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Implementation of Blended Learning in Vocational Teacher Professional Education

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***Abstract*—The approach of hybrid learning or blended learning is seen as effective and has a positive impact on the learning process. The ability of teachers to utilize blended learning is expected to create an interactive learning environment and increase student learning participation. This blended learning approach applies the concept of learning collaboration between teachers and students who create a positive climate for f2f (Workshop) learning, on-line and off-line learning. The vocational teacher professional education program uses the Brightspace SPADA *(Sistem Pembelajaran Dalam Jaringan)* e-learning platform which can be used by teachers (as students) to study and do assignments online. The aim of this program is to produce competent and certified vocational teachers in accordance with the mandate of the law *(Undang-undang Guru dan Dosen)* in Indonesia. It is expected that after participating in this program teachers have better competence by developing 21st century learning.**

Keywords—blended learning; PPG-daljab; brightspace SPADA, UNY

I. INTRODUCTION

The development of information technology today has driven various change in the world such as in the fields of social, cultural, improving the quality of human life, the development of science and new approaches and innovations in education [1,2]. This also influences traditional learning patterns that have shifted towards a more open and flexible manner which is marked by development of interactive and collaborative teaching learning methods, one of the models used is blended learning [3-5]. This model is seen as effective in increasing students' knowledge [6,7] .

The development of information technology in accessibility is utilized in the learning process such as the search for learning materials and increasing teacher competency [8-10]. The ability of teachers to integrate the benefits of a blended learning approach is expected to create an interactive learning environment.

Based on government regulation, teacher professionalism is characterized by the ownership of an educator's certificate which is obtained after taking the Professional Teacher Education in Office *(Pendidikan Profesi Guru - Dalam Jabatan)* which is abbreviated as PPG-Daljab who adopted the blended learning model into the structure of the curriculum [11]. In 2017 is the first year of the PPG-Daljab program which is specifically implemented for vocational high school teachers. And also the first year for Yogyakarta State University (UNY) as one of the PPG-Daljab organizer of the second stage in 2018 for the Electricity Engineering study program.

II. PPG-DALJAB PROGRAM IN 2018

Effort to realized teacher professionalism have been carried out by the Government of the Republic of Indonesia through the implementation of the Teacher Professional Education program (PPG-Daljab) based on Law No. 14 of 2015 concerning Teachers and Lectures as well as Government regulation of the Republic Indonesia No, 37 of 2017 concerning Teacher Certification in Position [12,13]. Certification aims to improve teacher competence in position as professionals in educational units to fulfil pedagogical, personal, social and professional competencies in accordance with statutory provision.

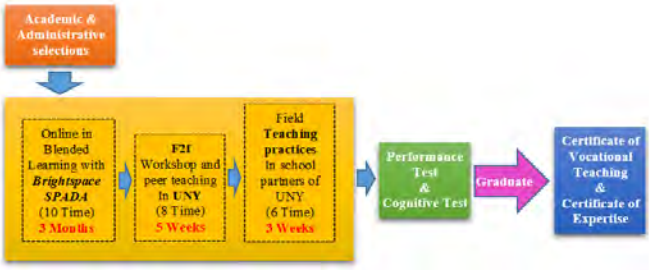

Fig. 1. Procedure of PPG-Daljab.

Figure 1 Show the procedure of PPG-Daljab which starts from the participant selection process, followed by deepening the topics using SPADA Brightspace, attending workshops, teaching practices to following the competency test.

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TABLE I. STRUCTURE OF CURRICULUM BLENDED LEARNING OF PPG-DALJAB

Code	Events of PPG	Time	Category		
			T	*P*	*F*
Online1	Education content & Teacher profession (Pedagogi)	4	4		
Online 2	Electrical Engineering content with TPACK (Profesional)	6	6		
Workshop1	Review & Discuss online learning	1		1	
Workshop2	Developt of lesson plan & Peer Teaching	6		6	
Workshop3	Class action research proposal	1		1	
Teaching Practices	Teaching Practices	6			6
	Sub Total	24	10	8	6
	Totals	**24**			

T (Theory), P (Practice), F (Field Teaching).

TABLE II. SCHEDULE OF CURRICULUM PPG-DALJAB

No	Activity	Duration	Mon/Date in 2018				
			Jul	*Aug*	*Sep*	*Okt*	*Nov*
1.	Online learning	12 weeks	9		21		
2.	Submit to UNY				24-26		
3.	Orientation				27-28		
4.	Workshop	5 weeks				1	2
5.	TP	3 weeks					5-23
6.	Assignment						
	a. Performance test						20-23
	b. Cognitive test						3

Online learning consist of two learning activities namely pedagogy learning and professional learning (electricity engineering) each of which consists of 6 learning modules. 1 module contains 3 to 4 learning activities.

Pedagogy content consist of:

- Module 1. 21st century learning.
- Module 2. Teacher professional development.
- Module 3. Theory of learning.
- Module 4. Student's characteristics.
- Module 5. Learning strategy.
- Module 6. Assignment.

Professional content consist of:

- Module 1. Electrical circuits & Measurements.
- Module 2. Basics of electronics.
- Module 3. Power plant.
- Module 4. Electric power installation.
- Module 5. Control systems & Microprocessor.
- Module 6. Operation, control and maintenance of electric motors.

The workshop (face to face/ f2f) was held for 5 (five) weeks with the implementation carried out in the lecture hall with adult learning methods. Because it was implemented in the LPTK, the LPTK in this case facilitated the PPG-Daljab participants in 2018 to be registered as students of UNY. Learning is conventional with the guidance lecturer as an instructor.

TABLE III. SCHEDULE OF WORKSHOP.

No	Workshop (Ws) contents	Weeks in October				
		I	*II*	*III*	*IV*	*V*
1	Ws-1 Review online Modul Pedagogi 1-6	1				
2	Ws-1 Review online Modul Profesional 1-6	2-3				
3	Ws-2MP Development of lesson plan					
A	Curriculum Analysis	3-6	8-12		15-25	
B	Lesson plan					
C	Learning Modules					
D	Learning Media					
E	Assignment sheet					
4	Ws-2PP11-22 Presentation Lesson plan		12-13	15	25-27	29
5	Ws-2PT1-6 Peer Teaching (groups)			20	27	
6	Ws-1 Stadium general			21		
7	Ws-3 Class Action research					29-1

F2f learning in the form of workshops contains assignments in the form of making learning tools that are divided into a number of basic competencies in the Electricity Engineering expertise program. The results of making the device are presented to be assessed by the instructor and get feedback. In addition to making learning devices in accordance with the curriculum (learning hours are in accordance with the predetermined duration), PPG-Daljab participants also prepare the tools to be presented in peer teaching with a duration of 20 minutes.

Assessment in f2f learning is not open as in the assessment in learning with Brightspace SPADA which immediately shows the value notification obtained by participants and what tasks have been done.

III. DISCUSSION

E-Learning platform in the PPG-Daljab stage 2 in 2018 uses Brightspace SPADA *(Sistem Pembelajaran Dalam Jaringan)*. All PPG-Daljab participants and instructors conduct network learning activities on the web with the address: https://ppgspada.brightspace.com. PPG-Daljab participants log-in first via e-mail that has been previously confirmed, then enter the SPADA menu (Fig. 2). The next stage is the participants open and download modules provided according to the date on the schedule, each module has learning activities (Fig. 3)

Fig. 2. **Fig.2**. Login to brightspace SPADA from e-mail.

Fig. 3. Modul selection menu page.

Study the learning material, work on each independent task presented (Fig.4), conduct discussion activities on the network, do the final assignment and do formative test for each learning activity. To complete the module, do a summative test with a duration of 60 minutes up to 90 minutes.

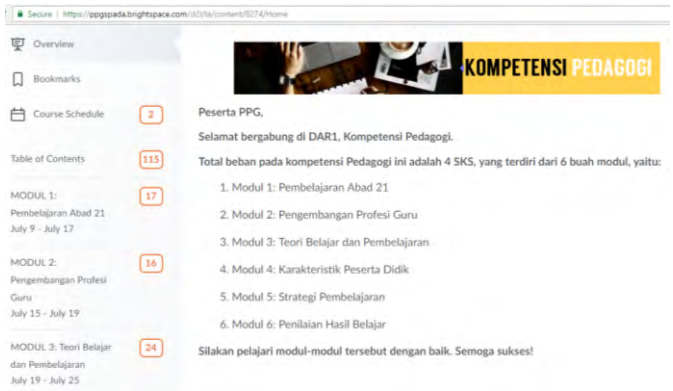

Fig. 4. The modules downloaded by participants.

The results confirmation will be delivered by the instructor at the end of each module. (Fig. 5). indicator of implementing this independent task can be seen by participants with a check mark at each session that has been done. PPG-Daljab participants will continue to be motivated to complete each task provided (Fig. 6).

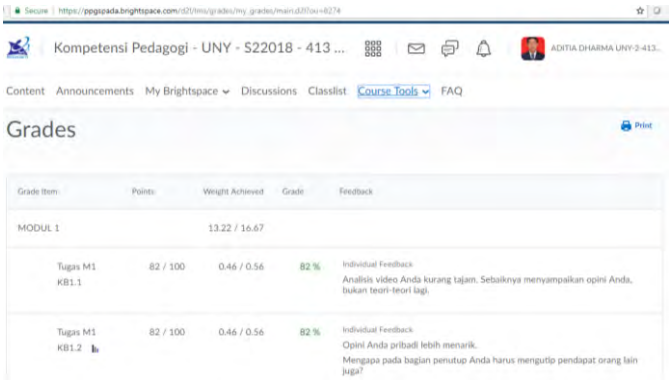

Fig. 5. Confirm task result.

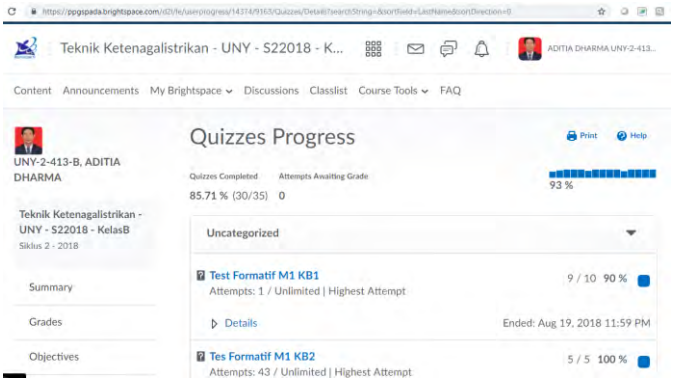

Fig. 6. Quiz progress.

IV. Conclusion

The application of the blended learning model is one of the learning models that are seen as effective and have a positive impact on the teaching and learning process by increasing students' knowledge. The ability of the teacher in concocting the superiority of the blended learning or integrated learning approach is expected to create an interactive learning environment and increase student learning participant as a professional form of teacher competence.

The PPG-Daljab program in 2018 adopted the blended learning model into its curriculum structure by combining network learning and f2f learning to produce professional productive vocational teachers. The Brightspace SPADA is an interactive application that connects instructors to participants so that they achieve the learning objectives of producing competent teachers.

One of the advantage in using Brightspace SPADA is that there is a confirmation instrument for all learning activities carried out by PPG-Daljab participants in 2018, starting with any features that are opened, downloaded, uploaded, commented on in the discussion section, attempts to formative tests that can be done repeatedly, and feedback provided by the instructor in the form of result and appreciation of the uploaded task. This advantage does not occur in the schedule of f2f learning (workshop) held at the PPG-Daljab LPTK UNY in 2018.

REFERENCES

[1] U. Köse, "A blended learning model supported with Web 2.0 technologies," vol. 2, no. 2, pp. 2794–2802, 2010.

[2] T. Junanto and R. Afriani, "Implementasi Digial - Age Literacy Dalam Pendidikan Abad 21 Di Indonesia," pp. 113–120, 2016.

[3] M. Ari and M. C. Taplamacioglu, "Web-based blended e-learning for adults ; a case study," Procedia - Soc. Behav. Sci., vol. 47, pp. 1028–1033, 2012.

[4] R. Kumar and N. Pande, "ScienceDirect Technology-mediated learning paradigm and the blended learning ecosystem : what works for working professionals ?," Procedia Comput. Sci., vol. 122, pp. 1114–1123, 2017.

[5] D. Yalç, "Why is blended learning for vocationally oriented language teaching ?," Procedia - Soc. Behav. Sci., vol. 174, pp. 1061–1068, 2015.

[6] G. Y. Sanjaya, "Meningkatkan Pengetahuan Mahasiswa Dengan Memberikan Fleksibilitas Belajar Mengajar Melalui Metode Blended Learning," vol. 2, no. 2, pp. 1–8, 2013.

[7] A. Hamila and M. A. Embi, "Implementation of Blended Learning in Higher Learning Institutions : A Review of the Literature," vol. 9, no. 3, 2016.

[8] I. Abdulhak, A. Djohar, and D. Wahyudin, "The Development of Hybrid Learning Curriculum Model for Improving Teachers Competencies in Teacher Education Institutions in Indonesia and South Korea," vol. 3, no. 1, pp. 31–35, 2018.

[9] M. Azhar, S. Mustapa, M. Ibrahim, and A. Yusoff, "Engaging Vocational College Students through Blended Learning : Improving Class Attendance and Participation," Procedia - Soc. Behav. Sci., vol. 204, no. November 2014, pp. 127–135, 2015.

[10] K. Thorne, Blended Learning : How to Integrate Online and Traditional Learning. 2003.

[11] D. J. G. dan T. kependidikan. Kemdikbud, "Pendidikan Profesi Guru (PPG) Dalam Jabatan Tahun 2018," 2018.

[12] Mendikbud RI, "Peraturan Menteri Pendidikan dan Kebudayaan Republik Indonesia No. 37 Tahun 2017.," no. Tentang Sertifikasi Bagi Guru Dalam Jabatan Yang Diangkat Sampai Dengan Akhir 2015, 2017.

[13] D. Wardani, "Tantangan dan Harapan Revitalisasi SMK di Indonesia menuju Lembaga Vokasional yang Berdaya Saing," no. 9, pp. 1–16, 2016.