



## Development Training of Android-Based Interactive Learning Application as Supporting Media in Online Learning

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**Kata Kunci :**

Aplikasi Pembelajaran;  
Interaktif; Berbasis  
Windows dan Android;  
Belajar Online

**ABSTRAK**

Dalam mendukung suksesnya pembelajaran online, perlu adanya peningkatan kreatifitas pendidik dalam mengembangkan dan menggunakan aplikasi media pembelajaran. Tujuan dari penelitian ini adalah memberikan pelatihan dan pendampingan kepada para dosen, guru dan mahasiswa calon guru dalam membuat aplikasi pembelajaran berbasis windows dan android. Program pelatihan terstruktur dilakukan secara kolaborasi antara dosen dari Fakultas Keguruan dan Ilmu Pendidikan dengan tim mitra dari lembaga Pendidikan Permata Bunda melalui program Matching Fund Kedaireka. Pelatihan dilakukan secara hybrid dengan rincian 10 peserta mengikuti secara luring dan 60 peserta mengikuti secara daring. Pelatihan dilakukan selama satu hari dengan membagi kedalam 3 jenis kegiatan yaitu pengenalan tentang aplikasi pembelajaran, praktik langsung pembuatan aplikasi pembelajaran dan sebagai kegiatan penutup diberikan angket sebagai evaluasi keberhasilan kegiatan. Berdasarkan hasil evaluasi diperoleh informasi bahwa 14,26% peserta telah mampu mengembangkan aplikasi pembelajaran hingga tahap publikasi, 71,43% peserta telah mampu mengembangkan konten (isi) aplikasi pembelajaran dan 10% peserta yang mampu menyelesaikan pada tahapan perancangan kerangka media pembelajaran, sedangkan 4,26% masih pada tahapan instalasi program. Selain itu, diakhir kegiatan peserta juga mengisi angket kepuasan terhadap kegiatan pelatihan yang berlangsung. Berdasarkan analisis respon kepuasan peserta diatas 85% yang masuk dalam kategori sangat baik. Hal ini menunjukkan peserta sangat puas dengan pelatihan yang telah mereka terima.

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**Keywords :**

*Windows and Android Based Interactive; Learning Applications; Online Learning*

**ABSTRACT**

*In supporting the success of online learning, it is necessary to increase the creativity of educators in developing and using learning media applications. The purpose of this research is to provide training and assistance to lecturers, teachers and prospective teacher students in making Windows and Android-based learning applications. The structured training program is carried out in collaboration between lecturers from the Teacher Training and Education Faculty and partner teams from the Permata Bunda Educational Institution through the Kedaireka Matching Fund program. The training was carried out in a hybrid manner with details of 10 participants participating offline and 60 participants participating online. The training was carried out for one day by dividing into 3 types of activities, namely the introduction of learning applications, direct practice of making learning applications and as a closing activity a questionnaire was given as an evaluation of the success of the activity. Based on the evaluation results obtained information that 14.26% of participants have been able to develop learning applications up to the publication stage, 71.43% of participants have been able to develop learning application content and 10% of participants are able to complete the learning media framework design stage, while 4,26% are still at the stage of program installation. In addition, at the end of the activity, participants also filled out a satisfaction questionnaire with the ongoing training activities. Based on the response analysis of participants' satisfaction above 85% which is included in the very good category. This shows that participants are very satisfied with the training they have received.*

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## PRELIMINARY

Online learning has now become very popular among the world of education. This is due to a change in the form of learning from face-to-face learning in real class to online learning. This change in the form of learning is one of the government's efforts to reduce the development and spread of Covid-19 (Iivari, Sharma, & Venta-olkkonen, 2020). This situation forces teachers and teachers to carry out learning using various applications that support face-to-face learning online (zoom, google meet) as well as distance learning applications such as Edmodo and Moodle. Teachers are required to be creative and adaptable by being able to use ICT in all stages of learning, from planning, process and assessment (Carter, Rice, Yang, & Jackson, 2020). The use of ICT-based media is an important tool in supporting the implementation of online learning.

However, the sophistication of ICT-based technology in learning is still not maximally applied. There are still many teachers who do not yet have the ability to apply information and communication technology (Ahmad Swandi, Rahmadhanningsih, Putri, et al., 2021). Several previous studies have shown that the majority of teachers or lecturers use more direct learning media such as zoom as a liaison for face-to-face activities in the classroom. In fact, during this disruption, learning should not only be done during school hours where teachers, lecturers and students are present in learning activities simultaneously, but students need to be encouraged to learn independently of materials and concepts through independent learning media.

The development of science and technology has a significant impact on the field of education. Academics continue to look for ways and breakthroughs to make technology have a broad positive impact on improving the quality of education (Ahmad & Bunga, 2015). This dynamic requires teachers to always improve and adjust their competencies to be able to develop and present actual subject matter using various approaches, methods, and the latest learning technology (A. Swandi et al., 2020; Ahmad, et al., 2021). Only in that way the teacher is able to organize learning that succeeds in bringing students into the world of life in accordance with the needs and challenges of their time. Teachers are required to be creative in developing learning applications that can support independent learning such as developing Windows and Android-based applications.

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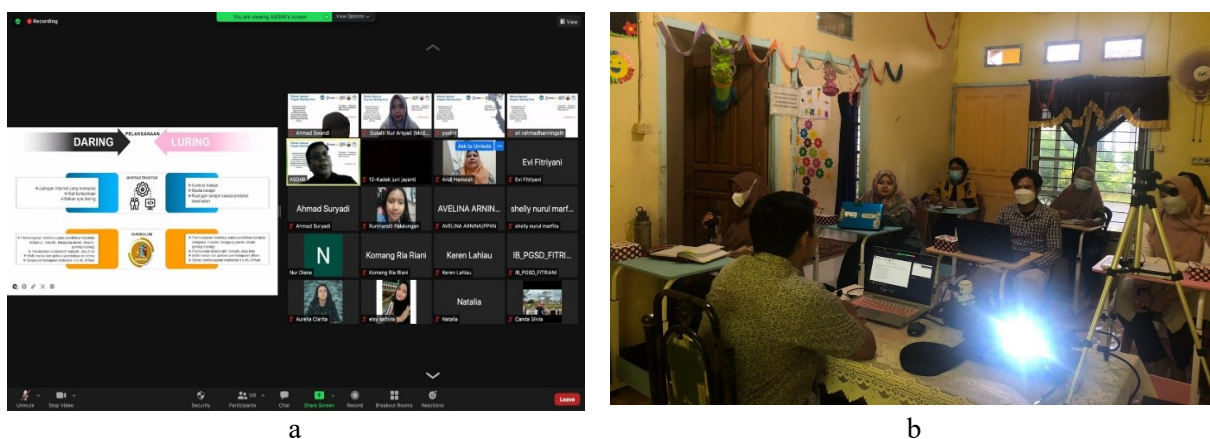
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## **IMPLEMENTATION METHOD**

One way to overcome the problems of partners and teachers regarding the lack of knowledge and experience in designing android-based learning applications as interactive and interesting learning media is to provide training and mentoring. Through the Kedaireka 2021 Matching Fund program, a team of higher education personnel from the Teacher Training and Education Faculty in collaboration with the Permata Bunda Educational Team and Institute (LPPB) conduct training activities for the development of learning applications. The training was carried out in a hybrid manner with 10 participants attending directly at the LPPB building, while 60 participants attending online.

This learning application development training is designed with reference to the Direct Teaching Model (MPL) syntax, namely Phase 1: Orientation where the presenter provides an introduction to learning media based on Android applications. Stage 2: Presentation/Demonstration where the speaker demonstrates directly how to develop an android-based learning application. Stage 3: Structured Exercise, the presenters plan and provide technical guidance to develop and implement android-based

learning applications. During the training, the presenters always provide reinforcement. Stage 4: evaluation, where the presenter checks the work of the participants, how far the application has been made and what obstacles they face. In addition, at this stage participants are also asked to fill out a questionnaire and provide an assessment of the training that has taken place. This activity is supported by facilities owned by the Permata Bunda Educational Institution which is located in Kubu Raya, West Kalimantan. The facilities provided are in the form of a training building, LCD, laptop, data storage and several other equipment. Here are some pictures related to the training carried out.



**Figure 1.** Training participants who follow online (a) and offline (b)

Due to the pandemic situation, participants who take part in offline training at LPPB are limited to a maximum of 10 people. Meanwhile, 60 participants took part online. The work of the participants varied from teachers, lecturers, and prospective teacher students from various majors and universities. Android-based learning application development training activities are carried out for one day with a training duration of about 8 hours. After the training activities took place, it was continued with mentoring activities carried out online and face-to-face which aimed to solve the problems faced by participants in developing learning media based on android applications.

As an evaluation material for the implementation of this activity, participants were asked to fill out a satisfaction questionnaire as their assessment of the implementation of the activity. Participants were also asked to show the appearance of the learning application they had made. The team then gave an assessment by dividing into 4 indicators, namely (1) application/supporting software installation, (2) application framework design, (3) content development and preparation which included initial appearance, competencies, materials, questions and discussions, and quizzes. While the indicator (4) publication of learning applications.

## RESULTS AND DISCUSSION

In this training, participants first introduced about android-based learning applications. Then they were directed to download the Lectora application via the provided Google Drive. While waiting for the download and installation process to complete, participants were asked to prepare content to be loaded into Lectora using powerpoint. The development of android-based learning applications in this training uses several applications such as powerpoint which functions to create learning application content including initial appearance, competence, material, and discussion. The content that has been created is converted into a video with MP4 format. In order for the video to be included in Lectora, the MP4 video must be converted into an FLV extension. The next most widely used application is Lectora. This application is used in creating learning media, without content and then publishing the media design into a learning application. The output application generated by Lectora with the apk extension is then converted using WEBINTOAPP online.

After the installation process is complete, the presenters then explain how to use the procedure they downloaded and continued with a systematic demonstration of media design. First, the presenter explains how to convert a powerpoint into a video that has sound and then convert the video into an FLV extension using online. After the participants collected the materials in the form of pictures, videos, learning materials and exercises about into one folder, they continued by designing a learning application with Lectora. All content that has been provided by the participants is then put together using the Lectora application.

One of the advantages of the Lectora application is that the media designs that have been made can be published in several forms of media such as applications that can be accessed by computers, HTML which can be used as a website, and also in the form of an autorun CD. After the participants complete the media design, it is continued with publication into an application with the exe extension. So that the application can be opened using an Android smartphone, it needs to be converted into an application with an apk or aab extension.

As explained earlier that the purpose of this training is to encourage participants to be able to create learning applications that can be accessed using an android smartphone, then at the end of the activity the presenters check the results of the participants' work. This aims to determine the percentage and progress of participants in doing the tasks as given based on the stages of activities as shown in the table below

**Table 1.** Percentage of participants who have completed the stages in the training

No	Activity Stage	Percentage (%)
1	installation of supporting applications/software	4.26
2	application framework design	10
3	Development and preparation of content which includes initial appearance, competencies, materials, questions and discussions, and quizzes.	71.43
4	learning application publication	14.26

Based on table 1, it can be seen that the majority of participants have been able to develop learning applications up to the stage of developing and compiling content which includes initial appearance, competencies, materials, questions and discussions, and quizzes. Meanwhile, there are 10 or 14.26% of the total participants who have succeeded in publishing the draft instructional media design which is made into a learning application with the exe extension. However, there are still 3 people (4.26%) who can only complete the software installation process needed to develop android-based learning applications.

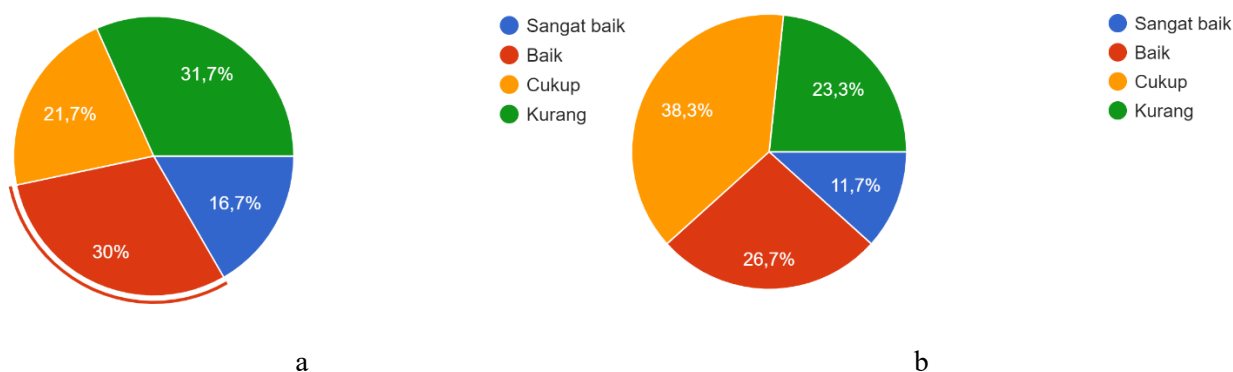
After analysis and evaluation, participants who took part in online training have completed an android learning application where they have reached the stage of publishing media designs into learning applications in both exe and apk extensions. Meanwhile, participants who take part in online training can only complete the tasks given at the maximum stage of content development and preparation. And there are still many who have difficulty in the installation and design stages of the application framework. This is the drawback of online training, where participants experience many problems such as receiving unclear information due to poor internet connection. In addition, the large number of participants made the presenters unable to serve participants who took part in online activities. Many participants only watched the presentation of the presenters but did not attend it due to the lack of available information. In addition, some participants have laptops that do not support the use of the Lectora application. In addition, there were also participants who had problems developing video content due to Microsoft PowerPoint not supporting video recording. Participants who successfully complete the learning application that they have made are then collected to the presenters as evaluation material for the next activity. There are several examples of applications that have been successfully created as shown in the image below:



**Figure 2.** Learning applications that have been successfully developed training participants who follow online (a) and offline (b)

Figure 2.a is a physics learning application that was successfully developed by prospective teacher students after attending training and mentoring several times. While Figure 2.b is a mathematics learning application that was successfully made by the participants after attending the training. In addition to the ease of using Lectora which does not require proficiency in programming languages, one of the advantages is the various kinds of templates that can be used for free, making it easier to design learning applications. Some of these templates are also very attractive and equipped with various features that are quite helpful.

As an evaluation material for the implementation of this training activity, all participants were asked to provide information about their level of mastery of the material and also their ability to follow the directions presented by the instructor. The results can be seen in the image below



**Figure 3.** The level of mastery of the concepts (a) and the ability to follow the instructor's instructions (b)

In Figure 3.a it can be seen that 31.7% of respondents felt they still did not master the material given by the instructor. However, there were 30% of respondents who stated that they mastered the material well and 16.7% had mastered the material very well. In addition, based on Figure 3.b, it can be seen that 38.7% are quite able to follow instructions from the presenters and 23.3% are less able to follow instructions in developing learning applications.

The number of participants who could not master the training material was because they had difficulty following the instructions given by the presenters. This problem is only experienced by participants who take part in online training. This is due to various factors such as (1) the speaker's voice is not clear due to the participants' internet connection, (2) the laptops owned by the participants do not support the use of the Lectora application, (3) due to poor connections, many participants are "in and out" during

the session. zoom application, (4) many participants are less focused in participating in online training. This is certainly an evaluation material for researchers or the government in carrying out online learning. However, in general, participants were satisfied with the implementation of this activity. Many participants stated that this material is new material and has never been obtained from other activities. In addition, they are happy to have been introduced and guided in making learning applications and hope that such activities will continue to be carried out by lecturers from universities.

## CONCLUSIONS AND SUGGESTIONS

### Conclusion

The implementation of training activities in developing android learning applications provides additional experience and new knowledge for lecturers, teachers and prospective lecturer students from several institutions. This activity received a very good response from the participants. This is indicated by the percentage of assessments given by most of the participants in the very good category. In addition, the majority of participants (71.43%) have been able to develop and compose content which includes initial appearance, competencies, materials, questions and discussions, and quizzes. And 14.3% of participants have been able to publish media designs made into learning applications. Simpulan menyajikan ringkasan dari uraian hasil dan pembahasan, mengacu pada permasalahan mitra. Berdasarkan kedua hal tersebut, uraikan faktor pendukung dan penghambat kegiatan

### Suggestions

There were various problems faced by participants in this activity, such as (1) the speaker's voice was not clear due to the participant's internet connection, (2) the laptops owned by the participants did not support the use of the Lectora application, (3) due to poor connections, many participants "left out". - enter" on the zoom application, (4) many participants are less focused in participating in online training. Therefore, in the future there should be an anticipation of internet connection problems. For example, participants are directed to use a provider according to their location or if possible, the training is only carried out offline while still paying attention to health protocols.

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