

Project-Based Learning for Indonesian Vocational Teachers in the New Normal

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Abstract— This descriptive study elaborates and discusses an online training course for Indonesian vocational teacher professional development in the new norm, in which face-to-face learning interaction is strictly limited. One hundred teachers from sixty-eight vocational schools in fifty-one cities in Indonesia participated in the online teacher training. They discussed various issues, including project-based learning design, both synchronously and asynchronously for two weeks. After the two-week learning interaction, teacher participants designed and implemented a project for their students which integrated the practises of relevant vocational skills, the 4Cs (critical thinking, creativity, collaboration and communication) of the 21st century skills, character building, and values and concepts of education for sustainable development. Teacher participants were given two months for the project design and implementation. Data triangulation was made from online surveys, school visits for monitoring, evaluation and semi-structured interviews to twenty participants, and final written reports from the participants. The project has brought about positive impacts both for students who performed the project and teachers as training participants who designed the project. Students' competency which includes vocational skills, the 4Cs, character building, and awareness in ESD values were enhanced. Teachers benefited from the online learning experience which inspired them to design a blended learning course in the new norm, designing a project-based learning which integrated various skills, and integrating the values of ESD into a project.

Keywords—project-based learning, new norm, vocational skills, 4Cs, knowledge construction, character building

I. INTRODUCTION

This paper aims to elaborate and discuss how an online teacher training course for vocational tourism teachers of Indonesian vocational schools was conducted in the new norm, what impacts it contributed to teachers' competency enhancement and to students' learning. The term "new norm" refers to the condition during the COVID-19 pandemic in which face-to-face learning interaction is strictly limited, both in teacher professional development courses

and student learning interaction at school. Training courses for teacher professional development were normally designed in a face-to-face learning mode. Although the pandemic has affected many activities, including teacher professional development in Indonesia, learning should not be stopped in such conditions. Teacher training courses can still be conducted in a new norm. Balai Besar Pengembangan Penjaminan Mutu Pendidikan Vokasi Bisnis dan Pariwisata (BBPPMPV Bispar) – a body under the Ministry of Education, Culture, Research, and Technology, Republic of Indonesia that functions for vocational teacher development and quality assurance of vocational education in Indonesia – in collaboration with UNESCO Jakarta conducted a training course for Indonesian vocational teachers in an online learning mode. The course was designed for vocational tourism teachers and curriculum developers of Indonesian vocational schools focusing on action-oriented tourism vocational education for sustainable development. The goal was to impart knowledge on the concept of Education for Sustainable Development (ESD) and build capacities for teachers and accelerate sustainable development solutions at the local level. It aims to help teachers and curriculum developers of SMK to identify competencies in their curriculum which are relevant with values of education for sustainable development, and to better understand how those identified competencies could be learned and practiced to solve real problems in the students' environment.

The idea behind the training is that teachers need to know how and be able to facilitate contextual and meaningful learning to their students. In the project-based learning process, students practice their vocational competencies, critical thinking and problem-solving skills, and be aware of, internalize, and practice the characters and values as outlined in the Pelajar Pancasila profile. The Ministry of Education, Culture, Research and Technology of Republic of Indonesia has declared six characteristics needed by Indonesian

students, and this is known as Profil Pelajar Pancasila (Pancasila Student Profiles) which include being religious, global citizen, collaborative, creative, to have critical thinking skill, and to be independent (Kemdikbud, 2021). To accommodate all those competencies, characters, and values, teachers need to design an effective learning strategy. Project-based learning approach in a new norm condition is seen to be appropriate to accommodate all those needs. The e-training course was designed to help teachers and curriculum developers increase their knowledge, skills and capability in designing and implementing ESD project-based learning by optimizing the use of local products and local wisdom.

II. LITERATURE REVIEW

Project-based learning is a student-centred learning approach which requires students to actively participate in carrying out a meaningful project, such as seeking solutions to real problems in the students' surrounding (Amamou & Cheniti-Belcadhi, 2018; Buck Institute for Education, 2021; Miller et al., 2021). Since online learning has to be implemented during the COVID-19 pandemic, the learning needs to engage students actively, and project based learning in an online learning environment is considered appropriate to be implemented (Hira & Anderson, 2021).

A project-based learning should start with an idea and the main question, and that certain content requirements should be discussed (Rivera, 2020). This implies that project-based learning at school should not be separated from curriculum content. In a project-based learning, the teacher designs a more real learning environment and students demonstrate their knowledge and skills in creating a meaningful product or presentation for a real audience. There is a paradigm shift from the classical teaching approach where students have to memorize information to a constructivist learning atmosphere (Dilekli, 2020). The project becomes the centre of instruction and active participation from students is believed as a potential to construct knowledge (Condliffe, 2017). Students think critically, collaborate, and develop their creativity and effective communication skills (Buck Institute for Education, 2021). Thus, deep learning is promoted in project-based learning (Miller & Krajcik, 2019). Miller et al. (2021) suggest design principles for developing materials in designing a project based learning: adaptive, responsive, enjoyable, and intellectually satisfying.

Studies show some advantages of project-based learning, including the increase in teacher self-efficacy (Mahasneh & Alwan, 2018), students' critical thinking skills (Mutakinati et al., 2018), and students' academic achievement (Chen & Yang, 2019; Kizkapan & Bektas, 2017; Solis, 2021). In a study of students' interest in applying project-based learning approach through Google Classroom in the new normal era, Hidayah and Arum (2021) found that students' learning motivation which includes moderate interest, feelings of pleasure, attention, desire, and awareness are also important factors in the success of a project-based learning during the new normal era. On the other hand, project-based learning may not work well when teachers are not well prepared. Aldabus (2018) identified some challenges teachers may encounter in implementing project-based learning: choosing significant content, time management, monitoring and assessment, and lack of facilities.

III. METHODOLOGY

This is a descriptive research study which describes how project-based learning was implemented in the new norm condition, how it affected teachers' competency improvement and student learning. It started from a two-week online teacher professional development training course and continued with a two-month implementation of project-based learning.

A. Method

The E-Training on Action Oriented Tourism Training for Sustainable Development for Teachers and Curriculum Developers of SMK year 2021 was done by utilizing the Learning Management System (LMS).

Participants of the e-training consisted of 100 people, eighty vocational teachers and twenty curriculum developers from sixty-eight vocational schools in fifty-one cities in Indonesia. The participants were classified into five classes in accordance with their specialization: (1) hotel accommodation, (2) tour and travel, (3) hair, skin, beauty, and treatment, (4) food production, and (5) curriculum developer. Curriculum developers were invited to participate in the training so that they could better understand what the teachers would be doing in schools. With this understanding, they are expected to play roles as internal supervisors as well as motivators to the teachers.

For the efficiency and effectiveness of the program implementation, the training was conducted in two phases: (1) online learning interaction and (2) implementation of the project-based learning at school. The online learning interaction took place during the first two weeks of the program. Participants learned and discussed the learning materials such as the concept and values of education for sustainable development, vocational skills development, project-based learning design, the 4Cs (critical thinking, creativity, collaboration, communication) of the 21st century skills, and students' characters as outlined in the Profil Pelajar Pancasila (Pancasila Student Profiles). All discussions and learning interaction took place on a learning management system (LMS), both synchronously and asynchronously.

The next stage is the ESD project implementation and monitoring. Participants designed the project-based learning at their schools to be implemented in collaboration with other teachers and students for the next two months. As suggested by Rivera (2020), curriculum content should be discussed in project-based learning. Therefore, the first thing teachers and curriculum developers of SMK need to do is to identify competencies in their curriculum which are relevant with topics and values of ESD, and which is possible to be learned through a project-based learning program. Guidance and monitoring on the implementation process were provided by the trainers and facilitators in online mode such as video conference.

B. Data Collection

Data for this study were collected through online survey questionnaires, school visits for monitoring and evaluation including interview, and from final reports written by teacher participants. Data collection was designed to evaluate the effectiveness of the training and gather information specifically on teachers' competencies, views,

understanding, and classroom teaching practices related to the implementation of ESD.

The online survey questions consisted of twenty-seven questions which were categorized into respondents' identity (7 questions), curriculum contents (5 questions), classroom practice (7 questions) and impact of training to teachers' competencies (8 questions). Most questions were in the form of a four-point Likert scale. The school visit aimed to obtain information such as what project was implemented at school, who participated in the project, result of the project implementation, lessons learned from the project, and how the teacher participants view the project-based learning. Information obtained from teacher participants' final reports functions to triangulate the information from the other two instruments.

IV. FINDINGS AND DISCUSSIONS

All participants have sufficient educational background as 77 teachers are S1 (undergraduate) degree holders and 22 participants are holding S2 (Masters) degree holders. This means they have met the qualification to be teachers and curriculum developers as required by the Ministry of Education, Culture Research and Technology of Indonesia. The teaching experiences of the training participants ranged between five to thirty years. With those educational qualifications and teaching experiences, the participants have met the standards of academic qualification and competencies of teachers as outlined in the Rules of the Ministry of National Education number 16, year 2007. As qualified teachers, their views and comments are considered worthy, appreciated, and useful for the contribution towards policy making, specifically within the curriculum development context.

All teacher participants designed and implemented a project for their students in accordance with their specialization: hotel accommodation, tour and travel, hair and skin beauty and treatment, and food production. The project involved various skills for students to practise: vocational skills, the 4Cs as in the 21st century skills, character building as outlined in the Pelajar Pancasila profile, and integrated ESD topics and values.

A. Participants

The number of participants in each project ranges largely from eight to forty people including teachers and students. This big range was affected by the new norm rules which limited the number of classroom participants in class. All training participants involved their teacher colleagues and students in their project. The involvement of teacher colleagues is at the planning stage which included identifying competencies in the school curriculum to be selected for the project, setting the general goal of the project, discussing the procedures, and the assessment. Students' involvement is at the implementation stage which involves identifying problems in students' surroundings, figuring out a prototype for alternative solutions, and solving the identified problem by producing something meaningful. Students were purposefully selected based on the selected competency, ranging from students at year 10 to 12. The government rules which limited the number of students attending school were taken into consideration in selecting students to participate in the project.

B. Titles of the Projects and the Products

1. Each project is given a name or a title based on the competency to be practiced and achieved. It is necessary to bear in mind that there are four categories of class in the e-training, so the title and the product of the project is listed based on each category. Tables 1 to 4 show samples of the project from each class.

Table 1: Titles and Products of the Project (Hotel Accommodation)

No	Titles	Products
1	Making green (nonchemical) laundry soap from Lerak	Green laundry soap for laundry section in hotel
2	Making natural green cleaner from lemon, vinegar, and lerak	Green cleaner: lerak and lemon
3	Making hand soap from mango leaf extract	Hand soap from mango leaves
4	Making glass cleaner from lemon	Glass cleaner from lemon

Table 2: Titles and Products of the Project (Tour and Travel)

No	Titles	Products
1	Little Situ Babakan Tsamaniyah	Batavia Tour Package
2	Developing ecotourism packages by promoting food security in a limited space	Ecotourism package: promoting food security in a limited space
3	Virtual Event in COVID-19 pandemic times (Virtual Tour dan Webinar)	Virtual Tour and Webinar
4	Planning and organizing environmental-friendly tour packages	Environmental-friendly tour package
5	Educational tour of SMKN 2 Subang	Educational Tour Package
6	Planning a one-day tour package	One-day Tour Package
7	Cleaning tourist destination area as an action-oriented social activity and introducing traditional games	Cleaning a Tour Destination Area
8	Utilizing school's drainage wall for hydroponic strawberry and other possible plants at SMK Negeri 15 Jakarta	Hydroponic strawberry at drainage wall
9	Recycling plastic waste	Handicrafts: wallet, bag, table cloth.

Table 3: Titles and Products of the Project (Food Production)

No	Titles	Products
1	Making various local foods and candles (Morca Roll Cake from moringa leaves; seaweed nugget; sweet leaf chips; red sweet potatoes cookies; aromatherapy candle from used cooking oil).	1. Morca Roll Cake from moringa leaves; 2. Seaweed nugget; 3. Sweet leaf chips; 4. Red sweet potato cookies;

		Aromatherapy candle from used cooking oil
2	Making lasagna from cassava and purple sweet potatoes	Cassava lasagna
3	Producing local food from cassava	1. Fermented Cassava Brownies 2. Cassava Nuggets 3. Cassava Cookies
4	Making cassava chips COCOLA and waste management (composting)	Cassava chips
5	Making various local food: lekker from sweet potatoes, Cassava skin kremes, cooking oil soap	2. Sweet lekker potatoes 3. Cassava skin kremes 4. Cooking oil soap

Table 4: Titles and Products of the Project
Hair and Skin Beauty and Treatment

No	Titles	Products
1	Transforming used plastic container into salon equipment holder	Cosmetic equipment holder
2	Recycling used plastic containers into fantasy accessories	Fantasy costume
3	Making natural soap for face, body, and waxing	Gayatri natural body soap

C. Vocational Skills Practiced

As students participating in the project-based learning are all vocational school students from various fields of study, vocational skills enhancement became the core of the project. In project-based learning, the vocational skills are used to solve real-world problems existing in the students' surroundings. In this scenario, students' learning is anchored in a meaningful context (Miller et al., 2021). The monitoring and evaluation result indicates that some vocational skills were practiced in the project as shown in Tables 5 to 8 below.

Table 5: Vocational Skills Practiced
Hotel Accommodation

No	Vocational Skills
1	Minimizing the use of chemical for cleaning
2	Utilizing environmental-friendly cleaners
3	Working effectively with colleagues and customers
4	Occupational health and safety
5	Administration procedures
6	Linen and laundry

Table 6: Vocational Skills Practiced
Tour and Travel

No	Vocational Skills
1	Recycling to promote ecotourism Source and package tourism products and services
2	MICE organization, providing excellent services (tour guiding), planning and organizing tour packages, calculating the price of tourism packages, designing promotion media (brochures, posters), presenting tour packages, entrepreneurship and creative products

3	Working effectively with colleagues and customers
4	Working in a socially diverse environment
5	Following safety and security procedures
6	Developing and updating tourism industry knowledge
7	Allocating tour resources
8	Developing interpretive content for eco-tourism activities
9	Managing and executing a detailed tour itinerary
10	Sourcing and packaging tourism products and services

Table 7: Vocational Skills Practiced
Food Production

No	Vocational Skills
1	Producing and promoting Indonesian local food and cakes
2	Food waste management
3	Sanitation and hygiene
4	Occupational health and safety
5	Food production and service
6	Entrepreneurship and creative products

Table 8: Vocational Skills Practiced
Hair and Skin Beauty and Treatment

No	Vocational Skills
1	Reusing and recycling waste in beauty salon
2	Making cosmetics for body treatment
3	Occupational health and safety

D. The 4Cs of the 21st Century Skills Practiced

To create a successful learning environment, the four Cs (critical thinking, creative thinking, collaboration, communication) of the 21st century skills need to be integrated and practiced in project-based learning. The four Cs contribute to deep learning as expected in project-based learning. From the monitoring and evaluation process, teacher participants reported that the four Cs were integrated and practiced in their project-based learning programme.

Critical thinking and creative thinking occurred when students were faced with real-life problems at the workplace. Used plastic containers, for example, have become waste problems. Working in groups, students discussed how to manage the problems. Students need to solve the waste problem by firstly obtaining information, then discussing and suggesting ideas. Recycling used plastic containers occurred in hotel class, tour and travel class, and also in the hair and skin beauty and treatment class. In the hotel industry, critical thinking and creative thinking also occurred when they had to handle laundry matters with the hotel guests. Indonesians are familiar with batik which is worn for many occasions, therefore, laundry bags in hotel rooms frequently contain

batik clothes which require special treatment. The use of chemical detergent is not recommended for washing batik. The laundrymen need to use non-chemical cleaner, a safe way to handle batik clothes. Creative thinking occurred when students found “lerak” as the main material for non-chemical laundry soap. Lerak (also known as sapindus rarak) was cleaned, soaked, boiled, and mixed with lemon. In the food and beverage class, critical thinking and creative thinking occurred when students were bored with the same daily menu. Utilizing local food materials, students sat together, discussed, and created new variants of food and drinks in a more attractive way without losing the nutritional value in the food.

Collaboration and communication occurred in all classes as students were assigned in small groups. In the student-led group work, independent learning also occurred as the students explored more information through Google searching, discussing with teachers and peers, and they learned to appreciate other people’s ideas. Students learned to be responsible in completing their group tasks and learned to communicate effectively with their peers and teachers.

Thus, it can be concluded that students who participated in the project-based learning practiced their 4Cs skills throughout the project even though there is no measure to indicate how significant the 4Cs have progressed. As a comparison, some studies found that students’ 4Cs skills improved more significantly in a project-based learning compared to the ones in a conventional classroom teaching (Bhakti et al., 2021; Putri et al., 2021; Riskayanti, 2021; Tahmidaten, 2021; Umam et al., 2022).

E. Pelajar Pancasila Character Building

All classes reported that character building as outlined in the Profil Pelajar Pancasila (Pancasila Student Profiles) occurred during the project-based learning. Shofa (2021) claims that critical thinking and collaboration contribute to the formation of students’ character as outlined in ‘Profil Pelajar Pancasila’. In this study, characters other than critical thinking and collaboration were practiced. For example, students participating in the project prayed before starting class activities. Through their prayer, they have faith and believe that their work will be blessed by God. It represents the first character – being religious – in the ‘Profil Pelajar Pancasila’. Being collaborative seems to occur during the project-based learning as all projects were carried out in small groups which required collaboration. In groups, students were assigned to analyze problems, explore more information, discuss and find alternative solutions, work on the agreed solution, and present their work in class. During this process, collaboration, communication, critical thinking and creative thinking occurred at the same time. Critical thinking was practiced when students were discussing and analyzing problems whereas creative thinking was practiced when students were discussing alternative solutions to the problem. Independent work was also practiced as it was the students who led the discussion in their group work.

F. Integration of ESD Topics

Consistent with the findings from the online survey, findings from monitoring and evaluation also indicate that the ESD topics that were integrated in the project-based learning, include sustainable tourism, problem solving, recycling and environmental issues, cultural heritage and local wisdom, climate change and various resources, and social entrepreneurship. Under the sustainable tourism topic, students worked on creating and selling environment-friendly tour packages while promoting the importance of keeping the environment clean and safe. Cycling in a less polluted area, visiting local tourist attractions such as villages and fruit picking in the gardens, recycling and transforming wastes into artistic crafts and useful products, promoting the 5R principles (reduce, reuse, recycle, recovery, and repair) in tourism, are examples of promoting sustainable tourism which are environment-friendly. Green hotel and green cleaning are other examples of sustainable tourism promoted in the project-based learning, through nonchemical laundry soap making.

Green entrepreneurship is another ESD topic that was integrated in the project-based learning. Students from the food and beverages class explored and created some food variants to promote local food ingredients. Cassava, for example, is a local food ingredient commonly and easily found in many regions in Indonesia. Students made lasagna skin and other food variants from cassava, and introduced it to the local community. Lesson learned was that cassava has the potential to be promoted for food security and be sold with a better price to help improve the economy of the local community.

G. Impacts on Teachers’ Competency Enhancement

The learning experiences that teacher participants underwent in the e-training helped them to better understand and to explain the concept of ESD. The knowledge of ESD was obtained from the training module, online discussion with the facilitators and with other participants. As teacher participants exchanged ideas and best practices on how to integrate ESD elements, 21st century skills, and character building into a project-based learning, it further enhanced their confidence in implementing such ideas. Teachers’ academic qualifications and teaching experiences were also part of the supporting factors to better understand the issues and to put it into classroom teaching practices.

As teacher participants observed the students’ active participation in carrying out the projects, they perceived that their knowledge and skills in designing and implementing project-based learning, which promotes and integrates vocational skills, the 4Cs of the 21st century skills, character building, and ESD topics, are enhanced. Students’ active engagement in project-based learning is considered as an indicator of teacher’s professional learning enhancement, particularly in the design of a project-based learning (Juuti et al., 2021).

It is believed that the improvement in these skills will affect the increase in teachers’ self-efficacy to implement project-based learning. The increase in teachers’ self-efficacy is

consistent with what Mahasneh and Alwan (2018) identified in their study. Teachers become more aware of the importance of promoting ESD values to students through action-oriented tourism learning as it contributes to making learning more meaningful and contextual. They understand that such a teaching and learning model needs to be carefully designed and collaboration with teacher colleagues is essential.

The online learning experience has also contributed to enhance and inspire teachers to implement project-based learning both in face-to-face mode, online learning, or the combination of both learning modes (blended learning). As teachers are demanded to organize a blended (face-to-face and online learning) mode in the new norm, their learning experience has, to some extent, inspired them to design the online component of the blended learning programme. The inspiration includes, but not limited to, how to make interactive sessions in online learning, how to maintain students' motivation, and how to encourage students' active participation in the online learning mode.

The design of this e-training on action-oriented vocational tourism education for sustainable development requires teacher participants to involve their teacher colleagues and students in the implementation session. Through the designing and the implementation of the project-based learning at teachers' respective schools, teachers became aware of the importance of collaboration and effective communication. It is expected that by involving other teacher colleagues and students, they are practicing leadership and creating a positive learning environment in their schools. Collaboration and effective communication in a group work is believed to be key success factors. Learning success was not seen from the result alone, but also from the collaborative process. Teachers also stated that there is an increase in their motivation to practice more tourism projects with students, such as environment-friendly tourism packages that can be sold to the public.

H. Challenges and Solutions

In the implementation of the project, teachers reported some challenges faced and the actions taken to overcome it. The most complicated challenge was time management - the pandemic which limits the number of students attending classes in person and also the time limitations for face-to-face learning interaction at schools. This finding is consistent with Aldabus' (2018) identification regarding challenges teachers encountered in project-based learning. So, some teacher participants only involved a group of students who came to school for a face-to-face class. Some other students had to communicate with their peers through video call to work on the project. Other teachers reported that timing and scheduling became a challenge because all vocational teachers at their schools were very busy with the activities of SMK Pusat Keunggulan (vocational school as center of excellence) programme. Teachers had to ask their teacher colleagues for help, especially teachers who were not involved in the SMK PK activities. This made the teachers aware that collaboration with teacher colleagues is essential.

Other teachers had to spend extra time at school to complete all the work and had to manage their time wisely.

Another challenge reported by teacher participants is funding for the project. Teacher participants argued that to get the best learning experience for students from tourism education projects, availability of funds is essential. The implementation of the project-based learning was not in the agenda of the school because this project-based learning was a teacher-initiated programme as an integral part of the online teacher training course. Therefore, there was no special funding to implement the project-based learning. Consequently, teachers and students agreed to independently bear the expenses and used the limited budget as efficiently as possible.

On the students' side, it was reported that they were not familiar with project-based learning – students were not used to analyzing real problems, thinking critically and creatively, and lack self-confidence. These slowed down the project and took more time.

I. Teachers' Voices

The project-based learning is perceived by teacher participants as a challenging, authentic and meaningful learning approach. Teachers also reported that their students were enthusiastic to carry out the project as they also felt challenged to think critically and creatively. The followings are some quoted statements from the teacher participants in Bahasa Indonesia with the English translations:

“Saya sangat antusias sekali melaksanakan PJBL ini, karena pembelajaran dilakukan lebih kreatif, menarik dan bermakna dengan menerapkan profil pelajar pancasila serta keterampilan abad 21, membuat peserta didik lebih aktif, mandiri, dan kreatif.”

(I was very enthusiastic to practise this project-based learning because learning becomes more creative, interesting, and meaningful, and integrating character building as outlined in the Pelajar Pancasila profile, the 21st century skills, and making students more active, independent, and creative).

“Project Based Learning menawarkan kegiatan otentik berbasis penyelidikan bagi murid untuk mengakses konten, berbagi ide, dan meninjau kembali pemikiran mereka sendiri.”

(Project-based learning offers authentic activities based on students' research, exploring content, sharing ideas, and reviewing their own thoughts).

“Project Based Learning menuntut siswa untuk tidak hanya untuk mengumpulkan sumber daya, mengatur pekerjaan, dan mengelola kegiatan jangka panjang, tetapi juga untuk berkolaborasi, merancang, merevisi, serta berbagi ide dan pengalaman mereka.”

(Project-based learning requires students to not only gather resources, organize works, and manage long-term activities, but also to collaborate, design, revise, and share ideas and experiences).

“Terdapatnya perubahan sikap dan tingkah laku dari peserta didik dalam pembelajaran, dengan pembelajaran project-

based learning ini peserta didik jadi lebih antusias, semangat dalam belajar, menjadi lebih aktif, mandiri, kreatif serta terjalin komunikasi yang baik diantara mereka pada saat berdiskusi menyelesaikan proyek.”

(Changes in students' attitude and behaviour during the learning process occurred in the project-based learning, students became more enthusiastic, active, creative in learning, and good communication among students also occurred when they discussed the project).

“Project Based Learning ini memberikan pengalaman dan juga tantangan tersendiri bagi kami. Kami dituntut berpikir kreatif dalam memberikan anak sebuah masalah atau memilih proyek yang harus dipecahkan untuk menghasilkan sebuah project dan tentunya mengikuti perkembangan dalam dunia pariwisata tetapi tidak lepas dari kegiatan mereka sehari-hari atau dekat dengan lingkungan mereka.”

(This project-based learning has given us experience and challenges. We had to think creatively to provide students with problems or let students choose their own project to work on, and the project has to be relevant with sustainable tourism and solve problems existing in their surroundings).

V. CONCLUSION AND RECOMMENDATION

The findings above led us to the following conclusion and recommendation:

A. Conclusion

This e-training on action-oriented vocational tourism education for sustainable development is believed to have significantly brought about a positive impact on teachers' better understanding on ESD concept, project-based learning, and how to integrate the topics of ESD into their teaching practices. The implementation of the project-based learning has made teacher participants aware of the importance of collaboration in project-based learning.

The learning experiences in the e-training mode is believed to have inspired teachers to design and organize online learning components in their blended learning course during the pandemic.

B. Recommendation

When similar training is conducted to other groups of teachers in the future, it is necessary to consider that the programme is not carried out at the end of semester in which teachers are busy marking test papers. Providing additional time for students to implement the project also needs to be considered, particularly when it is conducted in a blended learning environment. More critical thinking is needed to identify potential projects so that the final products based on the project will be more meaningful and contextual. Funding resources for the implementation of the project also need to be considered as an integral part of the training.

To provide a more comprehensive report on the impact assessment of the training, it is necessary to have a closer look at the implementation of the project-based learning carried out by teacher participants. A more intensive monitoring and evaluation during the implementation of the project-based

learning might be helpful for teachers. Monitoring and evaluation must be conducted from the design of the action plan up to the implementation of the project.

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