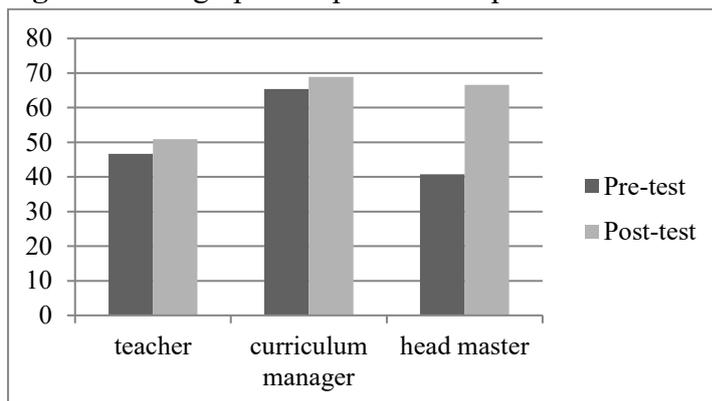
Next, the normality and homogeneity of the pre-test and post-test data from the three classes were checked in consideration of an appropriate statistic method choice. The normality and homogenity results are shown in the Tables 4 and 5 below.

Table 4: The result of normality test

	Teacher		Curriculum manager		Principal	
	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
L_0	0,101	0,114	0,109	0,052	0,112	0,129
L_t	0,886	0,886	0,886	0,886	0,173	0,173
Conclusion	Normal	Normal	Normal	Normal	Normal	Normal

Table 5: The result of homogenity of variance test

	Teacher	Curriculum manager	Principal
F_0	2,238	3,320	0,913
F_t	4,080	4,080	4,260
Conclusion	Homogen	Homogen	Homogen

Table 4 above shows the results of normality test using Liliefors method by comparing the L_0 (L calculation of the data) with L_t (L table) or critical value of Liliefors. The score for teacher and curriculum manager respectively is t L_t of 0,886 because of dependence on the Liliefors table - tdata more than 30 and α=0,05 (for education field), while the score of the principal class has L_t of 0,173. From all of the results, the L_0 are smaller than Lt ($L_0<L_t$) and so it can concluded that the data from each class is normally distributed.

For the homogenity test the researcher used Fisher Test and the three data sets also showed the result $F_0>F_t$ so that the data can be said to be homogenous. The F_0 are gained by calculation while the F_t was from the Fisher Table based on α and df number. Both tables discussed above denote that the research data is normal and homogenous and the appropriate statistic test is a parametric statistic.

Table 6: Paired Samples Test (Teacher)

	Paired Differences					**t**	**t table**	**Df**	**Sig. (2-tailed)**
	Mean	**Std. Deviation**	**Std. Error Mean**	**α=0,05**					
				Lower	**Upper**				
Teacher	-19.618	15.264	2.444	-24.566	-14.670	8.026	2,024	38	.000
Curriculum manager	-16.349	11.712	1.900	-20.199	-12.499	8.605	2,026	37	.000
Principal	-25.802	19.861	3.895	-33.824	-17.780	6.624	2,060	25	.000

The normal and homogenous data is appropiate to be processed using t-test because the data are paired so the paired sample t-test was used to check for significance difference between pre-test and post-test results. The results of the paired sample t-test are shown in Table 6 above. Based on the calculation, it can be seen that the t_0 (t calculation) was bigger than t table ($t>t_{table}$) so the three classes perceived a statistically significant effect using blended learning based training. During the learning process, the researcher noted that the participants initially struggled more, especially to register with the online learning. However, as the treatment period progressed, participants became more and more familiar with the overall process and required less prompting from the instructors. Table 6 below depicts that increase in the quality of learning outcomes in skills assessment both in the Teacher and Curriculum Manager class and the Principal's class occurred in the first and second cycle.

Table 6. Frequency Distribution of Skill Assessment Score in Arranging Lesson Plan

Group of Score	Score Interval	Teacher		Curriculum Manager		Principal		Score Credit
		F	**%**	**F**	**%**	**F**	**%**	
1	90-100	0	0.00	1	3.57	1	5.26	Excellent
2	75-89	17	65.38	17	60.71	14	73.68	Very Good
3	60-74	9	34.62	9	32.14	4	21.05	Good
4	45-59	0	0.00	1	3.57	0	0.00	Less
5	0-44	0	0.00	0	0.00	0	0.00	Very Less

Skill assessment in the first cycle: (a) Teacher class (1) the score of analytical skills related to graduation standards (SKL), Core Competency (KI) and Basic Competence (KD) with an average score of 84.68, (2) basic competency analysis (KD) as an indicator of competency

achievement (GPA) and learning objectives (TP) analysis of Basic competencies (KD) are related to local content and performance content, the average score is 84.90. (b) Vice principal class (1) the score of analysis skills related to graduation standards (SKL), Core Competency (KI) and Basic Competence (KD) with an average score of 86.32, (2) Basic competency analysis (KD) becomes an indicator of Competency achievement (GPA) and learning objectives (TP) analysis of Basic competencies (KD) are related to local content and performance content, the average score is 85.40.(c) Principal class (1) the score of analysis skills related to graduation standards (SKL), Core Competency (KI) and Basic Competencies (KD) with an average score of 83.25, (2) Basic competency analysis (KD) as an indicator of achievement of Competence (GPA) and Learning objectives (TP) analysis Basic competencies (KD) are related to local content and performance content, the average score is 90.04.

Skill assessment in the second cycle: (a) Teacher class: (1) the average score of the learning model analysis skills is 90.9 (4) the average score of skills making preparation for the implementation of learning (RPP) 77.27;(b) Curriculum Manager class: (3) the score of the analysis skills of the learning model averaged 86.87 (4) the average score of skills making preparation for the implementation of learning (RPP) is 77.07 (c) Principal class: (2) the score of the analytical skills of the learning model averages 83.25 (4) the average score of skills making preparation for the implementation of learning (RPP) is 83.97

Conclusion

Based on the data analysis it can be concluded that blended learning-based training appears to have benefited the participants in terms of the understanding of vocational school curriculum management implementation.

Acknowledgement

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