The challenges experienced by teachers in online workshop during the COVID-19 pandemic

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Abstract. COVID-19 pandemic has changed many aspects of our everyday life, including education. Schools and universities are closed, so that teaching and learning activities must be modified from traditional face-to-face to online learning. Also, professional development programs are affected. However, online program does not always run smoothly and the participants may encounter some challenges. This study investigates the challenges experienced by mathematics teachers in online workshops on Realistic Mathematics Education. This qualitative research involved 11 mathematics teachers in Banda Aceh, Indonesia, joined the online workshop voluntarily. The instrument used in this study was an interview sheet. The results of the interview regarding the challenges during the online workshop showed four categories of challenges: technical issues, facilities, cooperation between groups, and collaboration with facilitators. The finding of the study is expected to provide insight on how to improve future online workshop.

1. Introduction

COVID-19 pandemic has affected many aspects of our everyday life, including education. Social distancing and partial or full lockdown has force schools and universities to be closed. Teaching and learning activities are modified from traditional face-to-face learning to online learning. The professional development programs are also affected. Despite the inability to organize the training or workshop offline, the programs must be conducted through a webinar or online platform. Thus, a teacher professional development program can sustain as an effort to upgrade teachers' skills and knowledge. Moreover, advanced technology comes with the change and demands requiring higher standards in educational fields, and teachers must keep learning to cope with these and be more effective [1]. Indonesia is among the countries hit by the COVID-19 and is forced to modify its teaching and learning activities and the related events. The pandemic has raised the demand for more webinars, online workshops, and other online learning activities.

The online workshop is a workshop equivalent to the face-to-face event, and this can be divided into synchronous (real-time) and asynchronous (not real-time) activities. There are many advantages online professional development. First, it fits with teacher schedules and draws good resources [10]. Furthermore, it supports more personalized teacher professional development [11]. The online workshop allows the participants the time and opportunity that otherwise is impossible during the offline session [2]. Yang & Liu [1] reported that most online workshop members appreciate the online
workshop despite the technical issues they faced in dealing with the new technological tools. They also reported that the online workshop would succeed when the participants have access to the tools and internet, have time and plan the time, are willing to collaborate and communicate, have prior knowledge and experience [1]. Mailizar et al [9] also reported that internet accessibility is one of important factors for teachers in adopting online workshop.

Online teacher professional development should ideally benefit the participants to engage with diverse online resources as they are presented in multiple representations and a non-traditional format [3]. However, the implementation of an online workshop will come with some challenges both for the participants and the organizer. Hsu & Dawley [4], in their research on online workshops using an application, found some technical challenges related to the app that did not operate as it should be. Research on online workshops is closely related to online learning as, in a way, online workshops in the form of online learning. Thus, it is adequate to summarize the challenges of online learning and relate them to online workshops. Some challenges experienced by students in online learning, specifically blended-learning, are time, culture and learning environment, and the proper design [5].

Online teacher professional development is regarded as an emerging field of research in mathematics education [10]. Despite many studies related to an online workshop or online learning mentioned previously, they were conducted within the 'normal' time instead of during the pandemic. Considering the challenges discovered before, we believe that it is even more interesting to examine the challenges faced by the online workshop participants in this pandemic. Furthermore, in 21st century, training, teaching and learning will be predominantly conducted online, so it is necessary to study the challenges in online learning to anticipate the similar issues in the future. Thus, this study investigates the challenges experienced by mathematics teachers in online workshops related to Realistic Mathematics Education.

2. Method
The descriptive qualitative research was designed to investigate the challenges teachers experienced in participating in online workshops during the Covid-19 pandemic. The workshop began with an online seminar organized via Zoom by the research centre of Pendidikan Matematika Realistik Indonesia (PRP-PMRI) team in Universitas Syiah Kuala. At the end of the seminar, the participants were distributed into seven small groups based on their preferences of mathematics topics, such as integer, fraction, similarity, algebraic expression, number pattern, reflection, and linear equation. Each group consisted of four to five participants and was guided by three facilitators. Group tasks are as follows.

- Analysing the content of the topic and create a concept map
- Designing RME-based instructional activities for three lessons,
- Designing RME-based learning trajectory in the form of an iceberg

The subjects of this research were 11 junior high school teachers in Banda Aceh who attended the online workshop. They were selected based on their engagement level during the online workshop and their willingness to be interviewed. At least one people represented each group, the most engaged person and the least engaged one during the discussions through the WhatsApp group. This selection criterion was applied to obtained extensive information regarding the challenges faced by the most and least engaged teachers.

The research instrument used in this study was an interview sheet, consisting of three questions and the conversation texts in the WhatsApp group. The questions in the interview guidelines are as follows.

- Do you think this online workshop challenging (in terms of technical, cooperation, etc.)? Why?
- How is the cooperation or interaction between fellow teachers in the group during the online discussion? Is it going well? Why? Do you feel the group work well together? Or do you feel awkward with group members? Why?
3. Results and Discussion

Based on the analysis of the interview with 11 teachers, it was revealed that the challenges experienced by teachers could be categorized into a technical issue, cooperation between group members, and collaboration with facilitators, as summarized in Table 1.

Table 1. Teachers Challenges Category During Online Workshop

| Category                | Teachers Challenges Category During Online Workshop                                                                 |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Technical               | Three people said that they were not accustomed to using zoom applications and have limited IT skills. Two people said that there was no obstacle. Four people stated that discussion could not be done face-to-face, and there was no direct interaction other than WhatsApp group. One person stated that when the teacher asked questions, it took so long for the facilitator to respond. Also, when it was answered, the teacher was no longer available. One person said that he was challenged in terms of making the assignment given by the lecturers. |
| Cooperation between groups | Three people said that the communication barrier between team members was their workload at school. Three people stated that the communication barrier occurred because they did not know each other. One person stated that the communication barriers between team members were because they come from different schools. Thus, it is difficult to meet and discuss face to face. So, it only took place with their peer. Two people stated that they faced no obstacle. Two People stated that the communication barrier between team members occurred because they just agreed and waited for other members' opinions. |
| Cooperation with the facilitators | One person stated that they never responded to the facilitator because they were shy and afraid of giving wrong opinions. One person stated that communication with the facilitator did not run well because she was busy preparing students' report cards. Four people stated that the discussion was hampered due to the late response from the participants to the facilitators and vice versa. Two people stated that the discussion they faced no obstacles. Three people said they faced no obstacles. |
Concerning the technical issue, the main challenge experienced by teachers was that discussions could not be conducted face-to-face. It was only through the WhatsApp group, so there was no direct interaction. Another challenge was that they were not used to using the Zoom application and had limited skills related to technological media. This is in line with Swanson et al. [6] who stated that online students encounter challenges concerning communication and socialization in distance learning classes due to the loss of face-to-face communication, lack of student involvement, and the lack of intensive interactions in online classrooms. The following are interviews excerpt from three teachers regarding the challenges they experienced.

Q: Do you think this online workshop challenging (in terms of technical/facility, cooperation, etc.)? Why?
T1: It was full of challenges. We worked as a group; we were from different schools. So, it was rather difficult to cooperate. We could not meet face to face; we had to go through WhatsApp or text only for dividing the tasks.
T2: Personally, my desire to participate in this activity was extraordinary, but the problem is using zoom. Frankly, I have never used a zoom application before.
T3: For me, I am not familiar with the technology, so it is better to meet in person.

The teachers’ statements, in the interview excerpt above, can also be proven from chat on WhatsApp group, as shown in figure 1. The interview results are in accordance with the documentation on WhatsApp.

Figure 1 shows the late response from the facilitators because there was no previously agreed schedule for the discussion. The limited discussion through the WhatsApp group made the participants and facilitators less engaged, resulting in the ongoing discussion did not reach conclusions. WhatsApp group discussion allows non-synchronous communication, meaning that group members can reply at their convenience. Like any other online forum, this tool can be powerful only if the participants are involved or engaged well [7]. Agreeing on certain schedule for synchronous discussion, other than, asynchronous one, may enhance the engagement between the participants and facilitators.

In term of the cooperation between groups, the major challenge teachers experienced was the barrier to communication between group members. It occurred due to the workload in each school and the fact that team members did not know each other. Commitment to providing the time to discuss and
communicate can support a successful online workshop. Most online workshop members appreciate the online workshop despite the technical issues they faced in dealing with the new technological tools. The online workshop will succeed when the participants have access to the tools and internet, have time and plan the time, are willing to collaborate and communicate, have prior knowledge and experience [1]. The following are the interview excerpts from two teachers regarding the challenges they experienced.

Q: How is the cooperation or interaction between fellow teachers in the group during the online discussion? Is it going well? Why? Do you feel the group work well together? Or do you feel awkward with group members? Why?

T1: It did not run well because of our workload at school, online teaching, preparing the students' e-report cards. Also, the communication was only through WhatsApp group. The workshop and school-work were simultaneous.

T2: Before an assignment was given by the facilitator, there was no initiative to discuss it. We were from different schools, and we did not know each other. Especially for me, we did not know each other. So, it was rather embarrassing for us to contact them, and is a bit difficult to communicate with each other.

It may worth to consider conducting ice-breaking activities during the online workshop to help the participants from different schools to socialize and familiarize themselves with each other. Thus, it may reduce their hesitation in the group as the familiarity and trust increase. The following are the interview results of the teacher interview, which is in line with the documentation on WhatsApp.

Figure 2 shows the facilitator asked a question, but only one teacher responded. Based on the results of the interview, it occurred because the team members just waited and agreed to the opinions of others.

Concerning the cooperation with facilitators, the main challenge teachers encountered was the barrier of the discussion due to two issues. First is the late response of the participants to the facilitator or vice versa. Second is the participants found it hard to understand the facilitator’s directions in the WhatsApp group discussion, and they found it difficult to connect the facilitator's expectation and the participants' achievements. Based on a spontaneous interview with a teacher, it was revealed that these happened because teachers were not accustomed to using the WhatsApp to discuss and argue in the academic topic. They added that the discussion was too sophisticated to discuss via short messages, such as WhatsApp. Thus, the participants hesitated to comment or respond when the facilitator
provided stimulus or feedback. Previous research revealed that factors, such as the time to complete a task, a lack of understanding of the context in the subject matter, problems with the use of software and the availability of reliable human resources, can decrease the learning motivation [8].

The following is the interview excerpt regarding the challenge teachers experienced.

P : How is the interaction between you and the facilitator in the group during the online discussion? Is it going well? Why?
G1 : Inadequate, some run well, some did not. When Ms CM commented we were busy. During the mentoring, some of us were busy preparing students' report cards, so not all responded.
G2 : There are challenges, in doing the assignment requested by the facilitators, especially in drawing.

The teacher's statement that it was difficult to link the expectation of the facilitator with the participants’ achievements, resulting in the obstacle in the task given, and it was not completed. This finding is in line with the documentation results from WhatsApp group, as shown in Figure 3.

Figure 3. The Screenshot of WhatsApp Conversation in Transformation group.

Figure 3 reveals that facilitators and teachers were engaged during the discussions via WhatsApp and google meet. However, the teachers could only work on concept maps while they did not complete the learning trajectories in the form of icebergs.

4. Conclusion
This study identified three categories of challenges teachers experienced during the online workshop: technical, the collaboration between groups, and interaction with facilitators. Teachers' main challenges are the discussion that was not face-to-face, not allowing no direct interaction and only through WhatsApp group, and the communication that did not run well between team members as they did not know each other well and were reluctant to interact with the facilitator. Other obstacles were noted, such as delays in discussion due to the participant’s or facilitator's late response, and teachers were not accustomed to using technologies, such as Zoom and WhatsApp for highly academic discussions.

Concerning the design of learning trajectories, facilitators, and teachers were engaged during the discussions via WhatsApp and Google Meet. However, teachers can only work on concept maps, and they did not complete the design of the learning trajectory in the form of icebergs. Teachers have created concept maps many times before, but they have never tried designing learning trajectories.
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