Vol. 8., No. 3, August 2024, pp. 184-192 ISSN 1978-0524 (print) | 2528-6374 (online)

Electronic portfolio-based learning development training for Teachers of SMP Muhammadiyah 3 Yogyakarta

Raden Muhammad Ali [a,1,*], Dwi Hastuti [a,2], Muhammad Kunta Biddinika [b,3], Rani Rahmawati Pamungkas [a,4], Dio Fahmi Alfaridhi [a,5], Derly Syahputra [a,6], Anggista Malya Putri [a,7], Wilda Mbuo [a,8], Hafizhatu Nadia [c,9]

[a] Faculty of Teacher Training and Education, Universitas Ahmad Dahlan, Yogyakarta, 55166, Indonesia
[b] Faculty of Industrial Technology, Universitas Ahmad Dahlan, Yogyakarta, 55166, Indonesia
[c] Faculty of Teacher Training and Education, Universitas Muhammadiyah Banjarmasin, 70581, Indonesia
[1] raden.ali@pbi.uad.ac.id; [2] dwi.hastuti@pgpaud.uad.ac.id; [3] mkuntab@gmail.com; [4] rani1800004211@webmail.uad.ac.id;
[5] 2200004003@webmail.uad.ac.id; [6] 2200004027@webmail.uad.ac.id; [7] 2200004021@webmail.uad.ac.id;
[8] 2200004005@webmail.uad.ac.id; [9] hafizhatunadia@gmail.com
* Corresponding Author

Received 22 September 2022; accepted 10 November 2024; published 30 December 2024

ABSTRACT

The world of education needs to keep up with the development of information technology in providing learning services for students. One of the tools that is currently widely known for its advantages and widely used in developed countries is the electronic portfolio. The background of this program is a problem that is often faced by schools, namely the lack of teacher competence in developing learning by utilizing electronic portfolios in teaching. SMP Muhammadiyah 3 Yogyakarta (SMP Muhammadiyah 3 Yogyakarta), as one of the private schools in Yogyakarta that has a high concern for the application of information technology in learning, in collaboration with the Community Service Team of Ahmad Dahlan University carried out an electronic portfolio-based learning development training which was attended by teachers of various subjects and education staff who served in various school service units. The objective of this activity is to improve teachers' understanding and skills by using electronic portfolios to support the realization of quality learning. The methods used are training and mentoring for teachers to develop electronic portfolio- based learning, improving internet infrastructure, and monitoring and evaluation. This training has resulted in an increase in the trainees' understanding of the concept of electronic portfolios and the improvement of participants' skills as shown by a total of 43 participants who have been able to develop their electronic portfolios. To ensure the implementation of electronic portfolios in schools, the Principal has decided that six classes with IT (Information Technology) specialization consisting of two learning groups from Grade 7, Grade 8, and Grade 9 will implement electronic portfolio-based learning. The impact of this training is that teachers have a positive mindset towards the use of information technology so that it further increases the opportunity for schools to improve the quality of learning in accordance with technological developments.

KEYWORDS
Training
Electronic portfolio
Learning
Teacher
SMP Muhammadiyah 3 Yogyakarta

1. Introduction

During the COVID-19 pandemic, social restrictions were imposed, which also had an impact on the number of schools that had to be closed. The government has set a policy to temporarily stop face-to-face learning, replacing it with learning from home using online methods [1]. This phenomenon brings several changes in the learning system, including in new learning methods that must be used by teachers. This sudden change has made many teachers start developing online learning-based learning tools. Online learning platforms offer cost-effectiveness, which is increasingly realized by various institutions. According to Hidayat, et al. (2021) [2], internet-based learning tools are considered very effective in the educational process. Learning is no longer restricted because it can still be carried out online using e-learning [3]. However, online learning requires digital literacy skills and technical knowledge that must be

Vol. 8., No. 3, August 2024, pp. 184-192 ISSN 1978-0524 (print) | 2528-6374 (online)

possessed by teachers [4]. Teachers must not only master technology, but they must also be able to integrate that technology in effective teaching. Ensuring all teachers have ICT (Information and Communication Technology) competency, the organizers provide ongoing training for teachers to maintain their ICT skills. This ability will have an impact on the overall quality of learning and teaching. The use of portfolios reflects the design of the curriculum so it is important to provide opportunities for teachers to reflect on their experiences over time [5].

One of the online learning that has begun to be widely developed to support online learning is an electronic portfolio or e-portfolio. Portfolios itself have undergone significant evolution, moving from paper to electronic format [6]. In teaching and learning, e-portfolios are recognized as potential new technologies, if they can be integrated into e-learning [7]. An electronic portfolio is a digital collection of demonstrations, resources, and accomplishments that depict an individual, group, or institution, especially in an educational context, to document learning and skill development [8]. Several institutions have implemented e-portfolios as a tool that supports online learning. Seeing the potential offered by e-portfolio in the Google Sites platform, it is hoped that institutions can still use it in face-to-face learning in the classroom. In other words, teachers and students must be more prepared to use electronic portfolios as a learning tool. An electronic portfolio is a collection of digital items and artifacts selected and managed by their owners [9], a digital adaptation of a paper portfolio [10], reflections related to these artifacts compiled by students focused on learning and development [11], online learning environments where students can evaluate their educational experiences [12]. Students can gather examples of their professional experiences and reflect on them and what they symbolize using eportfolios [13]. Eportfolio has many advantages, such as ease of access, neatness in documenting lecture materials and assignments, can accommodate a lot of data [14], increasing learning motivation, increasing mastery of lecture materials [15], increasing academic achievement, self-efficacy, and engagement [16], investing in the course over time (for example, teaching it more than once), being actively involved in its administration, and working together to create the eportfolio activity [17].

Problems certainly arise such as lack of coaching and inappropriate facilities. Most of the obstacles faced by teachers are low ability in digital literacy skills. Makokotlela (2020) [18] found that, although teachers have sufficient knowledge of various technologies that can support online learning, the lack of adequate facilities is an obstacle in the process of practice in classroom learning. E-portfolio in Google Sites is a platform whose use also requires an internet connection.

In Indonesia, the education sector continues to strive to adapt to the times, including efforts to strengthen the capacity of educators in adopting relevant and effective educational technology. In order to support this, the electronic portfolio-based learning development training conducted at SMP Muhammadiyah 3 Yogyakarta for teachers and education staff in the school is an urgent need. This is because not a few teachers still have to adapt to the rapid development of technology in the digital era like now and the students of Z Generation who are technologically literate. Ali et al (2024) [19] wrote that an electronic portfolio as a teaching material tool is an effective thing to use in the digital era. Not only does it help teachers and students to interact, but it also hones digital literacy skills and virtual collaboration that can be done through electronic portfolios. This shows how important teamwork and virtual collaboration are to support continuous learning.

SMP Muhammadiyah 3 Yogyakarta, as one of the educational institutions under the auspices of the Muhammadiyah organization, has a strategic role in educating the quality young generation. Located in the middle of Yogyakarta, this junior high school has students with diverse socio-economic backgrounds, but the majority come from families with a middle economic level. SMP Muhammadiyah 3 Yogyakarta in the 2023/2024 school year has a total of 715 students consisting of eight class VII study groups, eight class VIII groups, and seven class IX groups. The increase in numbers in the last two years shows that this school is developing very well in the midst of many private schools whose number of new students is decreasing. The student profile also reflects ethnic, cultural, and religious diversity, in accordance with the spirit of diversity upheld by Muhammadiyah. This program is in line with the SDGs themes, namely quality education as well as industry, innovation and infrastructure which is also in accordance with the research roadmap of the department of English Education, namely the improvement of technology in ELT.

ISSN 1978-0524 (print) | 2528-6374 (online) Vol. 8., No. 3, August 2024, pp. 184-192

The objectives of this service program are: (1) encouraging the implementation of the concept of independent learning by providing training to teachers of SMP Muhammadiyah 3 Yogyakarta in the use of electronic portfolios, (2) improving teacher competence by providing an in-depth understanding and strengthening skills in information and communication technology (ICT) skills in designing, compiling, and managing students' electronic portfolios, (3) improving the quality of learning by Produce teachers who are able to create a more interactive, inclusive, and project-oriented learning environment, and enrich learning evaluation methods by utilizing electronic portfolios to monitor student development and achievement holistically, (4) develop students' abilities in digital participation and collaboration through electronic portfolios, (5) increase the university's key performance index by contributing to improving the quality of learning and producing competent graduates and strengthening the role of universities as professional development centers for educators by providing relevant and beneficial service programs for the community.

2. Method

This program is designed as a practice-based offline training with a direct emphasis on how to develop a teacher's portfolio to be used in learning. This training approach is participatory and experiential learning where teachers are assigned to create their own electronic portfolios as a model for their students which is similar with atraining that was carried out during the Covid-19 pandemic for teachers of SMA Muhammadiyah 3 Yogyakarta (2021) [20]. The training was held in the Campus Hall 1 of SMP Muhammadiyah 3 Yogyakarta which is located at Jl. Kapten Tendean No. 19 Wirobrajan, Yogyakarta City, Special Region of Yogyakarta. The equipment needed for the training process is an LCD Projector, a computer for each participant, and an internet network. The participants in this study amounted to 45 participants with details of 34 participants being teachers and 11 participants being education personnel. The implementation of this community service program is carried out by carrying out 4 stages, namely: (1) improving internet network infrastructure. At this stage, the researcher improved the quality of the internet at SMP Muhammadiyah 3 Yogyakarta by providing a complete package of Personal Computer (PC) and Wireless Access Point, an internet receiving device to make it more widely accessible. The participation of partners at this stage is to participate by providing access to the location and assisting in the implementation process. (2) Network management training. In this stage, it is explained related to the trainees' understanding and skills of internet network management such as basic network concepts, network device configuration, and troubleshooting. This training session is guided directly by a team of experienced instructors so that this training session becomes interactive. (3) Training on teacher electronic portfolio development, electronic portfolio-based learning, and student electronic portfolio development. At this stage, an explanation of the concept of an electronic portfolio, its characteristics, advantages and weaknesses, as well as the practice of developing an electronic portfolio and accompanied directly by facilitators and companions who are students who are experienced in developing electronic portfolios. (4) Mentoring, monitoring, and evaluation. The team of instructors and companions provides technical and pedagogical support to trainees or projects to improve internet network infrastructure. In addition, the team also monitors the progress of the program implementation periodically to ensure that all steps are carried out as planned. In terms of evaluation, the team evaluates the impact on community service programs, taking into account changes that occur in schools or local communities. The joint involvement between the service team and the school in every step, from planning to implementation and evaluation, ensures that each individual feels a part of the program's success and feels responsible for the outcome. Close team collaboration also allows for the exchange of ideas, experiences, and support between team members, which can improve the quality of program execution and create a positive and productive work environment. The evaluation method used to measure the success of this program is an input aspect in the form of participant demographics which include the number, gender, and age of participants. Another aspect is the results or products produced by participants after participating in this training, namely by comparing changes in participants' knowledge and skills between before and after participating in the training. Also very important is the product in the form of an electronic portfolio made by each trainee.

3. Results and Discussion

3.1. Demographics of Trainees

The demographic data in Fig. 1 shows that the training participants amounted to 45 people consisting of 34 teachers (75.5%) and 11 education personnel (24.5%). These teachers teach a total of eleven subjects,

Vol. 8., No. 3, August 2024, pp. 184-192 ISSN 1978-0524 (print) | 2528-6374 (online)

namely: Indonesian Language, English Language, Guidance and Counseling, Pancasila, Al-islam and Kemuhammadiyahan (ISMUBA), Mathematics, Physical Education and Health Sports (PJOK), Cultural Arts, Social Sciences, Information and Technology, Javanese Language and Sciences Studies. Meanwhile, Education Personnel work in administrative, financial, and library units.

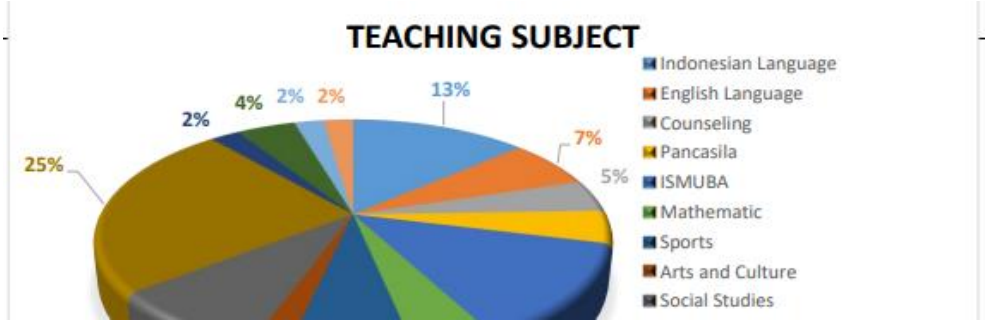

Fig. 1. Teaching subject

From the gender aspect, it can be seen in Fig. 2, the trainees are dominated by men totaling 30 people (67%), while 15 people (33%) are women.

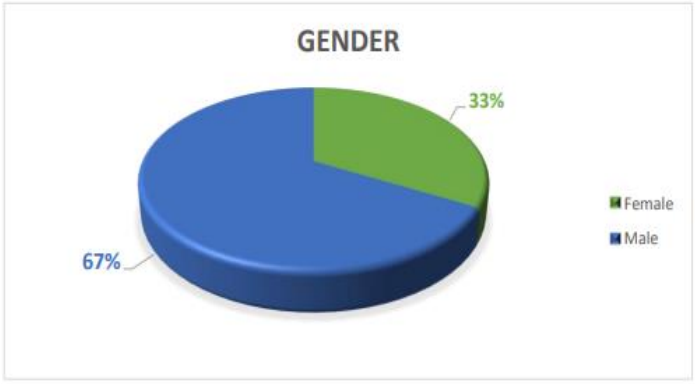

Fig. 2. Participants' gender

Participants were categorized into four age ranges ranging from 20 years to 60 years old in Fig. 3. There were fifteen participants (33%) in the age range of 20-30 years, seven participants in the age range of 31-40 years (16%), thirteen participants (29%) in the age range of 41-50 years, and ten participants (22%) in the age range of 51-60 years.

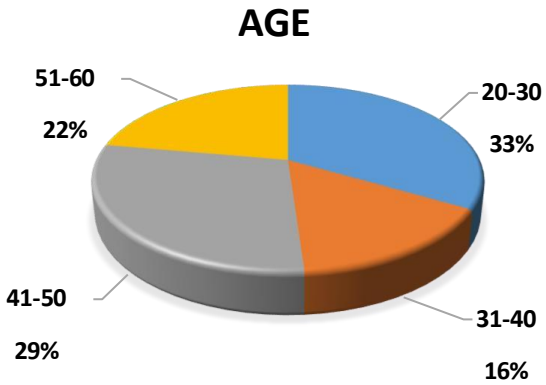

Fig. 3. Participants' age

3.2. Training Results

The electronic portfolio-based learning development training for teachers of SMP Muhammadiyah 3 Yogyakarta had a significant impact on participants' understanding of the concept of electronic portfolios which included the history of development, characteristics, advantages and weaknesses, as well as how to

ISSN 1978-0524 (print) | 2528-6374 (online) Vol. 8., No. 3, August 2024, pp. 184-192

use electronic portfolios in the world of education. Likewise, this training has been able to improve the skills of the participants in developing electronic portfolios and how to apply them in the classroom with students.

In the electronic portfolio-based learning development training program, participants showed a significant increase in understanding of electronic portfolios. As can be observed in Fig. 4, six participants (13.3%) stated that before participating in the training their knowledge of e-portfolios was very low, indicated by the red bar, while after the training was carried out, none of the participants stated that their knowledge was still very low. The same thing happened to the participants' knowledge in low statements, namely eight participants (17.8%) and after the training was carried out, no participants stated that their knowledge was still low. This means that training on the use of electronic portfolios can help increase participants' knowledge.

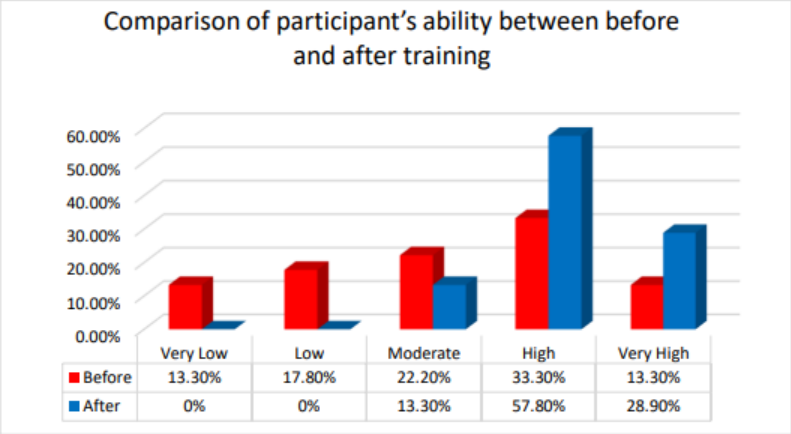

Fig. 4. Comparison of participant's knowledge between before and after training

Participants were categorized into four age ranges ranging from 20 years to 60 years old in Fig. 3. There were fifteen participants (33%) in the age range of 20-30 years, seven participants in the age range of 31-40 years (16%), thirteen participants (29%) in the age range of 41-50 years, and ten participants (22%) in the age range of 51-60 years. Participants who stated that they had high knowledge of e-portfolios before the training were fifteen participants (33.3%), and after the training changed to six participants (57.8%). Then the participants who stated that their knowledge was very high before the implementation of the training were six participants (13.3%) and after participating in the training became thirteen participants (28.9%).

Fig. 5 shows a similar improvement in the participants' knowledge figures. Skills before training are indicated with red bars, and after training with blue bars. The skills of the participants before the training were very low were ten participants (22.2%), and after the training there was not a single participant who revealed that the skills were still very low. Then in the low statement was ten participants (22.2%) and after the training was carried out it became one participant (2.2%).

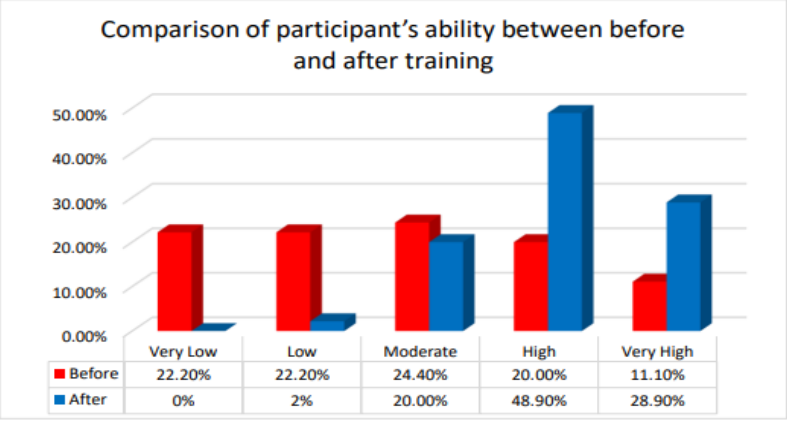

Fig. 5. Comparison of participant's ability between before and after training

Vol. 8., No. 3, August 2024, pp. 184-192 ISSN 1978-0524 (print) | 2528-6374 (online)

Meanwhile, in the statement of high skills, it was nine participants (20%) and after the training was carried out it became twenty-two participants (48.9%). Then the statement of participants was very high before the training was five participants (11.1%) and after the training it became thirteen participants (28.9%).

Through this training program on the use of electronic portfolios, as many as forty-five participants were able to follow and develop their electronic portfolios well. So that later teachers are expected to be able to use this Google Sites-based electronic portfolio as a learning tool in the classroom.

Based on a list of links collected through Google Docs, 43 people out of 45 trainees (95.5% of participants) managed to create their portfolios. This shows that this training is successful in motivating and improving participants' skills in the development of electronic learning portfolios. Here are some links and screenshots of the e-portfolio that were successfully created by the participants.

- The front page in the electronic portfolio by Mr. Agus Wahyu for the Information and Technology subject, at the link:

  https://sites.google.com/guru.sma.belajar.id/aguswahyuwibowo/profil

- Profile page in the e-portfolio by Mr. Deny Nurcahyo for Physical Education and Health Sports (PJOK) subjects, at the link:

  https://sites.google.com/guru.smp.belajar.id/pjok-muga/bio

- The page of learning materials in the e-portfolio by Mrs. Ria R for Social Studies subjects, at the link:

  https://sites.google.com/guru.smp.belajar.id/rrahma/halaman-muka

This training on the use of electronic portfolios has an impact on participants. Participants are able to develop their respective electronic portfolios well. This success is certainly inseparable from the mastery of the material owned by the tutor. Participants who feel that they do not have enough skills in using electronic portfolios will continue to practice and improve their understanding and skills.

Based on the discussion produced with the principal and teachers, it was agreed and decided by the Principal that this electronic portfolio-based learning will be applied to IT (Information Technology) as show in Fig. 6 specialization classes consisting of: two classes in Grade 7, two classes in Grade 8, and two classes in Grade 9 or six classes in total. It is hoped that the application of e-portfolio in this learning can improve the ability to use information technology, as well as the skills and creativity of teachers in compiling learning materials. E-portfolio page of sports subjects and social studies subjects as show in Fig. 7 and Fig. 8.

Fig. 6. E-portfolio page of information and technology subjects

ISSN 1978-0524 (print) | 2528-6374 (online) Vol. 8., No. 3, August 2024, pp. 184-192

Fig. 7. E-portfolio page of sports subjects

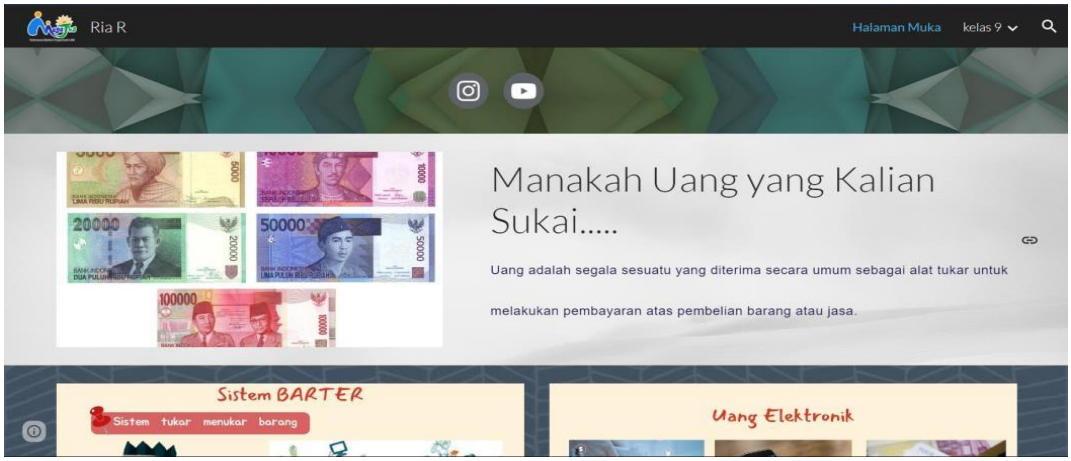

Fig. 8. E-portfolio page of social studies subjects

This training succeeded in giving two main impacts to the trainees, namely in the aspect of a positive mindset and improving the quality of learning. This program forms a positive mindset for teachers towards the use of information technology in learning. Teachers who previously lacked confidence in using technology now have a better understanding of how technology, especially e-portfolios, can support the teaching and learning process. Through a practical approach in training, they not only understand the theory, but are also able to directly practice the use of digital platforms to evaluate student learning more effectively and transparently. This gives teachers the confidence to make technology an integral part of their learning strategies. With this new mindset, the opportunity for schools to improve the quality of technology-based learning is increasingly wide open. Trained teachers can creatively integrate technology, making learning more interesting and relevant to the times. Additionally, this approach allows students to be more active and engaged in the learning process, thereby improving their skills in digital literacy. Overall, the impact of this training is not only felt by teachers, but also contributes to the transformation of schools towards a more modern and future-oriented educational ecosystem.

The results and impacts of this training are in line with the portfolio development training using Googesites conducted by Sunardi et al. [21], which is to increase the knowledge of trainees, namely teachers and students. This is in line with the results of the training conducted by Ali et al. (2021) [20] for teachers of SMA Muhammadiyah 3 Yogyakarta. However, different results were obtained in the electronic portfolio development training for teachers and school students in Thailand by Ali et al. (2023) [22] which were not very satisfactory due to language and cultural differences and different laws and regulations from the language, culture, and legislation of the trainers (Indonesia).

Partners have several forms of involvement in this program, namely: first, planning programs and activities together with the community service team. Planning includes determining the design of activities, time, place, participants and implementation techniques such as officers, presenters, training assistants. Second, mtra is involved in the provision of facilities, places, officers and infrastructure needed for training. Third, partners are responsible for ensuring the full attendance of training participants, including in mentoring activities after the implementation of training activities. Fourth, partners are also responsible

Vol. 8., No. 3, August 2024, pp. 184-192 ISSN 1978-0524 (print) | 2528-6374 (online)

for the implementation of training results, both the use of electronic portfolios by teachers and the application of electronic portfolios in learning in certain classes.

Some of the recommendations for sustainability and replication of this program include: first, forming a community of teachers who consistently apply electronic portfolios in learning. Teachers who are the core team can practice more deeply and can become mentors for other teachers. Second, integrating electronic portfolios into school programs, especially in learning, including institutional support and funding efforts. Third, cooperation with external partners, including with community service teams from universities, so that teachers regularly receive training on an ongoing basis. Fourth, regular monitoring from school leaders to find out the progress, obstacles, and impacts on learning. Fifth, disseminating the success of the program to students' parents as well as the community and government agencies through social media, school websites, and scientific articles

4. Conclusion

The conclusion of the electronic portfolio development training program for teachers at SMP Muhammadiyah 3 Yogyakarta is: (1) the improvement of internet infrastructure is carried out by installing Personal Computer (PC) and Wireless Access Point In schools, (2) network management training runs smoothly, (3) this training improves participants' understanding and skills in developing electronic portfolios for learning and its application in classroom learning, (4) mentoring and monitoring and evaluation need to continue to be carried out to ensure the sustainability of improving the quality of electronic portfolio-based learning in schools.

Acknowledgment

This program is financed by the Directorate of Research, Culture, and Community Service, Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia for the 2024 fiscal year.

Declarations

Author contribution. All authors contributed equally to the main contributor to this paper. All authors read and approved the final paper.
Funding statement. None of the authors have received any funding or grants from any institution or funding body for the research.
Conflict of interest. The authors declare no conflict of interest.
Additional information. No additional information is available for this paper.

References

[1] Z. Iqbal, R. Khan, and A. Wadood, "Evaluation of the Effectiveness of the Process of Undergraduate Health and Physical Education Program by the CIPP Model," *Glob. Educ. Stud. Rev.*, vol. VII, no. II, pp. 285–295, Jun. 2022, doi: 10.31703/gesr.2022(VII-II).27.

[2] N. Hidayati, T. Idris, P. H. Handayani, and F. Arsih, "Portfolio assessment with dimension of learning: an approach on the mastery of concept," *J. BIOEDUKATIKA*, vol. 9, no. 1, p. 17, Feb. 2021, doi: 10.26555/bioedukatika.v9i1.19384.

[3] J. E. Mambu, "Creatively Negotiating The Place Of Spirituality In The Elt Curriculum," *TEFLIN J. - A Publ. Teach. Learn. English*, vol. 28, no. 1, p. 93, Mar. 2017, doi: 10.15639/teflinjournal.v28i1/93-114.

[4] M.-E. P. Modise and P. K. Mudau, "Using E-Portfolios for Meaningful Teaching and Learning in Distance Education in Developing Countries: A Systematic Review," *J. Contin. High. Educ.*, vol. 71, no. 3, pp. 286–298, Sep. 2023, doi: 10.1080/07377363.2022.2067731.

[5] N. Greviana, R. Mustika, and D. Soemantri, "E-portfolio system development for undergraduate clinical dentistry: An action research study in one university," *Padjadjaran J. Dent.*, vol. 32, no. 2, pp. 91–100, Jul. 2020, doi: 10.24198/pjd.vol32no2.25055.

[6] O. Farrell, "From Portafoglio to Eportfolio: The Evolution of Portfolio in Higher Education," *J. Interact. Media Educ.*, vol. 2020, no. 1, Sep. 2020, doi: 10.5334/jime.574.

[7] G. Hallam and T. Creagh, "ePortfolio use by university students in Australia: a review of the Australian ePortfolio Project," *High. Educ. Res. Dev.*, vol. 29, no. 2, pp. 179–193, Apr. 2010, doi: 10.1080/07294360903510582.

ISSN 1978-0524 (print) | 2528-6374 (online) Vol. 8., No. 3, August 2024, pp. 184-192

[8] E. Namaziandost, S. Alekasir, M. Hassan Mohammed Sawalmeh, and M. Z. Miftah, "Investigating the Iranian EFL learners' attitudes towards the implementation of e-portfolios in English learning and assessment," *Cogent Educ.*, vol. 7, no. 1, Jan. 2020, doi: 10.1080/2331186X.2020.1856764.

[9] D. D. Isiyaku, M. A. F. Ayub, and S. AbdulKadir, "Antecedents to teachers' perceptions of the usefulness of ICTs for business education classroom instructions in Nigerian tertiary institutions," *Asia Pacific Educ. Rev.*, vol. 19, no. 3, pp. 337–352, Sep. 2018, doi: 10.1007/s12564-018-9525-x.

[10] D. Scully, M. O'leary, and M. Brown, "The learning portfolio in higher education: An integrative review," *Dublin City Univ.*, no. March, pp. 1–25, 2018, [Online]. Available at: https://doras.dcu.ie/24455/1/Scully et al %282018%29_The Learning Portfolio in Higher Education .pdf.

[11] M. Ciesielkiewicz, "Education for employability: the ePortfolio from school principals' perspective," *Horiz.*, vol. 27, no. 1, pp. 46–56, Mar. 2019, doi: 10.1108/OTH-01-2019-0001.

[12] O. Janssens, L. Haerens, M. Valcke, D. Beeckman, P. Pype, and M. Embo, "The role of ePortfolios in supporting learning in eight healthcare disciplines: A scoping review," *Nurse Educ. Pract.*, vol. 63, p. 103418, Aug. 2022, doi: 10.1016/j.nepr.2022.103418.

[13] H. A. Olstad, "ePortfolio Introduction: Designing a Support Process," in *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, vol. 12518 LNCS, Springer, Cham, 2020, pp. 209–220, doi: 10.1007/978-3-030-63212-0_17.

[14] V. Hidayati, H. Daddi, and A. Ariana, "Students' Perceptions of Using E-Portfolio in Learning Language Material Development at Universitas Muhammadiyah Makassar: A Descriptive Qualitative Research," *EduLine J. Educ. Learn. Innov.*, vol. 4, no. 3, pp. 417–425, Aug. 2024, doi: 10.35877/454RI.eduline2941.

[15] C. F. Muin, H. Hafidah, and A. M. Daraini, "Students' Perceptions on the Use of E-Portfolio for Learning Assessment," *AL-ISHLAH J. Pendidik.*, vol. 13, no. 1, pp. 497–503, Jun. 2021, doi: 10.35445/alishlah.v13i1.485.

[16] G. López-Crespo, M. C. Blanco-Gandía, S. Valdivia-Salas, C. Fidalgo, and N. Sánchez-Pérez, "The educational e-portfolio: preliminary evidence of its relationship with student's self-efficacy and engagement," *Educ. Inf. Technol.*, vol. 27, no. 4, pp. 5233–5248, May 2022, doi: 10.1007/s10639-021-10827-2.

[17] C. T. Tse, K. W. Scholz, and K. Lithgow, "Beliefs or Intentionality? Instructor Approaches to ePortfolio Pedagogy," *Can. J. Scholarsh. Teach. Learn.*, vol. 9, no. 3, Dec. 2018, doi: 10.5206/cjsotl-rcacea.2018.3.10.

[18] M. V. Makokotlela, "An E-Portfolio as an Assessment Strategy in an Open Distance Learning Context," *Int. J. Inf. Commun. Technol. Educ.*, vol. 16, no. 4, pp. 122–134, Oct. 2020, doi: 10.4018/IJICTE.2020100109.

[19] R. M. Ali, D. Hastuti, A. R. Ananda, and M. K. Biddinika, "Learning Speaking Using Google Sites-Based Eportfolio: Indonesian Student's Experience," *Expo. J. Pendidik. Bhs. Ingg.*, vol. 13, no. 1, pp. 197–214, May 2024. [Online]. Available at: https://journal.unismuh.ac.id/index.php/exposure/article/view/14384.

[20] R. M. Ali, H. Hermanto, and V. Y. Erviana, "Electronic portfolio development training for students at SMA Muhammadiyah 3 Yogyakarta," *Proc. Natl. Semin. Community Serv. Results Ahmad Dahlan Univ.*, vol. 2, no. i, pp. 755–762, 2021, [Online]. Available at: file:///Users/r.muhammadali/Downloads/7414-16795-2-PB (3).pdf.

[21] S. Sunarni, M. K. Biddinika, F. Furizal, A. B. Fawait, and Y. Mulyana, "Training on Portfolio Creation and Learning Media Using Google Sites for Teachers and Students at SMK Muhamadiyah Banjar," *ABDIMAS J. Pengabdi. Masy.*, vol. 5, no. 2, pp. 2801–2810, Oct. 2022. [Online]. Available at: https://journal.umtas.ac.id/index.php/ABDIMAS/article/view/2732.

[22] R. M. Ali, D. Hastuti, A. Azhari, and M. K. Biddinika, "Training Abroad on Developing E-portfolio for Thai Teachers: Lessons Learned," *UICELL Conf. Proceeding*, pp. 14–15, Jan. 2024. [Online]. Available at: https://journal.uhamka.ac.id/index.php/uicell/article/view/14107.