

Assistance teachers of SD Muhammadiyah 20 Sidorejo in using interactive Microsoft Team

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ABSTRACT

The COVID pandemic has entered its second year. Muhammadiyah 20 elementary school, Sidorejo used online learning applications to support learning during the pandemic, specifically the Microsoft team. So far, Microsoft Teams has been used for video conferencing, assigning tasks, and sending learning videos where students are expected to learn a lot on their own. The learning process requires interesting and enjoyable interactions to increase students' interest. Community service team members provided training and mentoring by utilizing advanced and interactive media, such as delivering material using whiteboards and giving quizzes using Kahoot, integrated with the Microsoft team. In addition to training, teachers were mentored to facilitate its application in learning. The final stage was evaluation. The teachers enthusiastically participated in the training, and there was feedback and discussion during the training. The majority of teachers found it easy to implement the integrated MS. Whiteboard during the mentoring stage. It revealed that the Kahoot application for interactive learning was simple to use. The two applications collaborated to support interactive learning, especially online learning.

KEYWORDS

Mentoring;
Teacher;
Microsoft teams;
interactive



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1. Introduction

Using media in the learning process can result in optimal learning. Media serves as an intermediary in the learning process. It may also affect the quality of learning outcomes at Muhammadiyah 20 elementary school in Sidorejo, Banjarsari, Surakarta, Central Java. The school has the vision to create a faithful, devout, independent, intelligent, skilled, and knowledgeable generation and form an environment based on the Qur'an and Sunnah. Many changes have been made to improve the quality of human resources and graduates to realize this vision. The 4.0 Industrial Revolution had affected changes in all aspects of life, particularly in education [1]–[3].

This program makes use of previous research conducted about the Industrial Revolution. Ramalingam reviewed mixed learning strategies for continuing english as a second language Education [4]. Tuegeh conducted a systematic literature review on Industry 4.0 and HR in Indonesia [5]. In industrial revolution, the CEO's ethical leadership, corporate social responsibility, and financial performance are all important. Nguyen collected evidence from the garment and textile industries [6]. Planting civilization values as a media towards holistic development in malaysia during the industrial revolution 4.0 era was investigated by Hassan [7]. Hang researched building real-time value chain integration architecture for mass individual juice production [8]. In the academic field, Bima studied virtual laboratories to support practical learning of micro power generation in indonesian vocational high schools [9]. Is religion important in the Fourth Industrial Revolution? Adnan sought an answer to it [10]. Androniceanu analyzed the canonical correlation and the new composite index on digitization and the workforce in the context of the Industrial Revolution 4.0 [11].

D. Safitri researched eco-labels with augmented reality on websites to increase students' environmental awareness [12]. Ullah investigated a parallel neuroevolutionary model based on Cartesian genetic programming for predicting cloud server CPU usage [13]. By studying learner attitudes and perceptions, Nafea Farhan analyzed the integration of Facebook Messenger in the English classroom [14]. Jafar took part in the Industrial Era 4.0., by building the TVET Teacher Professional Competence

Framework [15]. Mohd Salleh examined the Industrial Revolution 4.0 adaptation in the port system [16]. Shamad analyzed the participation of lecturers in the implementation of blended learning in Islamic universities in Indonesia [17]. The impact of digital economy liberalization and capitalization during the Industrial Revolution, Fajar Ikhsan researched 4.0 in Indonesia [18]. The factors influencing the use of accounting information systems for operational efficiency during the industrial revolution, P. Q. Thuan examined evidence from the emerging economy in 4.0 [19]. Abu Sari researched the condition of rice and rice field monitoring using UAV RGB imagery [20]. The implications of the fourth industrial revolution for millennial accountants were studied by Handoko [21]. The impact of knowledge transfer via information technology on principal performance in Indonesian senior high schools was studied by Yan Putra [22].

Managers are becoming more aware of the significance of incorporating technology into learning as the world changes. Then, an innovation in the form of information technology (IT)-based learning is implemented. This community service can also benefit from learning about innovative research in the Fourth Industrial Revolution. Romli investigated the restructuring of educational activities for fully online learning in a qualitative study with Malaysian nursing students during the COVID-19 pandemic and the meta-synthesis of technology-based learning among health students in Southeast Asia [23][24]. Lastariwati investigated the determinants of online learning success in the fourth industrial revolution era [25]. Analyzing how to use genuine science masks with QR codes, Savitri studied the use of real science masks with QR codes to improve students' digital literacy [26]. Lubis researched Personal Website Optimization as the Learning Solution in the New Normal Era [27]. Teachers' attitudes toward the use of SPADA urged Arifudin [28] to investigate professional education in the context of positions held by teachers. Pradana researched teaching power electronics as a multidisciplinary subject using a small and inexpensive robotic arm [29]. Son used web-3D and augmented reality in e-learning to improve the effectiveness of art teaching in Vietnam [30]. Anwar used an online system for the critical thinking ability of biology education students [31]. Wibowo conducted a virtual simulation for instructional training for mathematics dropout students in digital entrepreneurship [32]. J. Marmolejo-Saucedo conducted a brief literature review on supply chain digitization trends [33].

The avian flu pandemic is now in its second year. During the pandemic, Muhammadiyah 20 elementary schools relied on online learning applications, specifically those developed by the Microsoft team, to support learning. Microsoft Teams can also do remote work, such as video conferencing required in synchronous learning. Furthermore, users can share documents and collaborate on them in real-time. So far, Microsoft Team the teachers and students have used for video conferencing, assigning tasks, and sending learning videos. The interactive learning model is a learning method or technique used by teachers when presenting learning materials in which the teacher takes the lead in creating educative interactive situations, namely the interaction between teachers and students, students with students, and with learning resources, to support the achievement of learning objectives.

Kahoot is an online learning media application that includes quizzes and games. Previously, researchers used Kahoot for this community service research. Kocak conducted a systematic literature review on web-based student response systems: advantages and challenges [34]. Sheik Abdullah researched a strategic approach to handling information retrieval to achieve course outcomes [35]. Mohd Arif investigated the benefits and drawbacks of using game-based formative assessment with undergraduate students [36]. Kahoot for job evaluation in face-to-face and non-face-to-face higher education was studied by Hernández-Ramos [37]. Zhang investigated and compared the effect of gamification and game-based learning on learning achievement and motivation using Kahoot [38]. Ekici conducted a systematic review of the use of gamification in reverse learning [39]. The impact of educational games on students' academic outcomes in nursing degrees was studied by Castro [40], and the comparative effects of the Kahoot tool on teacher training students and computer engineering for continuing education by Pertegal-Felices [41].

Gaming has been applicable in teaching and learning, as research conducted by Mohtar in the usability of mobile learning applications with gamification for middle-aged women [42] and Llanos in game-based learning and timely teaching to overcome misconceptions and improve safety and learning in laboratory activities [43]. Vergara Rodriguez investigated an innovative methodology based on educational gamification in test types using the QUIZIZZ tool [44] and Campillo-Ferrer Gamification in Higher Education and its Impact on Student Motivation and the Acquisition of Key Social and

Citizenship Competencies [45]. Other research on games and gamification for learning is Oksana's research on the problems and prospects of digital competency formation of scientific and pedagogical personnel of the future of higher education in the European Union using gamification [46], J. S. Torrecilla research on learning while playing via a survey platform for understanding environmental management [47] and Carrillo's study on gamification use, a new approach to an experimental science practice, in a teaching innovation project at the University of Alcalá [48].

Curto Prieto examined student assessment of Kahoot in the science and mathematics learning process [49], and Neureiter in histo- and pathology classroom instruction as a real-time assessment tool [50]. Chen investigated foreign language learners' perceptions of teachers' practices with educational technology, with a particular focus on Kahoot and Padlet [51]. Martnez-Jiménez investigated Kahoot as a tool for improving academic achievement among business management course students [52]. Kapsalis investigated Kahoot as a formative assessment tool in foreign language learning [53]. Kahoot can also be interpreted as an interactive learning medium for its use in teaching and learning activities. Whiteboards are learning media in traditional teaching to deliver the material. With technological advancements, whiteboards can be used virtually with more interactive developments, such as learning in class, and even students can respond virtually.

2. Method

Figure 1 depicts the stages of the activities, including preparation, implementation, and evaluation. During the preparation stage, socialization, the creation of guide modules, the creation of communication media in the form of a WhatsApp application group, and training for the teams involved were all carried out. In the second stage, activities include training implementation followed by mentoring as a forum for discussion and strengthening. A questionnaire distributed to training and mentoring participants was used to conduct the evaluation.

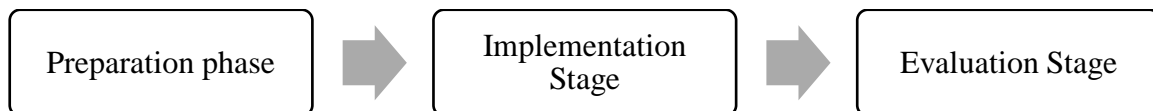


Fig. 1. Flow of activities

3. Results and Discussion

Preparation

The first step was to socialize the training that would be provided to partners, in this case, Muhammadiyah and 20 elementary school, Sidorejo, concerning the problems encountered. Communication with the principals of partner schools about the time and hours of training implementation was established. Preparation for training provided the materials needed, such as practicum modules and training materials. Training for facilitators, in this case, the assistance team, was conducted to master the training material, as shown in Figure 2.

The author conducted the assistance team training by practicing the applications and simulating the activities that would be performed for partners.

Implementation

The next activity was the implementation stage. Table 1 presents the participants' knowledge of the application to be used before beginning the training. Ten participants worked as teachers at Muhammadiyah 20 elementary school, Sidorejo.

According to the table, the majority of participants do not know the application and cannot use it in learning, so at this stage of implementation, the author conducts socialization and training for partners accompanied by an assistance team. Several stages of implementation are shown in Figure 3: delivery and socialization of training materials, application demo, participant practice, and accompaniment until all the participants can run the application well.



Fig. 2. Assistance team training

Table 1. Participant Knowledge

NO	QUESTION	YES	NO	TOTAL
<i>KAHOOT</i>				
1	Do you know the Kahoot application?	4	6	10
2	Do you use the Kahoot application for online learning?	1	9	10
<i>MS WHITEBOARD</i>				
3	Do you know the Microsoft Whiteboard application?	4	6	10
4	Do you use the whiteboard application in online learning?	1	9	10

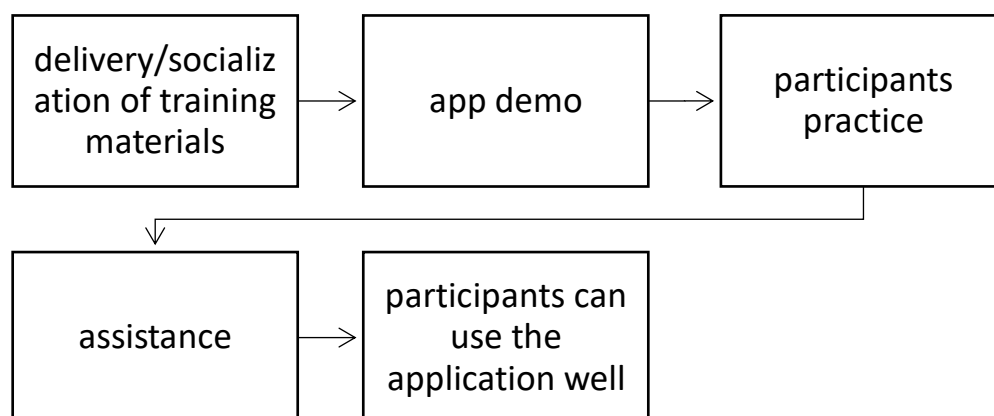


Fig. 3. Implementation flow

Figure 4 depicts the first stage when the author socializes and delivers the learning materials about how to use Kahoot and MS Whiteboard, integrates Kahoot and MS Whiteboard into Microsoft Teams, and uses Kahoot and MS Whiteboard to make learning fun and interactive, with all of the material summarized in the module guide created by the author and then distributed to participants via WhatsApp group.



Fig. 4. Learning material socialization and delivery

Figure 5 depicts the Kahoot application interface. Kahoot is a simple game-based application (gamification). Kahoot, in the form of quizzes, can be used to assess student understanding. If it is associated with learning, the users of this Kahoot application consist of teachers and students. The author demonstrates how to use Kahoot from both sides, with the teacher acting as the assignor (host) and the students performing the task (player). At this point, participants are attempting to use it.

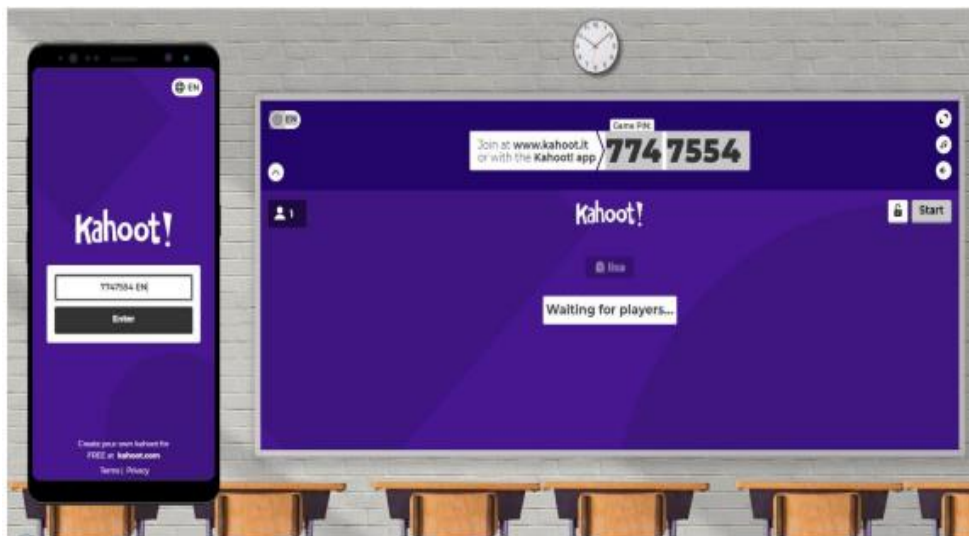


Fig. 5. Kahoot application interface

Figure 6 depicts the Microsoft Whiteboard application. In conventional learning, the whiteboard serves as a support when the teacher delivers the material. Teachers can use Ms. Whiteboard to help them explain the material to the students, and the students can respond to what the teacher says because communication between teachers and students is crucial for interactive learning. The participants' enthusiasm was apparent during the demonstration of the two applications. Feedback and discussion were exchanged between the instructor and the trainees.

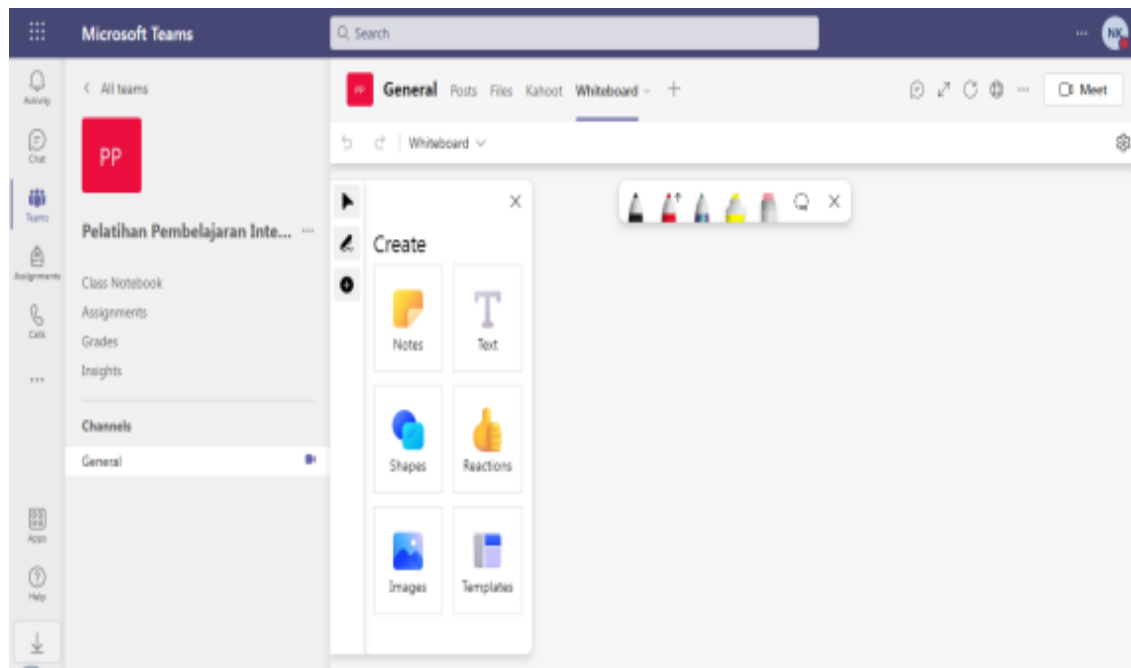


Fig. 6. MS Whiteboard integrated with MS Teams

Following that, as shown in Figure 7, participants practice independently. The figure depicts how participants are given space to experiment with the two applications independently so that they have knowledge and experience with them. At the end of the training session, the authors created a WhatsApp group for questions and discussions to further assist the participants in using the application.



Fig. 7. Participants practice independently

Evaluation

The final stage was an evaluation of the activities completed. The assessment stage came after training and mentoring. At this point, the author conducted an assessment of application knowledge and an assessment of the training, as presented in Table 2 and 3. The author distributed questionnaires via WhatsApp group with a rating of 1: Disagree 2: Hesitate 3: Agree 4: Agree Absolutely

Table 2. Questionnaires on Kahoot and MS Whiteboard application

NO	QUESTIONS	ASSESSMENT SCALE				TOTAL
		1	2	3	4	
<i>KAHOOT</i>						
1	Is the kahoot application easy to learn and implement		2	8	10	
2	Does the kahoot application make the learning process more interactive		2	8	10	
3	Does the kahoot application make the learning process more fun		3	7	10	
4	Can the Kahoot application increase student's interest in learning		3	7	10	
<i>MS WHITEBOARD</i>						
1	Is the microsoft whiteboard application easy to learn and apply		6	4	10	
2	Does the microsoft whiteboard application make the learning process more interactive		6	4	10	
3	Does the microsoft whiteboard application make the learning process more fun		6	4	10	
4	Can the Microsoft Whiteboard application increase student's interest in learning		6	4	10	

Table 3. Training and mentoring evaluation questionnaire

NO	QUESTIONS	ASSESSMENT SCALE				TOTAL
		1	2	3	4	
<i>TANGIBLE DIMENSIONS (ANALYSIS OF PHYSICAL EVIDENCE)</i>						
1	The theme of the training helps participants prepare for interactive learning		2	8	10	
2	Learning applications (kahoot, whiteboard) demonstrated by the instructor can broaden participants' knowledge in preparing interactive learning		3	7	10	
3	Training materials can be accepted and applied easily		3	7	10	
4	Can the Kahoot application increase student interest in learning		3	7	10	
<i>RELIABILITY DIMENSIONS (RELIABILITY ANALYSIS)</i>						
1	Instructor mastered the training material		5	5	10	
2	The instructor gives the material clearly and sequentially		4	6	10	
3	Presentation techniques Instructor provides an overview of participants in preparing interactive learning		3	7	10	
4	Can the Microsoft Whiteboard application increase student interest in learning		3	7	10	
<i>DIMENSION OF EMPATHY (EMPATHY ANALYSIS)</i>						
1	Instructor provides question and answer opportunities		3	7	10	
2	Friendly and patient instructors help participants		3	7	10	
3	The companion team is friendly and patient in helping participants		2	2	6	10
<i>RESPONSIVE DIMENSIONS (APPROPRIATE ANALYSIS)</i>						
1	Communicative instructor in delivering material		3	7	10	
2	Communicative assistance team in helping participants' problems		2	2	6	10
3	Instructors are responsive in helping participants' complaints		3	7	10	
4	Assistance Team is responsive in helping participants' problems		2	2	6	10
<i>ASSURANCE DIMENSIONS (GUARANTEE ANALYSIS)</i>						
1	Handout/Module provided helps in understanding the material		2	2	6	10
2	Participants can get more handouts/modules after training		2	2	6	10
3	Participants can ask about training materials after completing the training		2	2	6	10

Based on the two applications' evaluations, it was discovered that the Kahoot application is simple to use and can be used for interactive learning. The table also shows that not all participants agree on the MS Whiteboard application. The result of the questionnaire indicated that interactive learning provided

a more relaxed and fun learning environment to foster enthusiasm and motivation in students, but it was only possible when the two applications collaborated in the teaching and learning process.

Furthermore, the training evaluation revealed that the training and mentoring were well executed and satisfied the participants who had attended. The results of the questionnaire showed that the majority agreed, if not strongly, with the training and mentoring provided. However, there were still things that needed improving and that provided input for the authors and the community service team in some ways.

4. Conclusion

The Community Service Program was carried out at Surakarta's Muhammadiyah 20 Elementary School through training activities to introduce the Microsoft Teams application, namely Kahoot and MS Whiteboards application. It can be an additional experience for teachers in implementing fun and engaging technology-based learning. The interactive learning environment encourages enthusiasm and motivation in students and provides a more relaxed and enjoyable learning environment.

Acknowledgment

The author expresses his special thanks to LPPM ITS PKU Muhammadiyah Surakarta for the Community Service grant for the 2021 Fiscal Year that has been given. Next, I would like to thank partners, companion teams and all parties who contributed so that this activity can be carried out properly.

Author Contribution

Contributions from the implementation of this community service are: 1. Increasing understanding and building public awareness, especially starting from teachers at SD Muhammadiyah 20 regarding optimal learning that can be realized by using learning media. 2. Increase public awareness, especially teachers of SD Muhammadiyah 20 about the use of learning in the industrial 4.0 era. 3. There is a change in learning patterns from offline to online. Based on the results of the data-based study above, the service team contributed to this community service program to strengthen the movement and participation of the community to implement distance learning practices to cope with covid.

Funding

The author expresses his special thanks to LPPM ITS PKU Muhammadiyah Surakarta for the Community Service grant for the 2021 Fiscal Year that has been given. Next, I would like to thank partners, companion teams and all parties who contributed so that this activity can be carried out properly.

Conflict of Interest

The authors declare no conflict of interest.

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