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# The Effectiveness of Web-Based Mobile Learning for Mobile Subjects on Computers and Basic Networks in Vocational High Schools

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**Abstract**—This research and development are motivated by the problem of limited learning resources on Computers and Basic Networks in SMK Negeri 2. This happens because no learning media attracts students' interest in learning. Therefore, the writer tries to design interesting learning media for students. This study aims to determine the validity, practicality and effectiveness of the design and manufacture of mobile learning media based on mobile web subjects for computer and basic networking subjects for class X TKJ SMK Negeri 2 Padang. This research uses the research & development method. The research subjects were 35 people. The research model used is the development research model (ADDIE model), with the development steps as follows. (1) Analyze, (2) design, (3) development, (4) Implementation, and (5) Evaluate. The results of the overall effectiveness test assessment of the effectiveness of Mobile Web-Based Mobile Learning on Computers and Basic Networks (KJD) Class X SMK Negeri 2 Padang Odd Semesters of 93.57% so that the level of effectiveness can be interpreted very effectively used. In conclusion, based on the assessment and expert input and the results of the field trial of Mobile Web-Based Mobile Learning Media as a learning medium, it has been tested for feasibility and excellence. It can be used in the learning process on KJD subjects for class X TKJ SMK N 2 Padang.

**Keywords**—basic computers and networks, mobile learning, mobile web

## 1 Introduction

Quality Education significantly influences the development and Progress of one nation. Education Essentially is one process Designed to help humans Develop Themselves to face all changes and problems they face. World education is not free from process Learning, where teachers, students and milieu learn Interact to reach the purpose of Learning [1][2][3].

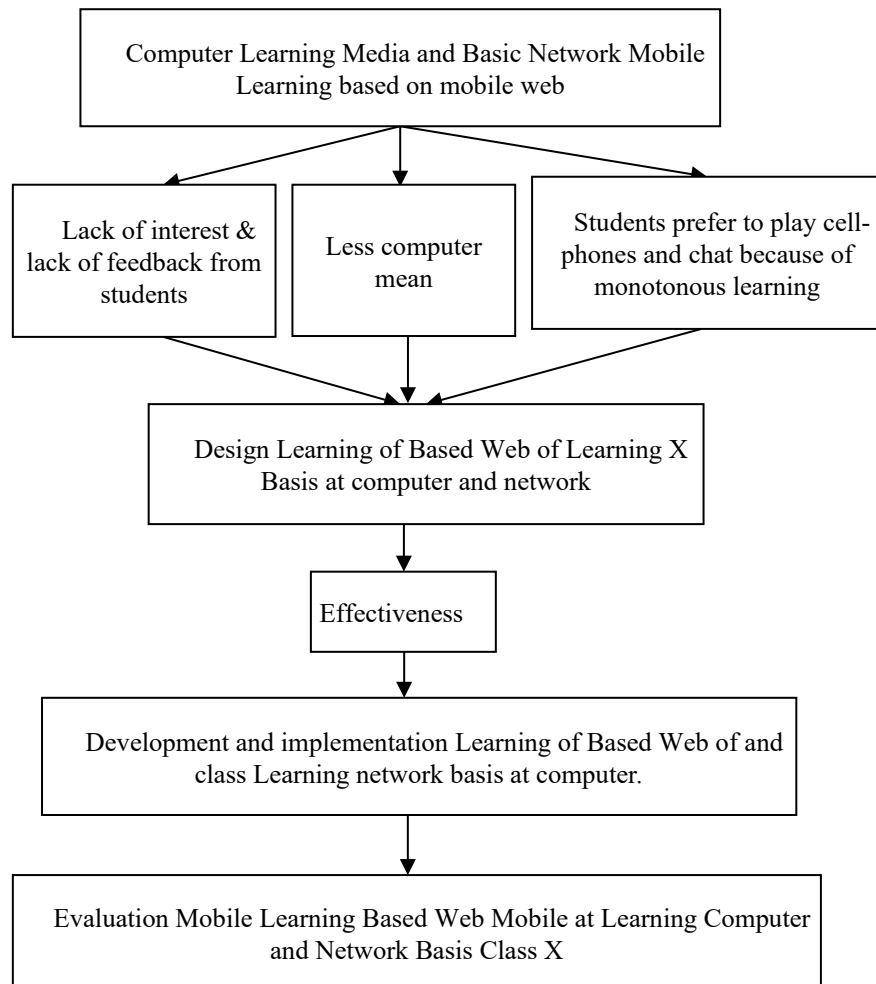
Education is a complex process, but the complexity of Rival's development is human. Through education, Various Aspects of life are also Developed through learning

and learning. Various Issues deep process Learning must be Aligned and Solidified to condition Learning get Created appropriately with a purpose that may be Reached and Reached Optimal. To Complete Learning and component Learning at school, teachers necessary use media or tools that get Stimulate Learning in an effective and efficient [11][12][13][14].

Media be wrong one factor that supports Achievement purpose Learning. Thing .ini get Increase motivation to learn and subtract Passivity student deep Relation with Use media that true and Diverse deep process Learning [4][7].

Development devises this moving moment .be development technology that very Rapidly and .this included telephone Of (mobile phone, telephone handheld). Mobile phone beginning has the ability limited like make and receive a summons and send and receive message text, Known as Service Message Brief (SMS) [14][15][16][17][18]. Mobile phones now already like that sophisticated and called smartphones because they have Various features like access internet and system operation similar to a computer. Utilize smartphone functionality to need Multi Domain Developed with applications that get support Use. Included also Use smartphones to learn media [5][8][9][10].

By Background back Problems at above so designed media Learning Based smartphones Android with heading "Designing and Manufacture Media Mobile Learning Based Web Mobile at Eye Lesson Computer and Class X Basis Class X TKJ SMK Country 2 Padang". Purpose development deep research .ini be to know Effectiveness Practicality and Effectiveness media Learning Mobile based on Mobile Web at eye lesson Computer and Network Basis class X TKJ SMK Country 2 Padang Field.



**Fig. 1.** Conceptual Framework of Mobile Learning Based on Mobile Web

## 2 Method

### 2.1 Type of research

Research .ini uses method research and development, which is usually called R&D (research and development), method research that is used to produce a specific product and test the effectiveness mentioned above product. To get a particular product, Done analysis of necessity and Tested Effectiveness product aforementioned to help deep process Learning. Because of that, necessary Done research the Products aforesaid by Sugiyono [6].

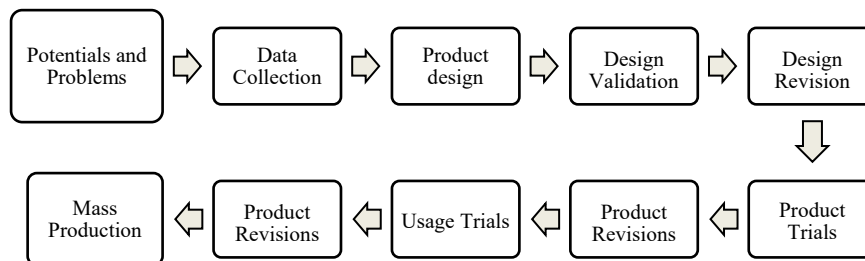


Fig. 2. Steps to use the Research Method and Development (R & D)

## 2.2 Development model

Type development media that Used deep type ADDIE pile up in a Programmatic series of Activities that are methodical in solving problem Learning that Associated with source learning that is appropriate with necessity and characteristic student. The aforementioned type has five steps, or phases that are easily understood and Applied to Develop product development, like Buju Teach module Learning, Learning, and Multimedia.

Effect optimistic that inflicted by Evaluation at every phase be Minimize level error or disabled product at phase end type .ini. Stages type ADDIE (analysis, design development implementation evaluation).

## 2.3 Research subject

Subject deep research .ini Taken As 35 student class X Technique Computer and Network Class X eye lecture Technique Computer and Network Basis Network at SMK Country 2 Padang Field.

## 2.4 Instrument

**Effectiveness.** After test practice Done so Done test Efficacy to test Efficacy Tested at student deep some phase that is:

1. Provide direction to students on how to fill out the assessment questionnaire.
2. Students are directed to observe their teachers' use of Mobile Web-based Learning Media.
3. Students are directed to provide an assessment of the use of Mobile Web-based Learning Media.
4. Students are asked to fill out the questionnaire that has been provided.

### 3 Data Analysis

Analysis data for this research was done with the use of descriptive analysis. The analysis includes an analysis of the Effectiveness of media Learning-Based Mobile Web analysis, actionable media Learning Based Web Mobile, and analysis Effectiveness of media Learning Based Web Mobile.

#### 3.1 Analysis of the effectiveness of media mobile learning based on mobile web

To find out the value the effectiveness of mobile learning, the following steps are taken:

1. Determine the highest score
2. Highest score = several students x several question items x maximum score.
3. Determine the total score of each student by adding up all the scores obtained from each indicator.
4. Determine the score obtained by adding up the scores of each student

Effectiveness questionnaire data were obtained by calculating the scores of students who answered each item. The data was analyzed using the percentage technique stated by Supardi [6] as follows:

$$S = \frac{R}{N} \times 100. \quad (3)$$

Information :

S= Expected value

R = Total scores of items or questions answered correctly

N = the maximum score of the test

To find the Frequency Distribution of Search Effectiveness from AgusIrianto as follows:

Calculating distance or range (R)

R= highest data – lowest data

Finding the total number of classes (K)

K= 1+3.3 log number of students

Calculate the length of the class interval (P)

P = R/K

$$S = \frac{R}{N} \times 100$$

$$S = \frac{1871,41}{20} \times 100 = 93,57\% \text{ with the criterion very effective}$$

Test Effectiveness 35 students with 20 questions Rated with Score Effectiveness 93,57 at eye lesson Technology Computer and Network Class X Year Lesson 2018/2019 Test Based data Effectiveness media Mobile learning Purwanto [7], computer basis and Compartment network.

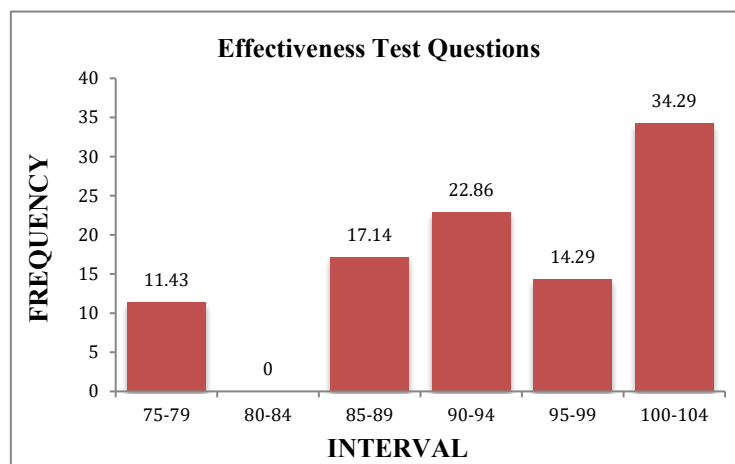
The results obtained are interpreted using the following criteria:

**Table 1.** Effectiveness Assessment

No	Score	Rated aspect
1	86%-100%	Very effective
2	76%-85%	Effective
3	60%-75%	Effective enough
4	55%-59%	Less effective
5	≤ 54%	Ineffective

Source: NgalmPurwanto (2010 : 103)

Figure 3 get Described with a long class Interval that is 5. One Frequency is 17,14, 22,86 deep Range 90-94, 14,29 deep Range 95-99, And 34,29 deep Range 100-104.



**Fig. 3.** Histogram Questionnaire Effectiveness

## 4 Results and discussion

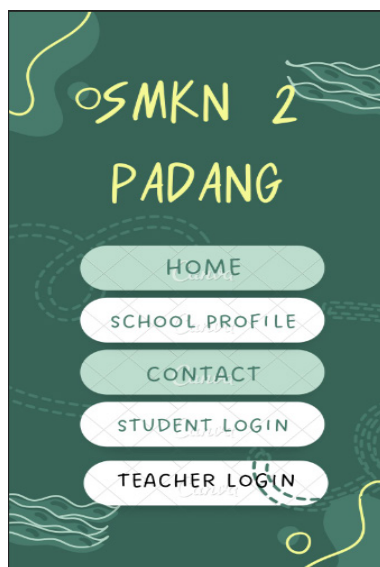
### 4.1 Design result

**Main Menu Page.** Yard first to student and teacher bring they to yard main with many knob menu that available. Menus aforementioned Used by students and teachers to support the process of Learning.



**Fig. 4.** Main Menu page

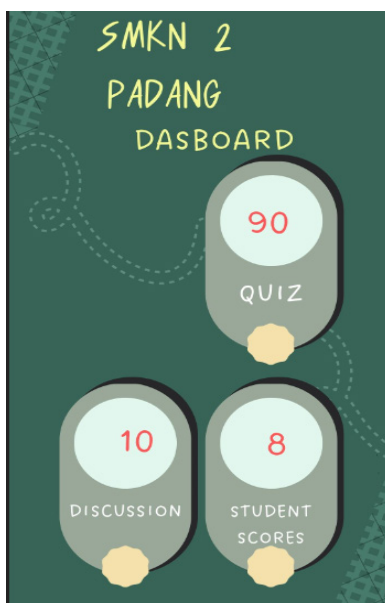
**Profile Menu Page.** Yard gives information about the history and Others about the school.



**Fig. 5.** Profile Menu page



**Student Form Page.** The yard has some menus that get Accessed by the student.



**Fig. 6.** Student From Page

**Teacher Form Page.** On this page, there are several menus that the teacher can access



**Fig. 7.** Teacher Form Page

## 4.2 Discussion

Design and Manufacture media Mobile learning eye lesson computer and network base class X TKJ SMK Negri 2 Field used to Determine Feasibility media. After Mobile learning was Validated so, tested students deep shape hands-on Tests.

**Table 2.** Test Results of the Mobile Learning

Trial Results	Percentage	Information
Effectiveness	93,57%	Very effective

## 5 Conclusion

Design and Manufacture media Mobile learning Based Web Mobile follow the procedure to research and development Sugiyono (2014:298). According to the description, analysis data and development media Mobile learning Based Web Mobile are summarised next.

Effectiveness media Mobile learning Based Web Mobile as large as 88,57% so that Effectiveness aforementioned get Interpreted very effectively.

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