Gunawan Setiadi, Soetarno Joyoatmojo, Sajidan, Soeharto. (2016). Blended Learning-Based Self-directed Learning on Classroom Action Research Training to Improve Teacher Competency Research. *Journal of Education and Learning. Vol. 10 (4) pp. 327-334.*

Blended Learning-Based Self-directed Learning on Classroom Action Research Training to Improve Teacher Competency Research

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Abstract
Although classroom action research (CAR) is considered useful for teacher development but this activity has not been implanted yet effectively in Indonesia. In this paper, we report the alternative way to overcome this problem. It addresses how blended learning support self-directed learning and enhance teacher competency research. Through questionnaire, interview and document analysis, the result showed that blended learning-based self-learning can improve teachers' performance in conducting classroom action research (CAR) and enhance their ability in compiling the research report.

Keywords: *self-directed-learning, blended learning, classroom action research, teacher competency research*

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Received June 26, 2016; Revised August 30, 2016; Accepted October 22, 2016

Introduction

With the publication of the Regulation of the Minister of State for Administrative Reform and Bureaucratic Reform No. 16/M.PAN /11/2009 on teachers functional status and its credit, the promotion of teachers must be able to carry out scientific publications or innovative work since teachers *pratama* level from grade III/b to III/c. Before this regulation was made, scientific publications and innovative work is not an absolute requirement for teachers under grade IV/A. One of the activities of scientific publications is classroom action research (CAR). During this time, teachers are not capable in conducting research and preparing the reports.

Self-directed learning is characterized by: (1) the independence of learners, (2) the autonomy of the management of learners independency, (3) having relevance to a task, (4) portfolio, (5) computer-based learning, (6) learner-based problem solving , (7) independent study, (8) independent evaluation, and (9) the material to be studied (Brown, 2004; Joyoatmojo, 2011; Song & Hill, 2007). The most popular distance learning today is the blended learning. According to the United States Distance Learning Association and the Hale Group's Report on Distance Learing, more than 96% of colleges and universities now offer this program (Uzur & Senturk, 2010). Blended learning became famous because of its effectiveness and flexibility in learning process (Bawaneh 2011; Uzur & Senturk, 2010; Martyn, 2010). Blended Learning is a part of the electronic learning or e-learning, ie learning to use electronic equipment. There are several models of e-learning, such as stand alone course, virtual classroom, learning games and simulation, embedded e-learning, mobile learning, learning and knowledge management blanded (Yusuf, 2010). Blended learning is learning that combines face-to-face activities and a variety of online activities (Bawaneh, 2011). Meanwhile, Uzur &Senturk (2010) stated that the blended learning is learning that combines face-to-face learning and online learning optimally to improve the satisfaction of teachers and learners.

CAR is a tool to develop the professionalism of teachers, improve the learning process, encourage positive change and lay the foundation of a knowledge-based learning (Mills, 2000; Dawson, 2012; Gall, Gall, & Walter, 2003). If the teachers already have a culture of research, it is expected that they can improve their professionalism. Although classroom action research is considered useful for teachers development, but this activity has not been implemented yet effectively. Although teacher trainings including classroom action research (CAR) training has been conducted by government or school, the result is not effective yet (Rahman, et al, 2015). It needs an effort to address this problem so that the teachers are able to carry out research. An alternative way to overcome is blended learning-based self-learning. These are some consideration of blended learning-based self-learning: (a) there are still a major number of teachers who have not attended classroom action research training, (b) all schools are equipped with internet network, (c) a development program for teachers such as this can be conducted with a large number of participants, (d) this is one of the development model that supports the realization of self-learning, (e) teachers do not have to leave the classroom so it will not disadvantage the students, (f) it has a flexible model and can be carried out anywhere and anytime, and (g) the interaction between the teachers and facilitators can be conducted through website/ Moodle (Bawaneh, 2011; Martyn, 2010; Uzur & Senturk, 2010).

As stated the Regulation of the Minister of State for Administative Reform and Bureaucratic Reform, the promotion of teachers must be able to carry out scientific publication. The teachers should be expected to master CAR and conduct the research. The teachers should be awere of relevant research about teaching and learning and also be capable of understanding smale-scale classroom research to address professional issues and problem that arise in their work (Taber, 2010; Rossouw, 2009). Several studies related to the use Moodle-based online learning for students has been done (Nugroho, 2013; Zyainuri & Marpanji, 2012) but research-related to self-directed learning for teachers in Moodle-based learning environment is rarely done in Indonesia. The collection of data through questionnaires, interviews and document analysis will find out the characteristics of self-directed learning and the difficulties faced by the teachers in conducting classroom action research, other than the feasibility and proper test. This study aims to show that blended learning support self-directed learning and enhance teacher competency research. It is expected that the findings in this study will assist the supervisor in guiding teachers to conduct research.

Method

Subjects

Volunteers sampling was used because most of the teachers might refuse to participate this research due to some other reasons. They didn't participant the research because (1) they didn't have time to conduct the research, (2) their teaching loads were high, and (3) they had a lot of activities to do

at school. In ethical standards and human consent requirement protect individuals' right to refuse participation in research (Gall, Gall & Borg, 2003).

Eight of the participants were aged from 40 to 50 and the remaining four participants were over 50 years old. Four participants had attended the training and conducted the research (ATC), four participants had attended the training but never conducted the research and four participants never attended the training and never conducted the research (NTNC) (see the summary in Table 1).

Table1. Participants' Genders, Ages and Training and Research Experience

	Number of Participant	Precent
Gender		
Male	4	33,33
Female	8	66,66
Age		
40 – 44	2	16.66
45 – 49	6	50
Over 50	4	33.33
Experience		
Attended the training and conducted the research (ATC)	4	33,33
Attended the training but never conducted the research (ATNC)	4	33,33
Never attended the training and Never conducted the research (NTNC)	4	33,33

Data Collection

This research adopted qualitative research methodology, using questionnaire, interview and document analysis data collection methods. Multiple source data collections were used to validate and crosscheck the findings (Patton, 1990). Questionnaire was used to explore the use of blended learning and the participants' confidence in conducting the classroom action research (CAR).

Interview was used to explore the self-directed learning, specially, prior knowledge, personal attribute: (1) resource use, (2) strategy use, (3) motivation and autonomous process: (1) planning, (2) monitoring and evaluation (Song & Hill, 2007).

To evaluate the CAR reports written by the participants we used the document analysis. The document analysis is systematic procedure for reviewing or evaluating documents-both printed and electronic (computer-based and internet-transmitted) material (Bowen, G.A, 2009: 27).

Data Analysis

Descriptive statistics was used to analysis questionnaires and the information was analysed each item then cross-analysed holistically. Interview took place in the interviewees' schools. The interviews lasted about 30 minutes. Questions were divided into three sections: prior knowledge, personal attributes and autonomous process. Finally, interviewees were given the opportunity to give comments. The result of interviews were recorded, transcribed and coded according to the sections. The assessors evaluated the CAR reports were teachers who attended the training of trainer (TOT) held by the Department of National Education. The CAR instruments were used to evaluate to determine the category of the reports. The categories of the report were 86-100 = excellent, 71- 85 = good and 56–70=poor.

Results

The Use of Blended Learning

Eighty-three precent of the participants indicated that the blended learning was assessed easily only 17 precent participants had difficulty in assessing the blended learning due to the internet network. All of the participants agreed and strongly agreed that they had username and password to join the learning. The majority of participants (83.33%) used the user name and password and 17% participants still had problem to use them. Seventy-five precent of participants could download the module but 17% participants indicated difficulty to download the module. When asked whether messages provided by Moodle could be used, approximately 84 % of the participants agreed but 17 % participants couldn't use the messages (Table 2).

Table 2. The Use of the Blended Learning

Statements	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
1. I am able to assess the blended learning	25	58.33	16,66	0.00
2. The participants have user name and password	58.33	41.66	0.00	0.00
3. I am able to use my username and password	25	58.33	16.66	0.00
4. I am able to download the module from Moodle.	41.66	33.33	25	0.00
5. The participants are able to communicate using messages in Moodle.	33.33	50	16.66	0.00

The Guidance Provided by Facilitator.

The overall experience of the participants with the facilitator was satisfied. All of the participants agreed that the facilitator gave them motivation. When asked the guidance given by the facilitator, all of the participants agreed. Ninety-one precent of the participants indicated that the question and answer managed well by the facilitator. All of the participants agreed that the facilitator help them write the CAR reports. All of the participants indicated that feedback provided by the facilitator was useful (Table 3).

Table 3. The Guidance Provided By Facilitator

Statements	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
6. The facilitator gave motivation when I was learning the CAR.	66.66	33.33	0.00	0.00
7. The facilitator helped me use Moodle.	50	50	0.00	0.00
8. The facilitator always answered the participant's questions.	50	41.66	8.33	0.00
9. The facilitator helped me write the CAR report.	58.33	41.66	0.00	0.00
10. The feedback from the facilitator was useful.	66.66	33.33	0.00	0.00

The Usefulness of the Module

Statements 11 to 15 were constructed to measure the effective use of the module (Table 4). More than 83% participants agreed that they understood the content of the module and more importantly, they felt that the knowledge and skill were useful. Eighty-three precent of the participants found that the module was helpful in conducting the CAR. The exercises provided by the module was appropriate (74.99%) but 16.66 % of the participants disagreed. More than 83% participants felt that the research competency improved.

Table 4. The Usefulness of the Module

Statements	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
11. I am able to understand the content of the module.	41.66	41.66	16.66	0.00
12. The knowledge and skill I learned from the module are useful.	50	33.33	16.66	0.00
13. The module helps me conduct my CAR.	41.66	41.66	16.66	0.00
14. The exercises in the module are appropriate.	41.66	33.33	25	0.00
15. After reading the module, I think my research competency is good.	58.33	25	16.66	0.00

The blended learning steps for participants are described in brief in Table 5. The face to face learning held in the participants' place as an orientation phase, in this phase they got information about self-directed learning and blended learning through Moodle.

As indicated in Table 5, the face-to-face activities ware orientation and evaluation (submitting the car reports and feedback) and the other activity was online. Smith and Kurthen (2007) said that blended learning incorporated some online learning activities (less than 45%), if online activities are between 45% and 80% the course is hybrid learning. In this research, the portion of face-to-face activity was limited but most activity was online. The online learning focused on the CAR material and

conducted the research. Moodle provided learning activities and the participants recommended to use all of the features in Moodle.

Table 5. Blended Learning Steps and Description

Steps	Description
Orientation	In the orientation phase, the participants were explained how to be good self-directed learners (SDL), especially personal attributes and autonomous process so that they could learn the classroom action research (CAR) through Moodle. The participants made the username and the password to open the Moodle whenever they wanted to learn. In this phase, the facilitator also explained in brief about the use of features in Moodle like download, upload, messages, discussion forum and feedback. The orientation phase was face-to-face activity held in one of the participant's place.
Learning the CAR and conducting the research	After receiving the explanation, they started to download the CAR modules and learned by themselves. If the he participants had some difficulties in learning they could ask the facilitator through messages feature provided by Moodle. The participants did the following steps: (1) upload the CAR proposals in Moodle, the facilitator assessed them and if the proposals were eligible, the participants continued to conduct the research, (2) the participants uploaded every chapter when they began to make the CAR reports (3) the participants were suggested to open the feedback to see the suggestion given by the facilitator, and (4) the participants were encouraged to join the discussion forum to enlarge the knowledge.
Submitting the CAR reports and feedback	In the last phase, the participants submitted the CAR reports after conducting the research. The CAR reports were the result of learning and conducting the research. In this phase, the participants gave feedback after joining the blended learning. This phase was also face to-face activity.

Participants' Perceptions of the Use of the CAR

Statements 16 to 20 were constructed to obtain the participants' feeling after learning the CAR from the module (Table 6). More than ninety precent of the participants understood the CAR concept, only 8 % of the participants didn't agree with the statement. Eighty-three precent of participants would conduct the CAR, 17% didn't want to conduct the research. The participants believed that the CAR would overcome the learning problem (75%), twenty-five precent of the participants disagreed that the CAR overcome the learning problem. More than ninety precent of the participants believed that the CAR could improve the student achievement. The majority of the participants felt that the CAR was useful for the teachers (83.33%), the rest of the participants didn't agree.

Table 6. Participants' Perceptions of the Use of the CAR

Statements	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
16. I have understood the CAR concept.	50	41.66	8.33	0.00
17. After understanding the CAR, I would conduct the CAR.	41.66	41.66	16.66	0.00
18. Conducting the CAR made me overcome the teaching problems.	41.66	33.33	25	0.00
19. I believed that the CAR could improve the students' achievement.	41.66	50	8.33	0.00
20. I think the CAR is useful for the teachers.	58.33	25	16.66	0.00

Table 7. Participants' Perceptions in Conducting the CAR

Statements	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
21. I am able to identify the problems appear in the teaching.	41.66	33.33	25	0.00
22. I am able to write the research questions in the CAR.	50	41.66	8.33	0.00
23. I am able to write the literature review related to the research variable.	41.66	41.66	16.66	0.00
24. I am able to make the data collection and the data analysis.	41.66	33.33	25	0.00
25. I am able to describe the research findings and make the conclusion.	41.66	50	8.33	0.00

Participants' Perceptions in conducting the CAR

Statements 21 to 25 show the participants' confidence after learning the CAR through the blended learning (table 6). More than seventy-four precent of the participants believed in identify the learning problems, 25% of the participants disagreed. More than ninety precent of the participants felt that they could write the research questions, only 8.33% participant's couldn't. When asked about the ability in writing the literature review, more than 83% of the participants could write it, 16.66% of the participants couldn't write it. In making the data collection and data analysis, nearly 75% of the participants could do them, 25 of the participants couldn't. More than ninety precents of the participants were able to describe the findings and make the conclusion but 25% of the participants weren't able to do them.

Interview Data

The qualitative data from interview supplemented the qualitative data from questionnaires and document analysis. Analysis of the interview data findings that the majority of the participants found the self-directed learning flexible and convenient learning. The following answers demonstrate the flexible and convenient learning.

"I think the prior knowledge help me learn new knowledge or skill. Without prior knowledge I have some difficulties to master the new knowledge or skill".

"I usually use learning resource provided by Moodle if I have much time I will seek other resource in internet."

"I use a flexible strategy to learn the CAR in blended learning; it means that I don't use the certain strategy, the important thing that I can manage the learning strategy.

"In learning and conducting the CAR, I really want to master and conduct the CAR because the facilitator will guide me."

"I will ask my friends or facilitator when I don't understand the course."

"I consult with the facilitator because I don't have time to evaluate the validity and reliability of the information."

When asked about recommendation for improvement of blended learning, half of the participants said blended learning gave some challenges. Some participants recommended having the time management skills, while other participants suggested using enough bandwidth for download or upload.

Assessment of CAR Reports

Writing research report is an integral part of conducting research. However, writing research report is not every research's exciting activity and it can be also time-consuming activity process (Derntl, 2014). After the researchers finish conducting the research they must write the research result and the findings. Robert Day (in Derntl, 2014) defines scientific paper as written and published report describing original research results. Most Indonesia teachers who tried to conduct the CAR they had difficulties in writing CAR reports. The failure of writing the CAR report because writing is not teacher's culture.

The assessment results of participants' reports show that the participants who had attended training and have conducted research (ATC) scored 91.44 for the average. The participants who had attended the training but never conducted research (ATNC) scored 88.71 for the average. The participants who have not completed the training and have never conducted research (NTNC) scored 86.39 for the average. The assessment of CAR reports revealed that ATC participants had got the highest score because they had experience in conducting and writing the CAR reports. These show that prior knowledge can help the learners improve the result of learning (Tawalbeh & Al-Zoud, 2013). The participants who join the training and conduct the research can improve the research practice. By conducting the research, the participants can define research questions, develop a research plan for data collection through observation, student work, field notes and interview and analyse the data. It can heighten the research skills. Difference from the participants who joined the training without conducting the research, they only master research theory.

Discussion

Factors such a adult learners' fluency and perception in using Information and Communication Technology (ICT) influence the participants in learning CAR through Moodle (Lai, 2011; Dowson, 2012). They still have difficulty to engage the learning because it was the first time for them to learn through online learning. In addition, fifty precent of the participant ages were fifty years old; they never studied the ICT and CAR when they were in university. After they had experience to use online

learning at last they had internet skill. Song and Hill (2007) suggested the learners to use the learning resources, strategy and motivation to enhance the learning result.

Facilitator's help was needed when the participants had difficulties in learning. Lai (2011) said that the success of online learning depended from internet skill, knowledge and facilitators or instructors. Most of the teachers at school weren't able to conduct the research because they didn't have facilitators to guide them. This research revealed that participants needed the facilitators to help and to motivate them; the assistant was needed from conducting the research until writing the research reports. The learners sometimes have low levels of autonomy either because of unfamiliarity with technology or complexity of the materials, the facilitator may help them (Huss, Sela & Eastep, 2015). The use of internet technology has been explained before the learners joined the research as well as the module used in the learning.

Modules help the participants learn classroom action research material, as blended learning the learners can access information anywhere but in this research, the participants like to use the modules. Using technologies as learning tools, learners are able to direct access knowledge by themselves instead of just attending classes (Sriarunrasme, Techataweewan and Mebusaya, 2015). Modules help the participants learn classroom action research material, as blended learning the learners can access information anywhere but in this research, the participants like to use the modules. Using technologies as learning tools, learners are able to direct access knowledge by themselves instead of just attending classes (Sriarunrasme, Techataweewan and Mebusaya, 2015).

One of the categories is related to the ARCS (attention, relevance, confidence and satisfaction) motivation proposed by Keller's theory is confidence (Keller, 2008). After the participants learned the CAR material through blended learning, most of them believed that they were able to master and conduct the research. They had high confidence to conduct the research after learning through blended learning.

Conclusion

Blended learning maybe one of the most suitable solutions for Indonesia teachers who haven't joined the training and haven't conducted the research. They don't only need the training but also need the facilitator to guide them to conduct the research. Using blended learning can motivate self-directed learning and enhance the research skills. In addition, it provides flexibility and autonomous learning for the learners. Moodle as the tools, the facilitator can help and guide the participants to conduct the classroom action research (CAR).

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