

Development of Ms. Edury Application as a Learning Resource and Its Effectiveness on Student's Learning Interest

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Abstract: Education in Indonesia faces major challenges that comes from the development of the industrial revolution 4.0. The lack of educators' attention in integrating technology in the learning process give more affects to the low interest of students learning. This study aims to developing Ms.Edury products based on Android application. Ms. Edury who has been validated as an expert and knows its effectiveness in increasing interest in learning history. The development process is carried out using the ASSURE model. The results of the linguist validation questionnaire, application design, and materials obtained successive mean values of 4.0, 4.5, and 4.4 which indicate minor revision qualifications. The results of the small group trial indicated an increase in the average pre-post test score from 41.3 to 79.1. The results of the large group trial indicated an increase in the pre-post test average from 51.1 to 78.2. Based on the effectiveness test for small groups and large groups, the values obtained were 0.89 and 0.78 respectively, which were included in the Large Effect category.

Keywords: Development, ASSURE Model, Learning Resource, Ms. Edury, Learning Interest

1. INTRODUCTION

Education in Indonesia faces major challenges from the development of the industrial revolution 4.0. The flow of globalization in the field of informatics causes students' learning experiences to focus on technology [1]. Integration between education and technology in the digital era always goes hand in hand, not only covering social media, e-commerce, and games [2]. The development of educational technology (Education Technology) and learning technology (Instructional Technology) requires the use of equipment that incorporates elements of technology in every lesson [3]. Educators are required to face these challenges by actualizing technology in the learning process [4]. Based on this explanation, the development of instructional facilities in the world of education is quite crucial in the technological era.

The integration of technology in the world of education affects the process of developing media and learning resources. The influence of technology in education & learning settings makes an educator must be prepared in developing learning instructional facilities [5]. Access to technology that is flexible, efficient, and close to users is accelerating changes in media and learning resources in the world of education [2][6]. Samsinar explained that professional educators must prepare strategies, media, and learning resources relevant to the Z and Alpha generations in order to create an up-to-date impression or not be left behind [7][8]. Platforms such as the Learning House Portal, Educational Television, and Educational Voice Radio are a form of realizing technology-based learning resources in the world of education[9][10]. Based on this explanation, the urgency of using technology in the development of learning resources and learning media is at

a crucial stage when viewed from the adjustment of students in the technological era.

The development process in this study uses the ASSURE Model. Smaldino deep his book argues that the ASSURE model can help educators plan the learning process, review student knowledge, conceptualize from the start, to integrate technology in the classroom [5]. The ASSURE model emphasizes educators to be productive, active and creative in order to optimally utilize learning resources and media in integrating technology [11]. The ASSURE Model development process has six stages like analyze learner; state standard and objectives; select strategiest, method and materials; utilize technology, media, and materials; requires learner participation; evaluate and revise [12].

Application Ms. Edury or Mobile Source Education History is software developed by developers as an Android-based history learning resource with adjustments to auditory, visual, and auditory-visual learning styles [5]. This application adapts the pattern used in the application Rumah Belajar namely inputting flipbooks, comics, and other interactive learning resources [13][9]. There are deficiencies in the application *Rumah Belajar* class XI history material has not been provided. This also triggers developers to develop Ms. Edury is expected to be used as an addition and complement to the application *Rumah Belajar* designed in the UI (User Interface) / UX(User Experience) different. The features developed in the Ms. Edury adapted to the results of needs analysis and analyze learner on ASSURE models.

Based on the results of observations and needs analysis questionnaires for educators, it can be described that in teaching history, educators make textbooks the main source of learning history. The use of technology in the process of learning history is not often done. This is actually surprising

considering that in the analysis of students' needs it is explained that school facilities are adequate (M: 3.61; SD: 4.96) and the school has provided wifi with good access (M: 3.24; SD: 0.78).

The four lowest points that the developer highlights are in the indicators Teaching Learning dan Inclusive Education. First, the historical learning resources provided increased my interest in learning (M = 2.39; SD = 0.704). Second, I have never experienced difficulties in the learning process (M = 2.39; SD = 0.590). Third, teachers often use historical learning resources in electronic form (M = 2.52; SD = 0.667). Fourth, I can always achieve high score without remedial on each history subject exam (M=2.61; SD=0.827).

Based on the four lowest points of the needs analysis, it can be concluded that history learning at SMA Negeri 01 Kesamben is not efficient for increasing students' interest in learning. The lack of alternative learning resources in the form of electronics causes students' learning interest to decrease [14]. Students also explain in the open needs analysis questionnaire that they are lazy to read, have difficulty opening electronic modules, and lack of understanding of students on the material history of resistance to colonialism and imperialism.

Based on this analysis, the development of android-based historical learning resources is needed to increase the interest of students who are still low. Ms. Application Edury is designed with interesting material visualization so that students' interest in learning can be awakened through interface which are given. Ease of access is also one of the developer's priorities in developing Ms. Edury so that educators more easily apply it in every lesson. Based on the needs analysis described above, the developer is interested in conducting development research under the title Development of Application Ms. Edury as a Learning Resource and Its Effectiveness on Student's Learning Interest.

2. RESEARCH METHODS

2.1 Development Model

This research is included in Research and Development (R&D) research [15]. The development research procedure carried out by developing the Ms. Edury in the history subject of class XI SMA Negeri 1 Kesamben uses the ASSURE model which has six stages as follows:

Analyze Learner

The first step in the ASSURE development design is to identify the characteristics of students. Student analysis activities were carried out using the Analyze Learner questionnaire in the form of a Likert scale and entries. The analyze learner questionnaire contains 3 main indicators, namely General Characteristics, Specific Competency Entry, and Learning Style.

1) General Characteristics

General characteristics are basic characteristics consisting of constant variables such as gender and ethnicity to dynamic variables such as income and attitudes [15]. The developer collects data on general characteristic aspects through an open questionnaire analyze learner with sub-indicators consisting of: gender, age, cultural, ethnic, social status, attitudes, and interests.

2) Specific Entry Competencies

Specific basic competence is the initial ability or knowledge possessed by students within the scope of a particular subject or subject [5]. Assessment of initial knowledge can be done through a questionnaire, pretest, or review of exam results. The developer collects data on the Specific Entry Competency aspect through a closed questionnaire analyze learner with sub-indicators consisting of: cognitive, affective, and psychomotor.

3) Learning Style

Learning styles are a series of forms and psychological characteristics regarding how a person interacts, responds, and feels towards his learning environment [5]. Assessment of learning styles is done using a questionnaire. The developer collects data on the Specific Entry Competency aspect through a closed questionnaire analyze learner with sub-indicators consisting of: cognitive, affective, and psychomotor.

State Standard and Objective

The second step in the assure development model is the State Objective. This stage requires the developer to formulate learning objectives as specifically as possible. The formulation of the learning objectives in this study was carried out by the developer by applying the ABCD concept of Well Stated Objective (Audience, Behavior, Condition, and Degree) [5]. The audience contains basic information about students, namely the place of education and the level taken. Behavior is a description of behavior verbs that will explain the specific abilities that students acquire after learning is carried out. Condition is a situation where students must get adequate facilities, equipment, facilities and infrastructure. Degree will discuss the types and abilities of students to understand the material to be studied [5][16]. The materials developed have been adapted to the needs analysis of students and analyze learners. Determination of the material will refer to the 2013 Curriculum which will then be analyzed per basic sub-competence.

Select Strategies, Method, and Materials

The purpose of this stage is to look for media methods or teaching materials needed by students to achieve learning goals [5]. The strategy for selecting methods, media and teaching materials is carried out systematically. The selection strategy can be carried out with several alternatives, namely:

(1) buying existing media and teaching materials, (2) modifying existing teaching materials (3) choosing, modifying or designing material specifically [17]. The developer will choose one of the several alternatives and adapt it to the application development process Ms. Edury. The second stage, the developer will choose the learning method that will be applied according to the results of the needs analysis. The third stage, the developer will choose the right media and be in sync with the chosen method.

Determining learning resources is done by choosing the right one and adjusting it to the needs of students so that they can increase their interest in learning and understanding. The fourth stage, material selection, will be based on the results of the needs analysis and analyze learner [5][15]. As for the details of the media, methods, and learning materials used by the developer, they are presented in the learning implementation plan or lesson plan.

Utilize Technology, Media, and Materials

The fourth step that the developer must take in the ASSURE development model is Utilize media and materials which will include: (1) reviewing learning resources and (2) preparing learning materials [5].

a. Previewing the Learning Resources

Developers do linguist, material, and design expert validation first at this stage. The first assessment is material expert validation which will be carried out by Dr. Retno Winarni, M.Hum as a lecturer in History at the University of Jember. The second assessment is the validation of linguists which will be carried out by Mr. Siswanto, M.A as a lecturer in Indonesian Language Education at the University of Jember. The third assessment is design expert validation which will be carried out by Mr. Yanuar Nurdiansyah ST.,M.Cs. as a lecturer at the Faculty of Computer Science, University of Jember. The results of the data obtained will be analyzed using the average calculation formula [15]. The results of the analysis will determine the feasibility of the application and whether or not revision of the Ms. application is necessary. Edury as a source of learning history.

b. Preparing the Materials

This activity was carried out before the testing phase of the large group of class XI IPS 1 students. The steps taken were to ensure that every feature in the Ms. Edury worth using. Several features such as infographics, comics, and materials can be loaded easily because they don't require a lot of resources. Crucial features such as audio, video, and questions to do can be sure to be used properly because they require quite large resources. The material download feature also needs to ensure that students have a Gmail account so they can download it. Cross-checking school Wi-Fi connectivity is also the right step so that in implementing the Ms. Edury can run smoothly [18].

Required Learner Participation

The fifth step, namely Require Learner Participation, will involve students in the learning process. Activities will be focused on small and large group trials with questionnaires as indicators of interest in learning using the Discovery Learning Method. This activity was carried out first on 15 students for small groups, and 30 students for large groups. Students will then be given a questionnaire indicator of interest in learning as part of the pre-test. This questionnaire will be given before and after using the Ms. Edury. The purpose of giving an interest in learning questionnaire is to find out the increase in students' interest in learning after being given treatment in the form of the Ms. application. Edury. The activity was continued by giving questions regarding the Padri War material which would then be discussed by the students. Students presented the results of the discussion which were then responded by other groups after conducting the discussion. The activity ended by giving a post-test questionnaire in the context of an assessment of students' learning interests after implementing learning products [5].

The results obtained at this trial stage will be presented in the small and large group trial results. Analysis activities were carried out using SPSS as data analysis software. The first analysis will be carried out with a normality test which is intended to determine the level of normality of a data [19]. The second step is the Paired Sample T-test to determine whether there is a difference between the two paired samples (pre test & post test). The last step is the effectiveness test which is used to measure the value of the effectiveness of the application on students' learning interests [20]. The process of measuring the value of effectiveness uses a formula using the Eta Squared type Effect Size formula [21]. The results obtained from expert validation tests, user tests, and Ms application effectiveness tests. Edury as a source of learning history will become material for study at the evaluate and revise stage.

Evaluate and Revise

The last stage of the ASSURE development model is evaluation and revision. Smaldino in his book explains that the evaluate and revise stage has an urgency in creating higher quality cognitive changes in students [5]. Evaluate and revise activities are carried out by conducting an assessment of the validation results of linguists, application design, and materials. The assessment process is carried out by linking the validation results with previous studies with the application of learning resources similar to Ms. Edury. The second assessment was carried out on the results of the effectiveness test by explaining the meaning of the effectiveness of the Ms. application. Edury in increasing interest in learning history and associating it with features in applications such as comics, infographics, video, audio, and downloading resources. The results of evaluate and revise will have an influence on the Ms. application development cycle. Edury on further studies.

2.2 Data Collection

The analysis tools, media, material, and language expert validation tools, interview tools, and user test tools were all

utilised in this development. Making a questionnaire grid for each instrument is the first step in the questionnaire preparation process.

The historical analysis tool uses a Likert scale with four assessment scores and takes the form of a needs analysis questionnaire. While the expert validation tool employs a Likert scale with four possible outcomes. Respondents may provide brief answers in the form of open-ended questions on descriptive instruments. In this study, questionnaires, tests, and interviews were utilized to gather data for the development of Ms. Edury learning resources. A questionnaire is used in this study to assess the viability of things like media, language, and application

2.3 Data Analyze

Expert validation involves three experts who are competent in the fields of language, application design, and materials. Data collection techniques using a questionnaire with a Likert scale. The validation results are then calculated using the mean formula as follows:

$$\bar{x} = \frac{\sum x_i}{n} \quad (1)$$

Information :

\bar{x} : validation average value

$\sum x_i$: Number of validation result values

n : The total number of question items [22].

Table 1. Product Eligibility Criteria

Achievement	Description	Information
$4,6 \leq R < 5,0$	Outstanding	Application can be used without revision
$3,6 \leq R < 4,5$	Above Average	Applications can be used with minor revision
$2,6 \leq R < 3,5$	Average	Applications can be used with moderate revision
$1,6 \leq R < 2,5$	Below Average	Applications can be used with major revision
$1,0 \leq R < 1,5$	Unsatisfactory	The application cannot be used [15]

Normality Test

The normality test of this research was carried out on the instrument data of students' interest in learning. Increasing students' interest in learning when using the Ms. application. Edury can be known through indicators of interest in learning, namely: (1) Happy Feeling, (2) Attention of Student, (3) Interest, and (4) Involvement of Student The results of the normality test are related to the normality of the data

distribution. The normality test is carried out to see whether the data taken is normally distributed or not [23]. The normality test process was carried out using the Kolmogorov-Smirnov method with the help of the SPSS application. The following is a table pattern of data normality test results:

Table 2. SPSS Normality Test Results

	Kolmogorov-Sminov		
	Statistic	Df	Sig.
Total Preceived Test	0,069	433	0,00

The table assesses that the normality of the distribution of data with values Significant which is more than 0.05 indicates normally distributed data. If value Significant 0.000, it is necessary to retest because there is a violation of the normality assumption, but this is very common in large samples (> 30).

Paired Sample T-Test

Data that has been normally distributed indicates that it can be tested Paired Sample T-test. The test was conducted to find out whether there is a difference in the mean of the two paired samples. Test Paired Sample T-test is part of parametric statistics which is carried out on one group with different opportunities and conditions and it is assumed that the data is normally distributed first. Test Paired Sample T-test this research was conducted on the data of the learning interest instrument [21]. Here is the test formula Paired Sample T-test:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2} - 2r\left(\frac{S_1}{n_1}\right)\left(\frac{S_2}{n_2}\right)}} \quad (2)$$

Information:

t = value of Paired Sample T-test

\bar{x}_1 = mean sample before treatment

\bar{x}_2 = mean sample after treatment

S_1^2 = standard deviation before treatment

S_2^2 = standard deviation after treatment

n_1 = number of respondent before treatment

n_2 = number of respondent after treatment

r = correlation between two sample

The data processing stage was carried out by collecting pre-test and post-test data. After the data is collected, the data is processed using SPSS 19 for Windows. The collected data is then tested using Paired sample T-test. This development research uses a significance level of 0.05 with the following testing criteria:

- If the significant value (2-tailed) < 0.05 then H0 is accepted (there is a significant difference between the initial variable and the final variable)
- If the significant value (2-tailed) > 0.05 then H0 is rejected (there is no significant difference between the initial variable and the final variable)

It should be noted that this measurement does not explain how big the influence is treatment to students, therefore it is necessary to do a follow-up test called Effectiveness Test.

Effectiveness Test

The next step is to measure the effectiveness of learning history after using the Ms. Edury. The effectiveness test was carried out on product trial instruments with indicators of students' interest in learning. Measuring the effectiveness of the data using the formula *Effect Size* type *Eta Squared*. The following shows the formula used:

$$Eta\ Squared = \frac{t^2}{t^2 + (N-1)} \quad (3)$$

Information :

t : t value in the table *Paired Sample T-test*
 N : Number of samples[21]

Based on the data obtained, it can be seen the level of effectiveness of the Ms. application. Edury in increasing interest in learning history. The results of the effectiveness analysis obtained are then converted into a descriptive qualitative form. The following are the test interpretation criteria *Effect Size* type *Eta Squared* in the following table:

Table 3. Criteria for Testing the Effect Size of the Eta Squared Type

Eta Squared	Effect Size
0,01	<i>Small Effect</i>
0,06	<i>Moderate Effect</i>
0,14	<i>Large Effect</i>

3. RESULT AND DISSCUSION

The results and discussion of this study will describe matters which include: (1) stages in the Ms. application development process. Android-based Edury using the ASSURE model, (2) studies related to the validation results of media, material, and language experts, as well as the effectiveness of using the Ms. application. Edury on increasing students' learning interest in learning history.

Analyze Learner

Data on stages *Analyze Learner Characteristic* taken through a questionnaire in the form of a Likert scale and essay. This process begins with compiling a needs analysis questionnaire and questionnaire *analyze learner* indicator *General Characteristic*, *Specific Competency Entry*, and *Learning Style*. The information and data needed were taken from 33 students of Class XI IPS 1 SMA Negeri 01 Kesamben.

Needs Analysis

Table 4 Table of Student Needs Analysis Results

Question	\bar{x}	N	min	max	σ
1	3.12	33	1	4	0.781

Question	\bar{x}	N	min	max	σ
2	3.00	33	2	4	0.829
3	3.61	33	3	4	0.496
4	3.18	33	2	4	0.635
5	3.24	33	2	4	0.708
6	3.15	33	1	4	0.755
7	3.27	33	2	4	0.574
8	2.79	33	1	4	0.857
9	3.00	33	2	4	0.707
10	2.52	33	1	3	0.667
11	3.00	33	1	4	0.75
12	2.61	33	1	4	0.827
13	2.39	33	1	3	0.704
14	3.15	33	2	4	0.619
15	3.06	33	1	4	0.788
16	3.27	33	1	4	0.674
17	3.00	33	1	4	0.612
18	3.27	33	2	4	0.626
19	3.42	33	1	4	0.83
20	3.18	33	2	4	0.584
21	3.30	33	2	4	0.585
22	3.03	33	1	4	0.77
23	2.79	33	1	4	0.893
24	2.39	33	1	4	1.059
25	3.24	33	1	4	0.792

The first is in question 13 which explains that learning history is not enough to increase interest in learning history (M = 2.39; SD = 0.704). The second is on question 24 which explains that students have difficulty solving historical questions (M = 2.39; SD = 1.590). The third is in question 10 which explains that educators do not make use of electronic learning resources (M = 2.52; SD = 0.667). The fourth is in question 12 which explains that students are unable to achieve KKM without remedial on history exams (M=2.61; SD=0.827). The conclusion that we can draw from the 4 lowest points is that history learning at SMA Negeri 01 Kesamben is less efficient in increasing students' interest in learning. Lack of alternative learning resources in the form of electronics causes students' interest in learning to decline. This was reinforced by the question items in the open questionnaire which explained that students were lazy to read, had difficulty opening the module, and lacked understanding of the historical material against colonialism and imperialism.

General Characteristic

General Characteristic data collection is done through a closed questionnaire with sub-indicators consisting of constant variables such as *gender*, *age*, *ethnicity* and dynamic variables such as *social status*, *attitude*, and *interest*. Aspect *General Characteristic* carried out to obtain strategic and targeted information in planning learning programs and learning resources developed.

Based on the results of the general characteristics of 32 students, the following data is obtained: (1) class XI IPS 1 consists of 30.3% boys and 69.7% girls. (2) Aspect *Age* students identified that 15.2% were 16 years old, 69.7% were

17 years old, and 15.2% were 18 years old. (3) Aspect *ethnic* it was identified that 93.9% of the students were Javanese, besides that 6.1% were Javanese-Sundanese and Minang. (4) Aspect *social status* Regarding the work of parents of students it was identified that 36.4% worked as farmers, 24.2% worked as traders, 15.2% worked as private individuals, 12.1% worked as laborers and 12.1% other jobs. (5) Aspect *social status* Regarding the salary of students' parents it was identified that 75.8% earned less than Rp. 1,500,000/month, 18.2% earn between 1,500,00 to Rp. 3,000,000/month, and 6.1% earn above Rp. 3,000,000/month. (6) Aspect *interest* regarding the material that students lack mastery of, it was found that 63.6% had difficulty with the material *Imperialism Before the Birth of National Consciousness*, 15.1% on matter *The Impact of Colonialism and Imperialism on the Indonesian Nation*, 12.1% on matter *The Development of Colonialism and Imperialism in Indonesia*, and others by 9.1%.

Specific Competency Entry

Data retrieval *Specific Competency Entry* carried out through the assessment of multiple choice questions and essays with sub-indicators that refer to KD 3.1 *analyze the arrival and development of European colonialism, as well as its impact on the Indonesian nation* and KD 3.2 *analyze the Indonesian resistance strategy against European colonialism (Portuguese, Spanish, Dutch, English) up to the 20th century*. Assessment *Specific Competency Entry* in this research was conducted to see the level of initial knowledge of students within the scope of the subject of history class XI senior high school odd semester. Result of *Specific Competency Entry* it was found that the sub-matter of discussion that was not mastered by students was the Padri War. This is shown in the question *Specific Competency Entry* item x_4 ($M: 0.76$; $SD: 1.82$) and x_{12} ($M: 3.42$; $SD: 1.66$) which is an item with *mean* the lowest.

Learning Style

Data retrieval *Learning Style* carried out through an open questionnaire assessment with sub-indicators in the form of visual, auditory and auditory visual. Evaluation *Learning Style* in this research was conducted to determine the tendency of students' learning patterns in dealing with Indonesian History subjects.

Table 5. Table of Learning Style Results

Question	\bar{x}	N	min	max	σ
17	2.97	33	1	4	0.637
18	2.94	33	1	4	0.788
19	3	33	2	4	0.829
20	3.09	33	2	4	0.522
21	2.58	33	1	4	0.751
22	2.67	33	1	4	0.99
23	2.88	33	1	4	0.857
24	2.58	33	1	4	1.032
25	2.97	33	1	4	0.81

The three highest points in the learning style questionnaire results were in question 20, it was found that students liked video-based learning ($M: 3.09$; $SD: 0.522$). Second, in question 19, students like innovative learning resources such as infographics, comics, posters, and flipbooks ($M: 3.00$; $SD: 0.829$). Third, in question 25 which explains that students like learning that displays lots of pictures ($M: 2.97$; $SD: 0.637$). Based on these results, the development of the Ms. Edury will have features such as comics, infographics, materials, questions, downloadable resources, learning videos, and learning audio as a form of coverage of identified student learning styles.

State Standard and Objective

The stages of the State Objective are carried out by applying the ABCD concept of Well Stated Objective. The data retrieved includes the acronym ABCD in the concept, namely Audience, Behavior, Condition, dan Degree. Based on needs analysis data and analyze learner It is known that the first aspect Audience in this study attended SMA Negeri 01 Kesamben and studied at the XI IPS 1 class level. The second aspect Behavior data obtained that students have a tendency to learn with the visual auditory system. Based on the results *Specific Competency Entry*, it is known that the verb in the subject of Indonesian history used in the odd semester class XI IPS 1 is analyze. The third aspect Condition data obtained that SMA Negeri 1 Kesamben already has learning support facilities and infrastructure such as wifi, conducive classrooms, and projector screens.

The fourth aspect Degree data obtained that student do not understand the Padri War material. The selection of Padri War material is based on analysis *Specific Competency Entry* which is one of the stages of the Analyze Learner Item x_4 ($M: 0.76$; $SD: 1.82$) and x_{12} ($M: 3.42$; $SD: 1.66$) which represent basic sub-competen strategy of the Indonesian nation's resistance to European colonialism (padri war material) with the lowest average. Based on these, degree or the expected level is that the students are able to understand the basic concepts of padri war found in timeline: (1) the civil war between the Padri and the Indigenous people (1803-1821), (2) the war between the Indigenous people assisted by the Dutch and the Padri (1821-1825), and (3) the War Between the Padri Unity and the Indigenous People Against Netherlands (1831-1838) [24]. The basic competency that the developer refers to is the 2013 Curriculum.

Select Strategies, Method, and Materials

The third stage of the ASSURE model is carried out by selecting a strategy for developing historical learning resources, selecting methods, selecting learning resources, and selecting teaching materials.

Select Strategies

The selection of learning resource development strategies can be done with several alternatives, namely: (1) buying existing learning resources, (2) modifying available learning

resources (3) choosing, modifying or designing learning resources specifically [17]. Ms. Application Edury requires material that is modified and designed to meet the needs of students' learning styles (auditory, visual, and auditory visual). Based on this explanation, the developer chose the third option, namely select, modify or design learning resources specifically in designing Ms. applications. Edury as a learning resource for students.

Select Method

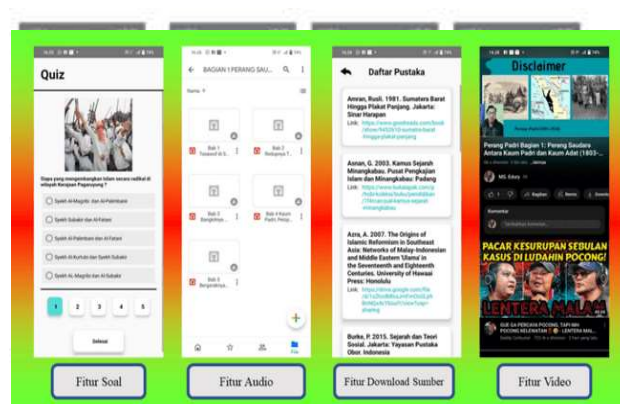
The method chosen by the developer is Discovery Learning. Method discovery or discovery is a learning method that encourages students to obtain answers to a problem or phenomenon. The choice of this method was adjusted to the needs analysis questionnaire in question 13 which explained that history learning was not enough to increase interest in learning history ($M = 2.39$; $SD = 0.704$). The application of this method makes educators act as facilitators to make it easier for students to achieve learning objectives. Purpose of using the method discovery is to stimulate students to have experience through direct involvement in the search process for credible information so as to increase their interest in learning.

Select Learning Resources

Selection of learning resources is done by selecting learning resources appropriate and adapted to the needs of students, namely the application Ms. Edury Android based. This was adjusted to the results of the needs analysis in question 28 with the results showing that 81.8% of the 33 students wanted software-based learning resources in learning history. The use of android besides having closeness with students, this is intended so that students have a high reading interest in historical material and increase their understanding. The reading interest of students in the technological era towards Android is very high. This is proven in Liu's research entitled Development of Android Application for Language Studies which discusses the use of android in language learning and gets a satisfactory response [25]. Based on this, the learning resources chosen by the developer are Ms. Application Edury. This is in line with the results of the needs analysis regarding learning resources that you want to use to facilitate the process of learning history.

Select Materials

The material selected by the developer is Padri War. Material selection is based on results Specific Competency Entry which shows that the Padri War material has the lowest average (item x4 ($M: 0.76$; $SD: 1.82$) and x12 ($M: 3.42$; $SD: 1.66$)). Development of materials tailored to the results Analyze Learner expected to be on point on the material problems faced by students. As for the details of the media, methods, and learning materials used by the developer, they are presented in the learning implementation plan or lesson plan. The following is the interface of the Ms. application. Edury :



Ms application login feature. Edury consists of a username section to enter an account name, a password to enter an account password, a login to enter the Ms. Edury, whose account name has been identified, and register if you don't have an account Ms. Edury. The user registration process can act as a teacher or student. Acting as a teacher will give users rights to create classes, change the contents of questions, infographics, and comics. Logging in as a student will give the user access rights to enter the teacher's enroll which can then immediately access all the features of the Ms. application. Edury.



Figure 2. Main Page, Comic, Infographic, and Profile

Main page of Ms. Edury contains the features that have been provided, starting from profiles, comics, infographics, and materials. The profile feature will display the user's identity according to the identity provided when registering an account. The comic feature will give users direct access to learning resources in the form of comics based on Padri war material scroll line vertical. The infographic feature will display learning resources in the form of infographics on Padri war material with scroll line horizontal.

Figure 3. Material page

The material page consists of material that will be presented by educators, namely Padri war material. The sub-material page contains sub-sections of the main subject of the Padri war, namely: (1) the war between the Padri people and the Indigenous people (1803-1821), (2) the war between the Indigenous people assisted by the Dutch and the Padri people (1821-1825), and (3) the war between the Padri and Indigenous peoples against the Dutch (1831-1838). Basic Competency Prompt was created so that students know the material and learning objectives to be pursued. The features on the material page specifically consist of sections for reading material, audio, video, questions, and download material (the bottom button is in the form of a plus). The reading feature will give users access rights to read the materials that have been presented.



Figure 4. Question, Audio, Download Source, and Video Features

The question feature will provide access to users to work on the questions given according to the KD selected. The value of the question will automatically appear in the score section. The audio feature will give users access rights to listen to integrated learning audio Google Drive. It is certain that students must have a Gmail account before using the audio feature application. The source download feature will provide access to users to download the selected learning resource. Students must open Google Drive to access the download resource feature. The video feature will provide access to users to view integrated learning on Youtube's video.

Utilize Technology, Media, and Materials

The fourth step in the ASSURE development model is carried out by reviewing learning resources. Review of learning resources is done through an expert validation questionnaire. The first assessment, namely material expert validation, was carried out by Dr. Retno Winarni, M.Hum as a lecturer in History at the University of Jember. The second assessment is the validation of linguists which will be carried

out by Mr. Siswanto, M.A., as a lecturer in Indonesian Language Education at the University of Jember. The third assessment is design expert validation which will be carried out by Mr. Yanuar Nurdiansyah, ST., MCs., as a lecturer at the Faculty of Computer Science, University of Jember. The results of the data obtained will be analyzed using the formula average calculation [15]. The results of the analysis will determine the feasibility of the application and whether or not revision of the Ms. application is necessary. Edury as a source of learning history. The following is the result of expert validation and user testing obtained by the developer:

Application Expert Validation Results Ms. Edury

Linguist Validation

Linguist validation is carried out regarding a review of the language used in the Ms. application. Edury and its suitability with the proper rules of the Indonesian language. The developer validated the linguist to Mr. Bambang Edi Purnomo, S. Pd., M. Pd., as a lecturer in the Indonesian Language and Literature Study Program, University of Jember. Assessment is carried out on aspects of: (1) *language fluency* (2) *Terminology accuracy* (3) *The suitability of language with the level of thinking of students*, (4) *Grammatical and spelling accuracy*, and (5) *The ability to arouse the curiosity of students*. Based on the assessment that has been given to the linguist validation questionnaire instrument, the following data is obtained:

Table 6 Statistical Analysis of Language Validation

	X	N	xi	Min	Max	σ
Linguist Validation Data	4.0	10	40	3	5	.667

(Source: Primary data processed)

Based on the results of the validation that has been carried out on these five aspects, an average result of 4.0 is obtained. These criteria are included in *Above Average* or above average. The validation results show that the Ms. Edury can be used in research but with *minor revision*. Regarding the results of the linguist validation comments, the developer has carried out a process of revising and improving the Ms. Edury which is presented in the following table:

Table 7. Revised Linguist Validation Results

No	Description	Information
1.	There are several spelling errors in the questions and materials	Improvements have been made to the spelling in the questions and the spelling in the material
2.	There are some spelling errors in the	Spelling corrections have been made in writing chapters and sub-chapters

writing of chapters
and sub-chapters

(Source: Primary data processed)

Application Design Expert Validation

Validation of application design experts is carried out related to a review of UI flexibility (*User Interface*)/UX (*User Experience*) on the Ms. application. Edury. The developer validated the application design expert to Mr. Januar Adi Putra, S. Kom., M. Kom., as a lecturer at the Faculty of Computer Science, University of Jember. Assessment is carried out on aspects of: (1) *Learning goals*, (2) *Design interest*, (3) *Material source match*, (4) *Self Instruction*, (5) *Learning Interest*, and (6) *User Friendly*. The assessment was carried out to the application design expert validator on August 8, 2022. Based on the assessment that was given to the application design expert validation questionnaire instrument, the following data was obtained:

Table 8 Statistical Analysis of Application Design Validation

	x	N	Xi	Min	max	σ
Application Design Validation Data	4.5	13	58	3	5	.776

(Source: Primary data processed)

Based on the results of the validation that has been carried out on these five aspects, an average result of 4.5 is obtained. These criteria are included in *Above Average* or above average. The validation results show that the Ms. Edury can be used in research but with *minor revision*. Regarding the results of the validation comments from the application design expert, the developer has carried out a process of revising and improving the Ms. Edury which is presented in the following table:

Table 9 Revision of Application Design Expert Validation Results

No	Description	Information
1.	The application needs to be made more dynamic	Improvements have been made to MS application features. Edury so that it can run dynamically and smoothly
2.	User Interface and User Experience need to be optimized	UI and UX changes have been made to the Ms. Edury, especially in the comic zoom section, integration with video and audio, as well as displaying images for each question and sub-chapter.

(Source: Primary data processed)

Material Expert Validation

Material expert validation is carried out in relation to a review of the complexity, coherence, and suitability of the material with the expected competencies in the Ms. Edury. The developer validates the material expert to Dr. Retno Winarni. M.Hum., as a lecturer in History of the Faculty of Cultural Studies, University of Jember. Assessment is carried out on

aspects of: (1) *Suitability of the material with learning instruments*, (2) *Substance truth*, (3) *Serving order*, (4) *Compatibility of images, videos and audio with the material*, (5) *Suitability with learning styles*, and (6) *Material effectiveness*. The assessment was carried out to the material expert validator on August 10, 2022. Based on the assessment that was given to the material expert validation questionnaire instrument, the following data was obtained:

Table 10 Statistical Analysis of Material Experts

	x	N	xi	min	max	σ
Linguist Validation Data	4.4	14	62	4	5	.514

(Source: Primary data processed)

Based on the results of the validation that has been carried out on these five aspects, an average result of 4.4 is obtained. These criteria are included in *Above Average* or above average. The validation results show that the Ms. Edury can be used in research but with *minor revision*. Regarding the results of the material expert validation comments, the developer has carried out a process of revising and improving the Ms. Edury which is presented in the following table:

Table 11 Revision of Material Expert Validation Results

No	Description	Information
1.	Make improvements to the chaos at the time of the Padri war (implied)	Improvements have been made regarding the chaos at the time of the Padri war by categorizing it into 3 parts, namely the Civil War (1803-1821), the War between the Padri against the Indigenous people assisted by the Dutch (1821-1825), and the Joint War against the Dutch (1831-1838).
2.	Materials and content can be further supplemented by referring to Prof.'s book. Dr. Azyumardi Azra, M.A.(implied)	Some of the material content has been changed to refer to the book by Prof. Middle East Ulama Network. Dr. Azyumardi Azra

(Source: Primary data processed)

User Test

User tests are carried out regarding the feasibility of the Ms. application. Edury as an Android-based history learning resource before it is used massively by students. The developer conducted a user test on Ms. Reni Jatiwulan, S. Pd., as a history educator at SMA Negeri 01 Kesamben. Assessment is carried out on aspects of: (1) *Instructional Design*, (2) *Design interest*, (3) *User Friendly*, (4) *Stand Alone*, and (5) *Learning Style*. The assessment was carried out to educators on August 19, 2022. Based on the assessment that was given to the material expert

validation questionnaire instrument, the following data was obtained:

Table 12 User Test Statistical Analysis

	x	N	xi	U	O	σ
Linguist Data	4.2	13	54	4	5	.376

(Source: Primary data processed)

Based on the results of the validation that has been carried out on these five aspects, an average result of 4.2 is obtained. These criteria are included in *Above Average* or above average. The validation results show that the Ms. Edury can be used in research but with *minor revision*. Regarding the results of educator comments on the Ms. Edury, the developer has carried out the process of revising and improving the Ms. Edury which is presented in the following table:

Table 13 Revision of User Test Comment Results

No	Description	Information
1.	Applications can be used more stable on low connections	Fixed network bug issue on low connection
2.	Content, images, and infographics are reproduced	Additional content files, images, and infographics have been inputted

(Source: Primary data processed)

Required Learner Participation

The Required Learner Participation stage will involve students in large and small group trials. The trial will be carried out on 15 students for small groups and 30 students for large groups with instruments measuring the effectiveness of the interest in learning indicator questionnaire using the Method *Discovery Learning*. The trial results will be presented as follows:

Small Group Trial

The next stage after conducting user tests on students is to conduct small group trials using a learning interest questionnaire. The small group tryout was held on August 22, 2022. The small group tryout involved 15 students from class XI IPS 1 SMA Negeri 1 Kesamben. At this stage the developer carries out the learning process *Discovery Learning* in the subject of Indonesian History Padri War Material using the Ms. Edury. The activity was continued by filling out a pre-test and post-test questionnaire for indicators of interest in learning.

Small Group Data Normality Test

The analysis phase is continued with the normality test first so that the data from the analysis of interest in learning history can be known for its distribution value. The developer uses the type normality test *kolmogov-smirnov* and obtained the following results:

Table 14 Test Analysis Results Kolmogov-Smirnov Small Group

	X	N	min	Max	p.
Small Group Pre Test	41.33	15	29.00	54.00	.200 _{c,d}
Small Group Post Test	79.13	15	64.00	90.00	.200 _{c,d}

(Source: Primary data processed)

Based on the normality test on 15 small group data, a pre-test and post-test significance value of 0.200 was obtained. The results of the normality test obtained the value of Sig. > 0.05 which indicates that the data is normally distributed and can be continued to the stage *Paired Sample T-Test*.

Small Group Paired Sample T-Test Test

The next step after the data is declared normal is to look for the effectiveness of the product *Uji Paired Sample T-Test*. This test was conducted to determine the effectiveness of the Ms. application. Edury in increasing interest in learning history. Based on test results *Paired Sample T-Test* in the SPSS application, the following results are obtained:

Table 15 Small Group Paired Sample T-Test Results

	x	N	σ	σ _t	r	t	df	A	p.
Pre Tes t	41.33	15	8.87	13.6	-	-	14	0.0	.0
Pos t	79.13	15	7.63	3	0.428	10.48	3	5	00

(Source: Primary data processed)

Based on the table, it can be seen that the mean pre-test value is 41.3 (SD = 8.88) and the post-test mean value is 79.1 (SD = 7.63). These results mean that with the application of Ms. Edury in the subject of Indonesian History has been able to increase students' interest in learning by 37.8. The table above also shows that there is a positive relationship between pre-test and post-test with grades $p. < 0.05$. This means that there is a significant difference between interest in learning history before and after using the Ms. Edury. Based on the results of this analysis it can be concluded that the application development of Ms. Edury has proven to be effective in increasing students' interest in learning history in small group trials.

Small Group Data Effectiveness Test

The analysis phase is continued by testing the value of the effectiveness of the Ms. application. Edury in increasing interest in learning history using formulas *Eta Squared*. Following are the results of the effectiveness analysis using the formula *Eta Squared*:

$$Eta\ Squared = \frac{t^2}{t^2 + (N-1)} \quad (4)$$

$$= \frac{(-10,154)^2}{(-10,154)^2+(30-1)}$$

$$= \frac{103,1}{103,1+29}$$

$$= 0,78$$

Based on the results of the application effectiveness test Ms. Edury in increasing interest in learning history, obtained a value of 0.89 which is included in the qualification *Large Effect*. These results mean that the application of Ms. Edury has proven to have a major influence in increasing students' interest in learning history in small group trials.

Large Group Trial

After the product has gone through the stages of expert validation, user testing, and small group testing, the next stage is a large group test involving 30 students of class XI IPS 1 SMA Negeri 1 Kesamben as respondents. The large group trial was carried out on August 23, 2022. At this stage the developer carried out a learning process similar to the small group trial, namely *Discovery Learning* in the subject of Indonesian History Padri War Material using the Ms. Edury. The activity was continued by filling out a pre-test and post-test questionnaire for indicators of interest in learning.

Large Group Data Normality Test

The analysis phase is continued with the normality test first so that the data from the analysis of interest in learning history can be known for its distribution value. The developer uses the type normality test *kolmogov-smirnov* in large group trials. The presentation related to the results of the large group normality test in class XI IPS 1 SMA Negeri 1 Kesamben is as follows:

Table 16 Large Group Kolmogorv Smirnov Test Results

	X	N	Min	max	p.
Large Group Pre Test	51.13	30	20	78	.197 c,d
Large Group Post Test	78.17	30	54	90	.200 c,d

(Source: Primary data processed)

Based on the data in table 18, the significance value obtained from the pre test is 0.197 and the post test is 0.200. Both of these values mean that the data is normally distributed because the value of Sig. >0.05. Developers can continue the data analysis process to the test phase *Paired Sample T-Test*.

Large Group Paired Sample T-Test Test

After the data is declared normal, the next step is to test the data using *Uji Paired Sample T-Test*. This test was conducted to determine the effectiveness of the Ms. application. Edury in increasing interest in learning history. Based on test results *Paired Sample T-Test* in the SPSS application, the following results are obtained.

Table 17 Results of the Large Group Paired Sample T-Test

x	N	σ	σ _t	R	t	Df	a	p.
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Pre	51.	3	12.8	14.5	-	-	29	0.05	.00
Tes	13	0	11		0.0	10			0
t					77	.1			
							54		
Pos	78.	3	8.01						
t	17	0	8						
Tes									
t									

(Source: Primary data processed)

Based on the table it can be seen that the mean pre-test value was 51.13 (SD = 18.81) and the post-test mean value was 78.17 (SD = 8.02). These results mean that with the application of Ms. Edury in the subject of Indonesian History has been able to increase students' interest in learning by 27.1. The table above also shows that there is a positive relationship between pre-test and post-test with grades **p.** < 0.05. This means that there is a significant difference between interest in learning history before and after using the Ms. Edury. Based on the results of this analysis it can be concluded that the application development of Ms. Edury has proven to be effective in increasing students' interest in learning history in large group trials.

Large Group Data Effectiveness Test

The analysis phase is continued by testing the value of the effectiveness of the Ms. application. Edury in increasing interest in learning history using formulas *Eta Squared*. Following are the results of the effectiveness analysis using the formula *Eta Squared* in large groups:

$$Eta\ Squared = \frac{t^2}{t^2+(N-1)} \tag{5}$$

$$= \frac{(-10,154)^2}{(-10,154)^2+(30-1)}$$

$$= \frac{103,1}{103,1+29}$$

$$= 0,78$$

Based on the results of the application effectiveness test Ms. Edury in increasing interest in learning history, obtained a value of 0.78 which is included in the qualification *Large Effect*. These results mean that the application of Ms. Edury has proven to have a major influence in increasing students' interest in learning history in large group trials.

Evaluate and Revise

Conclusion of Expert Validation and User Test

The expert validation study contains a review of Ms. Edury that has been validated and is suitable for use in the learning process. The linguist validation questionnaire was adapted from the journal Development of Learning Media on Transformational Materials with the Assistance of I-Spring Using an Ethno Math-Based Approach [26]. Ratnaningsih said that the accuracy of terms, spelling, and grammar in compiling modules and learning tools has a major influence on students' understanding of material [26]. Richard & Roger also stated that the development of a language learning device must be

guided by accuracy and fluently language, role of vocabulary, role of grammar, and continuity of language [27]. The purpose of paying attention to these factors is to improve abilities memorizing and receptive sensory on students. Improvements in these two aspects will also increase students' interest in learning in a sustainable manner [27].

The material expert validation questionnaire was adapted from the journal Validation Test of Local Advantage based Teaching Materials at Gili Matra Elementary School [28]. Sukri explained that the assessment components on material aspects must be seen from the truth, suitability, and accuracy of the material on the learning substance [28]. The learning style component inputted by the developer into the questionnaire refers to Hawk & Shah's opinion regarding the potential of learning styles in increasing students' understanding of material [29]. Hawk & Shah explained that aspects of clarity and immediacy in a material have an influence on students' learning styles and concentration [29]. In line with this, Catherine Mc. Loughin explained that the interaction between students and the material provided will have an impact continually on students' understanding and learning styles [30].

The application design validation questionnaire was adapted from the journal Use of Cosmopolite 1 Textbook for Learning Français Langue Étrangère. Intan explained that making a technology-based teaching material explicitly cannot be separated from its aspect self instructional, self contained, stand alone, adaptive, and user friendly [31]. In line with this, Sivakumar & Reddy explained that making technology-based learning resources formed from UI and UX aspects is a basic element in increasing students' interest and learning motivation. The better the UI and UX control of a learning resource application, the more students' love for learning [32].

The results of the analysis of language validation questionnaire data obtained an average value of 4,0 which means the language content in the Ms. application. Edury has the qualifications Above Average. The validation results of application design experts obtained an average value of 4,5 meaningful design in Ms application. Edury has the qualifications Above Average. The results of the material expert validation obtained an average value of 4,4 means the material in the Ms. application. Edury has the qualifications Above Average. Through validation it can be concluded that the Ms. The developed Edury is suitable for use in the history learning process and is categorized Above Average. This category means that the validated application can be applied properly but needs to be done minor revision [15].

Effectiveness of Ms. Edury Application on Student's Historical Interest

Product studies in increasing the effectiveness of historical learning contain studies on development products that have been validated and are suitable for use in the learning process. The interest in learning questionnaire was adapted from Hurlock's study of interest in learning in books.

Developmental Psychology: An Approach Throughout the Range Time [33]. Hurlock explained that indicators of interest in learning can be classified into four aspects: (1) happy feeling, (2) involvement of students, (3) interest, (4) attention of students [33]. In line with this concept, Stacy J. Priniski from the University of Madison explained that an indicator of the success of an interest in learning is seen from its ability to provide strength and guidance in the learning process [34].

The developed product has gone through the expert validation stage and the user trial stage. The value of student learning outcomes is known through small group trials and large group trials. The results of the small group cova test of the interest in learning history questionnaire showed an effectiveness level of 0.89 which was included in the category **Large Effect**. The results of the large group trial of the interest in learning history questionnaire obtained an effectiveness of 0.78 which was included in the category **Large Effect**. This category means that the Ms. Edury can provide a high increase in learning interest to students both in small groups and large groups.

Indications of increased interest in learning can also be seen from the Mean (average calculation) [15]. Based on the small group test, the accumulated average value at the pre-test stage was 41,3. The developer conducts a small group post test on students and gets the results, namely 79,1. The large group test obtained the accumulated average value at the pre-test stage 51,1. The developer conducts a large group post test on students and gets the results, namely 78,2. Based on these data, an increase Mean in the small group identified at 38.7 and the large group at 27.1.

Based on the data above, the magnitude of the increase is inseparable from features such as infographics, comics, videos and audio, which are in the Ms. Edury. Learning devices that are integrated with technology such as mobile in general and Android in particular have multiple capability. This aspect will support the instructional learning process, strategies, and methods chosen by educators [2][18].

Deep Ozdamli international conference of soft computing 2016 mentioned that infographics are an alternative medium for conveying information that is easy to get the attention of viewers. Its nature is easy to read, structured, and doesn't take a lot of time to understand, so infographics can improve learning interest or interest in learning for students [36]. Lewis in his study of adolescents comic explained that comics are narratives made through several pictures in a row separated by horizontal lines, strips or boxes (panels), and complemented by verbal text. Comic design according to Lewis can improve students' ability to chronology an event and stimulate their interest in reading [37][15]. Audio and video features are based on Lowther's theory of auditory and visual learning styles. Adjustment of teaching materials provided with learning styles will have a positive impact on learning interest students [5].

Development research regarding the feasibility of android as a learning resource has been carried out by Fikri & Fiqri

(2021) with the aim of creating an Android-based learning resource application that inputs historical comics as learning content. The results of this development research obtained results of 84.60% in the valid or good category from media, material, and application design experts, as well as effectiveness which was in the high category [38]. In line with this, Ally & Blazquez from Athabasca & Catalonia University [39] conduct research on the application of Android at the higher education level. The results of this study are that educators have had multiple advantages when allowing students to use Android for learning [39]. Ningsih & Adesti argue that students will find it easier to access learning resources that are integrated with the platforms they own and master [40]. Based on this assessment, it can be concluded that Android-based mobile applications are effective, efficient, and appropriate to be used as a supporting technology in the learning process.

4. CONCLUSION

Based on the results of validation and trials conducted by researchers during the development process, it can be concluded:

- (1) Ms. Edury as an Android-based history learning resource that has been developed has been validated by experts and is suitable for use as a learning resource in the history subject of Padri War material for class XI SMA, and
- (2) Ms. Application. Edury as an android-based history learning resource is effective in increasing students' interest in learning history in Padri war material as part of the competence of Indonesian History subjects.

Based on the results of the expert validation recapitulation that was passed, namely the language expert test obtained an average value of 4.0 which was described as above average, the application design expert test obtained an average value of 4.5 which was described as above average., and the material expert test obtained an average value of 4.4 which is described as above average. Using the Ms. Edury to increase interest in learning history can be an effective application of learning resources. This is based on the results of the small group trial of an interest in learning history questionnaire with an effectiveness of 0.89 and the results of a large group trial of a uniform interest in learning questionnaire with an effectiveness of 0.78 which has the **Large Effect** criterion.

Ms. Application The developed Edury has carried out several due diligence processes. Validation tests were carried out by expert lecturers then user user tests, small group trials, and large group trials. Some of these processes validate that the Ms. Edury is suitable for use and further application for history learning activities for class XI high school students. Application development Ms. Edury is expected to be able to help and motivate users and readers in conducting similar research as well as adding references to the research being conducted.

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6. REFERENCES

- [1] B. Hidayah, M. Na'Im, and R. P. N. Puji, "Technological content knowledge of history teachers in Jember," *IOP Conf. Ser. Earth Environ. Sci.*, vol. 485, no. 1, pp. 0–6, 2020
- [2] B. Ferdousi and J. Bari, "Infusing Mobile Technology into Undergraduate Courses for Effective Learning," *Procedia - Soc. Behav. Sci.*, vol. 176, pp. 307–311, 2015, doi: 10.1016/j.sbspro.2015.01.476.
- [3] R. P. N. Puji and N. Umamah, "Edmodo Multimedia: Supporting Technology for Media Learning at Higher Education," *Int. J. English Lit. Soc. Sci.*, vol. 3, no. 1, pp. 48–56, 2018, doi: 10.22161/ijels.3.1.9.
- [4] M. Priskila, N. Umamah, and R. P. Nirmala Puji, "Interactive Multimedia Based On Computer Assisted Instruction: Development Efforts on the Learning Interest and Effectiveness in the History Learning," *Int. J. Humanit. Soc. Sci.*, vol. 5, no. 6, pp. 43–47, 2018, doi: 10.14445/23942703/ijhss-v5i6p108.
- [5] Smaldino, E. Sharon, Lowther, L. Deboran, Russel, and James, *Instructional Technology & Media for Learning*, 9th ed. Jakarta: Prenadamedia Group, 2019.
- [6] O. D. Apuke and T. O. Iyendo, "University students' usage of the internet resources for research and learning: forms of access and perceptions of utility," *Heliyon*, vol. 4, no. 12, p. e01052, 2018, doi: 10.1016/j.heliyon.2018.e01052.
- [7] K. Moore, C. Jones, and R. S. Frazier, "Engineering Education For Generation Z," *Am. J. Eng. Educ.*, vol. 8, no. 2, pp. 111–126, 2017, doi: 10.19030/ajee.v8i2.10067.
- [8] S. Samsinar, "Urgensi Learning Resources (Sumber Belajar)," *J. Kependidikan*, vol. 13, pp. 194–205, 2019.
- [9] A. Hervi Anggraini, H. Karlina, R. Utami Wijayanti, and W. Wismanto Hadi, "Impact Of Technology And Information After A Period Of Pademi For Education And Health In Indonesia," *Int. J. Heal. Pharm.*, vol. 3, no. 1, pp. 18–26, 2022, doi: 10.51601/ijhp.v3i1.122.
- [10] B. Marlina, "Pemanfaatan Portal Rumah Belajar untuk Media Pembelajaran Daring di Era Pandemi Covid-19," *J. Innov. Teach. Instr. Media*, vol. 1, no.

- 2, pp. 142–151, 2021, [Online]. Available: <http://ejournal.karinosseff.org/index.php/jitim/article/view/138>
- [11] lutfi syauki Faznur and S. Jayanti, “Pengaruh Model ASSURE Berbantuan Media Iklan Terhadap Keterampilan Menulis Karangan Persuasi,” *Proceedings*, vol. 1, no. 2, pp. 141–146, 2020, [Online]. Available: <https://jurnal.umj.ac.id/index.php/SAMASTA/article/view/7226/4454>
- [12] A. Pransisca, “Pengaruh Model Pembelajaran Assure Bernuansa Lingkungan Berbantuan Media Audiovisual terhadap Hasil Belajar IPS ditinjau dari Minat Outdoor Siswa,” *Int. J. Elem. Educ.*, vol. 2, no. 2, p. 108, 2018, doi: 10.23887/ijee.v2i2.14412.
- [13] Y. P. Utami and P. S. Dewi, “Model Pembelajaran Interaktif SPLDV dengan Aplikasi Rumah Belajar,” *Mathema J. Pendidik. Mat.*, vol. 2, no. 1, p. 24, 2020, doi: 10.33365/jm.v2i1.572.
- [14] L. Bender, J. Kurtz, and W. Wheaton, “The joint education needs assessment toolkit,” pp. 1–122, 2010.
- [15] M. A. Gusnissa, B. Soepeno, R. P. N. Puji, and Sugiyanto, “ASSURE Research and Development: The Documentary Video of Reog Dance to Enhance Learning Outcomes in History Learning,” in *IOP Conference Series: Earth and Environmental Science*, May 2021, vol. 747, no. 1. doi: 10.1088/1755-1315/747/1/012075.
- [16] S. Aithal, “ISSN : 2249-0558,” no. April, 2015.
- [17] H. Achmadi, Suharno, and N. Suryani, “Penerapan Model Assure Dengan Menggunakan Media Power Point Dalam Pembelajaran Bahasa Inggris Sebagai Usaha Peningkatan Motivasi Dan Prestasi Belajar Siswa Kelas X MAN Sukoharjo Tahun Pelajaran 2012/2013,” *J. Teknol. Pendidik. dan Pembelajaran*, vol. 2, no. 1, pp. 35–48, 2014, [Online]. Available: <http://jurnal.fkip.uns.ac.id>
- [18] P. Asti, “Analisis kendala dalam pelaksanaan pembelajaran jarak jauh PPKn masa pandemi Covid-19 di SMA Negeri Karangpandan,” vol. 13, no. 01, pp. 327–336, 2022.
- [19] C. M. Jarque and A. K. Bera, “International Statistical Institute,” *Science (80-)*, vol. ns-9, no. 225, pp. 507–507, 1887, doi: 10.1126/science.ns-9.225.507.
- [20] J. R. Crawford, D. C. Howell, and P. H. Garthwaite, “Payne and Jones revisited: Estimating the abnormality of test score differences using a modified paired samples t test,” *J. Clin. Exp. Neuropsychol.*, vol. 20, no. 6, pp. 898–905, 1998, doi: 10.1076/jcen.20.6.898.1112.
- [21] J. Pallant, *Sas Survival Manual*. Australia: Allen & Unwin Book Publisher, 2010.
- [22] P. Setyosari, *Metode Penelitian Pendidikan dan Pengembangan Edisi ke Empat*. Jakarta: Prenadamedia Group, 2015.
- [23] I. Ghozali, *plikasi Analisis Multivariate dengan Program IBM SPSS 21 Update PLS Regresi*. Semarang: Badan Penerbit Universitas Diponegoro, 2013.
- [24] M. Radjab, *Perang Padri di Sumatra Barat (1803-1838)*. Jakarta: Balai Pustaka & Kepustakaan Populer Gramedia, 2019.
- [25] C. Dong and X. Liu, “Development of Android Application for Language Studies,” *IERI Procedia*, vol. 4, pp. 8–16, 2013, doi: 10.1016/j.ieri.2013.11.003.
- [26] N. Ratnaningsih, M. Nuradriani, and I. S. Nurazizah, “Pengembangan media pembelajaran pada materi transformasi dengan berbantuan i-spring menggunakan pendekatan etnomatematika berbasis android,” *J. Jendela Pendidik.*, vol. 1, no. 2, pp. 32–42, 2021.
- [27] J. C. Richards and T. S. Rodgers, *Approaches and methods in language teaching*. England: Cambridge University Press, 2014.
- [28] A. Sukri, B. M. Harisanti, B. S. Wahyuni, S. Suharti, and A. Amirudi, “Uji Validasi Bahan Ajar Berbasis Keunggulan Lokal di SDN Gili Matra, Lombok Utara Nusa Tenggara Barat,” *J. Edukasi Mat. dan Sains*, vol. 5, no. 2, p. 92, 2017, doi: 10.25273/jems.v5i2.2074.
- [29] T. F. Hawk and A. J. Shah, “to Enhance Student Learning,” *Decis. Sci. J. Innov. Educ.*, vol. 5, no. 1, pp. 1–20, 2007.
- [30] C. McLoughlin, “Culturally responsive technology use: Developing an on-line community of learners,” *Br. J. Educ. Technol.*, vol. 30, no. 3, pp. 231–243, 1999, doi: 10.1111/1467-8535.00112.
- [31] T. Intan, V. T. Handayani, and F. Hasanah, “Penggunaan Buku Ajar Cosmopolite 1 untuk Pembelajaran Français Langue Étrangère,” *Diglosia J. Kaji. Bahasa, Sastra, dan Pengajarannya*, vol. 4, no. 1, pp. 1–12, 2021, doi: 10.30872/diglosia.v4i1.82.
- [32] M. Sivakumar and U. S. Reddy, “Aspect based sentiment analysis of students opinion using machine learning techniques,” *Proc. Int. Conf. Inven. Comput. Informatics, ICICI 2017*, no. November, pp. 726–731, 2018, doi: 10.1109/ICICI.2017.8365231.
- [33] E. Hurlock, *Psikologi Perkembangan : Suatu Pendekatan Sepanjang Rentang*. Jakarta: Erlangga, 1980.

- [34] J. M. Harackiewicz, J. L. Smith, and S. J. Priniski, "Interest matters: The importance of promoting interest in education," *Policy insights from Behav. brain Sci.*, vol. 3, no. 2, pp. 220–227, 2016.
- [35] G. Aceto, D. Ciunzo, A. Montieri, and A. Pescapé, "Toward effective mobile encrypted traffic classification through deep learning," *Neurocomputing*, vol. 409, pp. 306–315, 2020, doi: 10.1016/j.neucom.2020.05.036.
- [36] F. Ozdamli, S. Kocakoyun, T. Sahin, and S. Akdag, "Statistical Reasoning of Impact of Infographics on Education," *Procedia Comput. Sci.*, vol. 102, no. August, pp. 370–377, 2016, doi: 10.1016/j.procs.2016.09.414.
- [37] H. Lewis-Smith, F. Hasan, L. Ahuja, P. White, and P. C. Diedrichs, "A comic-based body image intervention for adolescents in semi-rural Indian schools: Study protocol for a randomized controlled trial," *Body Image*, vol. 42, pp. 183–196, 2022, doi: 10.1016/j.bodyim.2022.05.013.
- [38] A. Fikri, Y. Al Fiqri, and U. Riau, "Pengembangan Komik Sejarah Lokal Berbasis Android," *J. Pendidik. dan Sej.*, vol. 7, no. 1, pp. 76–81, 2021, [Online]. Available: <https://jurnal.untirta.ac.id/index.php/Candrasangkala/article/view/10488>
- [39] M. Ally and J. Prieto-Blázquez, "¿Cuál es el futuro del aprendizaje móvil en la educación?," *RUSC Univ. Knowl. Soc. J.*, vol. 11, no. 1, pp. 142–151, 2014, doi: 10.7238/rusc.v11i1.2033.
- [40] S. Ningsih and A. Adesti, "Android-Based Mobile Learning: Its Effect on Students' Learning Achievement," vol. 422, no. Icope 2019, pp. 100–103, 2020, doi: 10.2991/assehr.k.200323.099.