

Non ICT Teacher Training to Develop Multimedia-based Learning Software

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Abstract: Lack of non ICT teacher training in developing digital materials is considered an inability to provide them. One of the digital materials that can provide independent learning is multimedia. Non ICT teachers are teachers who do not have a background in the department or branch of the study program. The importance of training in learning multimedia software products is essential for non ICT teachers. The training aims to provide skills in developing learning multimedia software so that teachers can independently develop it. This article reveals his reaction, training process, and transfer. The method used is descriptive quantitative with data collection through a questionnaire, and the product is the outcome of the training. In general, participants responded positively to the process during the training. After training, non ICT teachers have belief and self-efficacy in developing them independently. Software multimedia instructional developed by non ICT teachers is quite good, although a few participants have not developed them due to age and health factors.

Keywords: non ICT teacher, component, formatting, style, styling, insert

1. INTRODUCTION

The COVID-19 pandemic is still ongoing, and various sectors are affected by the incident. The education sector was significantly affected by this event. The quality of education has also declined due to regulations for social distancing and the quality of learning.

Through the ministry of education and culture, the Indonesian government issued a ministerial circular letter number 4 of 2020 that learning from home through online learning [1]. This mode allows for learning without face to face directly or indirectly. Learning with this mode can use a gadget or laptop to access media and learning resources following the implementation guidelines contained in circular letter number 15 of 2020 [2]. Of course, there are demands to provide media and learning resources in digital format to be delivered to these devices.

Teachers who have been conducting classroom learning are required to serve online learning without reducing the quality, or the quality must be the same as learning before the pandemic. The quality referred to here is the quality of the implementation and the learning materials. Thus, students can achieve the learning objectives with quality that is still equivalent to learning in class.

The learning materials used so far are different from online learning. In addition to digital formatted learning materials, they must also teach independently to their students. Multimedia is one of the autonomous learning materials in digital format.

Multimedia is a particular combination or combination of several media to convey messages through two different communication channels. In addition, multimedia provide choices and opportunities for learners to be more autonomous

in their performances [3]. Therefore, multimedia is suitable for learning material in online learning mode to promote learner autonomy [4]–[6].

Multimedia has developed for various levels of education [7]–[14]. Multimedia development is easy to produce. Usually, students or people with an ICT background, especially fluent computers, develop these products. The multimedia product is a software developed with various techniques, methodologies, and software in its development.

So far, teachers have never acquired skills in developing learning multimedia software products. Lack of training in multimedia development affects teacher incompetence. Non ICT teachers especially experience this lack of skills. Even though during this pandemic, teachers have to provide these learning materials. The availability of learning materials is essential in order to maintain the quality of learning.

Non ICT teachers do not have an educational background from a significant or study program from the information and communication technology. This category includes science, math, language, religion, social studies, physics, guidance, and counseling. Teachers with over twenty years of experience are also included in this category, even though they are in an ICT-based study program.

The teacher works daily using a computer but is only used to develop digital presentation learning materials. It is even worse to complete the routine administrative tasks of learning services. It is rare for students to use developed digital learning material products, especially multimedia. Teachers will not use technology unless they have the knowledge, skills, and the right attitude necessary to use ICT in their teaching or beneficial to them [15].

Based on the need analysis non ICT teachers, developing learning multimedia software skills is essential to implement. Moreover, teachers were optimistic about the use of ICT in learning [16]. Therefore, multimedia-developed training becomes urgent to do in helping to solve problems.

The teacher doing the training four times face to face with strict health protocols. Training in the form of practical workshops and hands-on training with experienced learning multimedia software developers. Activity-Based learning is applied to training to provide trainees with experience in developing software. The training format follows several articles that discuss in-service teacher education and continuous professional development or education [17]–[19].

This study aimed to find out how non ICT teachers felt during and after the training process besides obtaining information to design the next training. The developed software also provides information about the achievement of the training objectives. In addition, it can represent teachers believed to be able to create multimedia-based learning software sustainably and independently.

2. METHOD

The trainees are non ICT teachers who teach at fifth state vocational high schools (SMKN 5) in Malang, East Java, Indonesia. The number of non ICT teachers who participated in the training was 26 registered via Google Form. Although the number is small, one of the teachers interpreted it as efforts in voluntary professional development considering the pandemic period.

The training was carried out during August 2020 face-to-face four times with strict health protocols. The material presented is the introduction of software, layout and interface design, content filling, and navigation settings. At each meeting, skills in production and assistance are according to the material. The duration of each meeting is five hours, so the total meeting time is twenty hours. For the completion of the learning multimedia product software, the participants allocated twenty hours of non-face-to-face time.

For training in the production of multimedia-based learning software, the application software is Autoplay Media Studio 8.5 from Indigorse. This training aims to produce interactive multimedia application software besides games, web, and much more. AutoPlay Media Studio delivers on the promise of rapid application development. This easy-to-use software development tool allows the teacher to create custom software in a visual drag and drop workspace. Teachers with no coding experience can essentially snap to add activities from the library to develop usefulness, from basic screen controls to cutting-edge working framework orders.

The questionnaire items were developed based on the summative evaluation of Kirkpatrick to achieve the objectives of this study [20]. There are four levels offered for the evaluation process, but only three levels were used for this study: student reaction, learning, and transfer of training. The three levels of the questionnaire are presented in a google form. The student's reactions were obtained from the trainees' responses to the statements of the level of satisfaction, the competence of the trainer, the management of activities, and the duplication of similar activities in the future. The results

of this response can describe the quality of the training that has been held.

The second level is learning with aspects of the product developed by the participants. After four weeks from the last training meeting, participants submitted their products by sending their Google Drive link. Trainers assess software products based on the criteria for training results. Its aspects include interface design, layout, navigation, all media elements, no errors found, well structured and planned, the combination of appropriate and integrated media, and completeness of components as a learning multimedia software. The rating scale uses a rating scale of 0 – 10, from unsatisfactory until outstanding. The total score is the sum of the scores for each aspect. The total score are categorized into product quality presented in Table 1.

Table 1 Product Quality Categories

Criteria	Total Score
Poor	< 50
Pretty good	50 - 70
Good	71 - 85
Very Good	> 85

Transfer of learning is the third level of evaluation that measures participants' adoption of new skills. The data were obtained from the software developed and the teacher's beliefs when developing the product independently.

There were twenty-six participants in the training, only one person withdrew due to health reasons, so twenty-five participants filled out the questionnaire. Data obtained from filling out questionnaires by trainees were analyzed using SPSS software. The results of data analysis are presented quantitatively. In addition, descriptive analysis was carried out to explain the trainees' responses to the training they had experienced and the software product resulting from the training.

3. RESULTS

A. Trainee Reaction

The survey results on trainees' impressions of the activities are in Figure 1. In general, participants gave a good impression of the training activities carried out with a total percentage of 96% or 24 people. The total percentage from trainees who responded very well as many as 56% (15 people), trainees who responded well as ten trainees or 40%, while those who responded quite well were only one person or 4%.

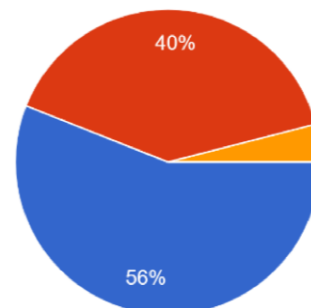


Fig. 1. Satisfaction level

This impression expresses a sense of satisfaction with training activities. In addition, this is evidence that the teacher had a positive experience and met their expectations. Both of these things can foster teacher motivation to repeat the training with different materials or skills.

Trainees responded positively to the competency skills of the trainers, with the percentage 100%. The very competent category was responded to by 15 people or 60%, while 40% or ten people gave competence categories responses. Figure 2 illustrates a pie chart of the trainer's skills competency.

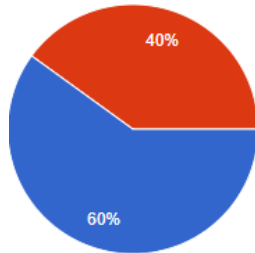


Fig. 2. Trainer skill competence

Figure 3 is a pie chart showing the trainer's ability to manage and condition the situation during the training activity process. Again, the trainees gave a positive response with a percentage of 100%, consisting of 48% (12 trainees) giving highly skilled responses and 52% (13 trainees) giving skilled responses.

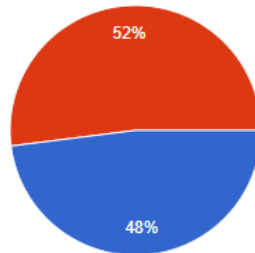


Fig. 3. Trainer's ability to manage the class

Trainees are also asked for their responses if similar activities are held again. All trainees responded that it was 100% necessary for the activity to be held again. In addition, 16 trainees, or 64%, gave an essential response, and nine trainees or 36% only responded necessarily (Fig. 4).

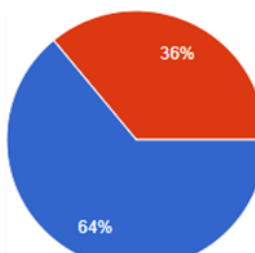


Fig. 4. Promote similar activities

B. Learning

Table 2 shows the results of trainer reviews related to the quality of software products developed by trainees. The products reviewed were 25 multimedia learning software based on the rubric. A total of 4 trainees or 16% developed software products with poor quality. Products haphazardly and skills are not applied to developed products and are not well planned. So the product is not valid as multimedia-based

learning. While the remaining 84% or 21 trainee products are the valid categories as multimedia-based learning, based on the trainer's assessment, the results are categorized into three: pretty good, good, and very good.

Table 2 The Quality of Assessment

No	Quality product	Amount	Percentage
1	Poor	4	16
2	Pretty good	6	24
3	Good	6	24
4	Very Good	9	36
	TOTAL	25	100

Software with a pretty good category is as much as 24% or six trainees. The layout and interface designs of the software have not been organized properly. Besides, the suitability and integration between media to deliver learning content have not been well planned. However, the navigation in multimedia learning software is well organized.

Good quality represents that the software is well planned and structured. The use of media types is under the content as well as its integration. The display and layout design has fulfilled the elements of learning multimedia with navigation that its users quickly understand. Software with this quality is six products or 24% of trainees.

A total of 9 software or 36% of trainees submitted products with very good quality. Software with this quality has met various criteria that have been set. The advantage is that the product produced by the trainees exceeds the skills being trained with an attractive display design and motivates students to become autonomous learners. In addition, the product has also experienced innovation beyond what was trained. The trainees have the confidence to explore other multimedia development software independently.

C. Behaviour

Table 2 can also be used as a benchmark in the criteria for transfer of training or behavior change. Product quality with good and very good categories can be used to reference changes in trainee behavior. One element of the assessment criteria reference is the optimal application of trainee skills to the resulting product. The total percentage is 68% or 17 products from training participants.

The questionnaire statement items about independent product development show similar findings. Figure 5 shows that 19 participants answered yes, or 76%. This percentage shows that trainees feel confident in their abilities because they consider the skills resulting from the training are sufficient to develop independently. On the other hand, trainees answered unable as much as two people or 8%. Meanwhile, those who gave responses might or had other answers, each responded to by 1 participant or 4%. Other responses are that they need assistance, have not been able to maximize their development, and are hesitant because they still have to practice more. The other responses are interpreted as confirmation of the ability to develop independently. Only

the level of confidence is still classified as medium or still unsure about their skills.

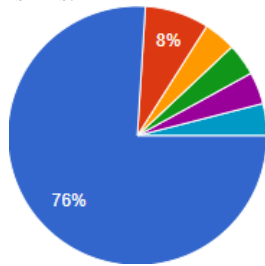


Fig. 5. Teacher's belief in producing software independently

4. DISCUSSION

These findings describe the ongoing training process. This finding is critical to present because it represents a proper training design and needs analysis. The hope is that the training can make a positive contribution and proper professional development for teachers. Thus, it is not just an induction program that is not relevant to needs and is just a theory because it raises an opposing point of view from the teacher [21].

In general, the product of learning multimedia software can be run or no error findings. The findings show that the number of teachers who succeeded in developing was almost the same as different trainees in one group of teachers in a rural sub-district [22]. There is no significant difference in the number of training products between teachers in urban and rural areas.

These findings confirm previous research conducted in Spain on the development of digital competencies. Furthermore, research reveals that teacher digital competence factors, namely age, prior training on ICT, degree, technical experience, and professional category [23].

The finding of teacher beliefs is one of the critical factors that can motivate the integration of technology and multimedia in the educational environment. This finding supports previous research, and when teachers believe that

multimedia is a powerful tool, teachers are motivated to develop and use it in their learning settings [24].

5. CONCLUSION

During this pandemic, digital learning materials play an essential role in providing quality learning. However, the lack of training held to develop these products is an obstacle for teachers. In general, non ICT teachers are considered unable to provide it due to limited production skills. The training on multimedia learning software production held is one of the efforts to provide it.

The findings show that the trainees' reactions during the training process gave a positive response. Responses were obtained from the satisfaction level of the trainees, the skills of the trainers and the need to organize training activities in the future. The trainees' behavior also shows changes through the resulting software products, although some have not been successful. Some trainees have not yet succeeded in completing their products, but non ICT teach, and confidence to develop products independently.

Overall the findings indicate that the training has been successfully implemented. Trainees respond positively and are motivated to develop independently. However, generalization of the findings needs to be done and applied with caution. For this reason, the subsequent training implementation has to pay more attention to and assist trainees who are elderly and sick. Nevertheless, this training considering has the high enthusiasm of the trainees in following the process and producing learning multimedia software.

ACKNOWLEDGMENT

The training program was carried out in the context of community service in August 2020 during the pandemic. The articles presented are part of the output of these activities. Thus, the authors would like to thank the Dean of the Faculty of Education, State University of Malang, Education, who has funded the activities and data collection and processing.

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