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Implementation of Addie Models to Determine the Learning Method to Improve Students' Ability to Read Map

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Abstract. The purpose of this study is to determine: (1) a method of learning that is appropriate to increase the ability of students to read a map using ADDIE models, (2) the ability of students to read a map before and after the implementation of the model ADDIE. The research method used in this research is descriptive qualitative. Data obtained using the test, and observation, which is based on basic competencies and indicators of achievement of competencies required to understand the fundamentals of mapping, P Remote Sensing, and Geographic Information Systems. The object of this research is class X IPS student of SMAN 23 Bandung in the academic year 2019/2020, with a sample of class X social studies 3 totaling 3 4 students. Results of the discussion: based on the Guttman rating scale when the score> 50%, then it was declared sufficient to be able to read the map with the distribution of indicators and percentages as follows on the indicators of students who were able to show the location of a particular place / geographical location had 80.5 % , students who were able to orient map (determine the direction on the map) amounted to 55.5% , students were able to interpret the symbols on the map 69.4% , students were able to reveal information on the map totaling 47.2%.

Keywords: ADDIE mode, map reading, learning method

INTRODUCTION ~ Reading maps is one of the special abilities that must be possessed by all students from an early age, the basic competency of reading maps has become a competency taught at the elementary school level. At this level students are at least expected to be able to read a map of the surrounding environment where students live and attend school. It is important for students to be able to adapt well wherever they will be active in their daily lives, even students must be able to be familiar with their neighborhood. The ability to read maps as a medium to get to know the environment well will be further studied in high school in geography learning. One of the basic competencies in high school class X semester 1 of the map is to understand the basics of mapping, Remote Sensing, and Geographic Information Systems.

The purpose of learning the basic competence of this mapping is a student should be able to create a map, but before students can make maps and do not copy the map, the students were still in elementary school, then the student should at least be able to read a map. Making the map corresponding to the components of the map is more difficult than simply copying the map so that the first students should dap at mastering the ability to read a map. The ability to read maps referred to in this study is the ability of students to apply legend and scale to maps in learning geography. The ability to read maps includes: (a) the ability to indicate the location of a particular place / geographical location on the map, (b) the ability to interpret the symbols on the map, and (c) the ability to determine the direction (understanding map orientation).

The ability to read maps has a strategic function to understand the description of physical conditions, the potential of natural resources, and the development of an area, in addition to the function of geography skills, such as in making decisions in daily life, as a frame of reference for geographical thinking, collect and analyze information to a conclusion (Handoyo, 2015). Efforts to improve students' ability to read maps in the learning process in class require an effective and efficient planning.

Planning in learning is important because it can guide the activities of the learning activities in the classroom so that all the targeted learning objectives can be achieved in accordance with the allocation of the available time. It is undeniable that teachers often start learning without doing preparation and planning by making learning designs or better known as Learning Implementation Plans (RPP) by making students as a reference in determining learning methods. The teacher as a facilitator in the learning process is required to always prepare all teaching and learning activities in class carefully. The preparation that starts from the analysis stage by recognizing the characteristics of students who will participate in learning and setting learning objectives that must be achieved by students will produce learning methods chosen by the teacher so that all learning objectives are achieved.

Knowing the general characteristics of students is the first thing teachers must do as the main facilitator in class so that learning is more directed. Learning design that starts from analyzing the general characteristics of students will produce operational learning scenarios, while producing optimal learning goals. One learning design that starts from recognizing the characteristics of students who will face the learning process is the ADDIE model.

Model ADDIE is an instructional design model that is based on an approach that is effective and efficient systems and processes that are interactive which each phase of evaluation results can bring development to the next phase of learning. The final result of a phase is the initial product for the next phase. This model consists of five phases or main stages: 1) *Analyze* (Analysis), 2) *Design* (Design), 3) *Develop* (Development), 4) *Implement* (Implementation), 5) *Evaluate* (Evaluation) (Reyzal Ibrahim, 2011).

ADDIE learning design models are models that can be used for various forms of learning design designs such as models, learning strategies, learning methods, media and teaching materials.

The model consists of five main phases or stages, namely:
1) Analysis, namely the analysis of the need to determine the problem and

the right solution and determine the competence of students.

2) Design, which determines specific competencies, methods, teaching materials, and learning strategies using mind mapping.

3) Development, produces mind mapping for use in learning programs.

4) Implementation, regarding the application of learning programs to implement mind mapping

5) Evaluation, aims to evaluate the learning program and evaluation of learning outcomes.

It is important to choose and determine the appropriate learning methods for teaching and learning activities (KBM) in the class, making the analysis phase in each competency a necessity for all teachers to do because by analyzing the learning method that will be suitable for students and making it easier for teachers to manage learning.
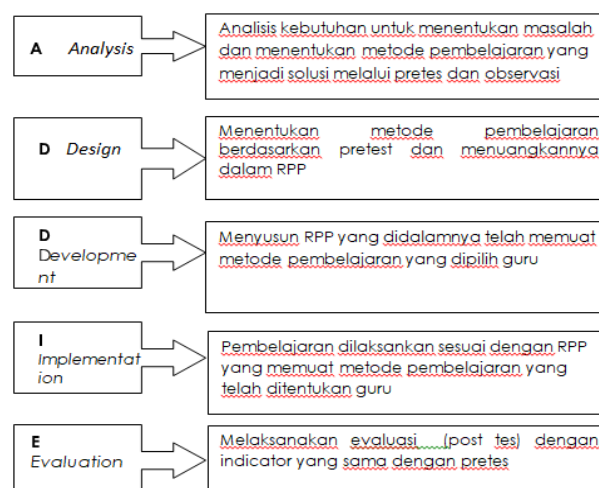
RESEARCH METHODS

The research method used is descriptive qualitative test form, and observation as a preliminary study and calculated using the Guttman scale assessment to determine the level of students' ability to read maps. Pretest will be given to students of class X IPS SMAN 23 Bandung 3 in the academic year 2019/2020 to knowing ability of students' reading map. The indicators of the ability to read maps include:

a. indicates the location of a certain t / geographic location

b. map orientation (determine the direction on the map)

c. interpret the symbol-symbol on the map

d. reveal the information that is on the map

After going through the pretest with the indicator above, we will get the results that are used as a basis for entering into the analytical stage of the ADDIE model, following the design of the learning model used in this study is ADDIE. Endang Mulyatiningsih (2012: 18 3) describes the stages of the ADDIE model as follows.

A *Analysis*	→	Analisis kebutuhan untuk menentukan masalah dan menentukan metode pembelajaran yang menjadi solusi melalui pretes dan observasi
D *Design*	→	Menentukan metode pembelajaran berdasarkan pretest dan menuangkannya dalam RPP
D Developme nt	→	Menyusun RPP yang didalamnya telah memuat metode pembelajaran yang dipilih guru
I Implementat ion	→	Pembelajaran dilaksankan sesuai dengan RPP yang memuat metode pembelajaran yang telah ditentukan guru
E Evaluation	→	Melaksanakan evaluasi (post tes) dengan indikator yang sama dengan pretes

The following is an explanation of the stages of the ADDIE model that researcher will do:

Analysis (Analysis)

The *analysis* phase is the stage where the researcher analyzes the need to choose a learning method that is appropriate to the characteristics of students and analyzes the learning objectives and formulates indicators of map reading ability. Stages of analysis conducted by the author include three things, namely the analysis of needs and character analysis of students. Broadly speaking, the stages of analysis by the author are as follows.

a.   Requirements Analysis

Needs analysis is done by first analyzing the results of student pre-tests containing the map reading indicators as the main information in learning. At this stage learning methods will be determined to help students improve map reading skills.

b.   Character Participants Analysis

This analysis is carried out to see students' attitudes when carrying out teaching and learning activities (KBM) in the classroom. This is done so that the learning method chosen is in accordance with the characteristics of students.

1.   *Design* (Design)

The second stage of the ADDIE model is the *design* stage, at this stage the Learning Implementation Plan (RPP)

begins. The researcher also determins the appropriate learning method according to the results of the analysis stages that will be contained in the learning activities in the RPP with basic competencies in understanding the basics of mapping, Remote Sensing, and Geographic Information systems.

2.   *Development* (Development)

The development phase is the realization stage where the development of the method chosen and contained in the learning design or often called the RPP is made in accordance with the design in the previous stage, namely design.

3.   Implementation (implementation)

The fourth stage is implementation. Implementation is limited at the school who was appointed as a research site is in class X IPS 3 SMAN 23 Bandung. The teacher implements learning in accordance with the lesson plans that have been prepared at the development stage

4. Evaluation

After the learning process is complete, students conduct tests using the same indicators as the pretest. Based on these indicators it can be seen whether the method has been made teachers effectively improve the ability of students to read a map.

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The last stage of the ADDIE model is evaluation. After the learning process is complete, students conduct tests using the same indicators as the pretest.

RESULTS AND DISCUSSION

Based on the results of research on several indicators of the ability to read maps:

Table 1. Tabulation of the results of the calculation of student answer scores (Pre Test) Ability to read maps with the Guttman scale

NO	INDICATOR	ABLE	NO
1	shows the location of a particular place / geographical location	9	25
2	map orientation (determine the direction on the map)	14	20
3	interpret symbols on the map	7	27
4	reveal the information that is on the map	6	30
	amount	36	108

Source: 2019 Research Results

Based on the table above, if rated on the Guttman scale, the answer "able" has a value of 1 and the answer "no" has a value of 0. The total answer "able" is 36 and the answer "no" is 108 . From these results it can be calculated the ability of the self to read the map before applying the ADDIE model. Then the results of this study will be detailed according to each indicator using the percentage formula as follows:

$$P = \frac{f}{N} x 100 \ \%$$

Figure 1. Percentage formula according to (AnasSudijono, 2001: 40)

P = Percentage rate

F = the frequency sought for the percentage

N = number of respondents

100% = Fixed number

In indicator 1 number s ISWA who answered capable ie 9 student and who cannot afford as many as 27 students, the results of the percentage of 75% of the students who are not able to show the location of a place / specific geographic location it can be concluded on the indicator No. 1 for> 50% of students answered not afford the student Guttman

scale based on criteria deemed not afford.

In indicator 2 the number of students who are able to answer is 14 students and who are not able as many as 22 students, obtained a percentage of 61.1% in students who are unable to map orientation (determine the direction on the map) can be concluded on indicator no 2 because> 50% of students answer not afford the student Guttman scale based on criteria deemed not afford.

In indicator 3 the number of students who are able to answer is 7 students and who are not capable of 29 students, obtained a percentage of 80.5% in students who are unable to interpret the symbols on the map can be concluded in indicator no 3 because> 50% of students answer not afford the student Guttman scale based on criteria deemed not afford.

On the indicator 4 number of students who were able to answer that 6 students and are not able to as many as 30 students, 83.3% obtained a percentage of the students who are not able to disclose information that is present on the map can be concluded on the indicator no 4 for> 50% of students answered not afford then the student Guttman scale based on criteria deemed not afford.

It can be concluded that students of class X IPS 3 with 4 indicators of map reading ability are based on Guttman's rating scale

if the score < 50% is declared to be lacking or even does not have the ability to read the map so it needs further handling to improve it.

The following stages are ADDIE, as an effort to follow up on the results of the class X IPS 3 pretest regarding students' ability to read maps:

1. Anayisis
- Needs analysis
  Based on the results of the pretest the students' ability to read maps obtained the results that the class X IPS 3 is not able to read the map properly so it takes a learning method that can guide students of class X IPS 3 more carefully.
- Analysis of student characteristics
  The concentration power of students in class X IPS 3 is generally short so that the class atmosphere will quickly become noisy, if conditions continue to be allowed to potentially inhibit learning in the classroom.

2. *Design* (Design)
The method chosen is the teileran method in which the teacher will be a form of skills training carried out in part per part of the skills learned where the method chosen by the teacher will be contained in the design of learning activities or in the RPP with basic competencies understanding the basics of mapping, remote sensing, and Geographic Information system.

3. *Development* (Development)
Method selected teachers included in the study design or often called the RPP

made in accordance with the design of the previous stages of design.

4. *Implementation* (implementation)

The fourth stage is the implementation, which is limited to the school that is designated as a research site is in class X IPS 3 SMAN 23 Bandung. Teachers carry out learning in accordance with the lesson plans that have been prepared at the development stage by implementing learning using the teilerant method and students will study maps per section indicators of the ability to read maps so that the time allocation provided requires more number of meetings than using the usual method applied in class namely the discovery method .

5. Evaluation

After the learning process is complete, students conduct tests using the same indicators as the pretest.

Based on these indicators it can be seen whether the method has been made teachers effectively improve the ability of students to read a map. Following are the results of the post test of students of X IPS 3 of SMAN 23 Bandung in the academic year 2019/2020 regarding the ability to read maps with the same indicators as before the pre-test, after the application of the ADDIE model in learning.

Table 2. Tabulation of the results of calculating student answer scores (Post Test) Ability to read maps with the Guttman scale

NO	INDICATOR	ABLE	NO
1	shows the location of a particular place / geographical location	29	7
2	map orientation (determine the direction on the map)	20	10
3	interpret symbols on the map	25	11
4	reveal the information that is on the map	17	11
	amount	91	47

Source: 2019 Research Results

Based on the table above, if rated on the Guttman scale, the answer "able" has a value of 1 and the answer "no" has a value of 0. The total answer "able" is 36 and the answer "no" is 108. From these results it can

be calculated the ability of the self to read the map before applying the ADDIE model. Then the results of this study will be detailed according to each indicator using the percentage formula as follows:

$$P = \frac{f}{N} x 100 \ \%$$

Figure 2 Percentage formula according to (AnasSudijono, 2001: 40)

P = Percentage rate

F = the frequency sought for the percentage

N = number of respondents

100% = Fixed number

In the first indicator student who answered capable is 29 student and who cannot afford as much as 7 students, the results of the percentage of 80.5 % in students who were able to show the location of a place / specific geographic location it can be concluded on the indicator No. 1 for> 50% students answer able then based on the guttman scale criteria students are considered quite capable.

In indicator 2 number of students who were able to answer that 20 students and who cannot afford as many as 10 students obtained a percentage of 55.5 % in students who are able to orientation maps (determining directions on a map) can be concluded on indicator no. 2 for> 50% of students answered capable then based on the guttman scale criteria students are considered quite capable.

In indicator 3 the number of students who are able to answer is 25 students and who cannot afford as many as 11 students, obtained a percentage of 69.4 % of students able to interpret the symbols on the map can be concluded at indicator no 3 because> 50% of students answer able then based on the guttman scale criteria students are considered quite capable.

In indicator 4 the number of students who are able to answer is 17 students and who are not able to be as many as 11 students, obtained a percentage of 47.2 % of students who are able to reveal information available on the map can be concluded on indicator no 4 because> 50% of students answer capable then based on guttman scale criteria students are considered quite capable.

It can be concluded that students of class X IPS 3 with 4 indicators of map reading ability are based on Guttman's rating scale if the score > 50% is declared sufficient to be able to read maps so that it can be concluded that class X IPS 3 students generally have the ability to read maps , but on indicators Finally, the ability to express information on the map needs to be analyzed again with the ADDIE model because students have a low score on the indicator, so there will be a solution to improve it.

CONCLUSIONS

The ability of students to read maps even though they have been studied since elementary school students but did not have a significant impact on the ability of students to read maps so that a good plan is needed in preparing learning designs that emphasize student characteristics so that a learning design that is better known as the RPP will be obtained. right in accordance with the constraints each student faces. The characteristics of students are greatly influenced by many factors such as family background, the

economic situation of students, student motivation in learning and much lag. The application of the ADDIE model can be the basis for the design of the lesson plan so that the learning method will be on target and save time, money and energy to achieve the expected learning goals and objectives.

With the application of the ADDIE model, the students' ability to read maps which were originally categorized as low using the teileren method can be better so that students in the end with an effective method can experience improvement.

RECOMMENDATIONS

The application of the ADDIE model in planning the learning process must be carried out by all teachers because by knowing the characteristics of students, each learning design will be effective and efficient, with this ADDIE model the right method to provide learning outcomes leading to improvement.

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