The preliminary analysis of Edupark learning devices of temperature and heat physics of Air Panas Semurup Kerinci District

Veno Julian Anggara and Hamdi Rifai*
Department of Physics, Universitas Negeri Padang, Padang 25131, Indonesia

Abstract. Physics learning is the learning that understanding the natural phenomena that occur around us and it is able to explained by the concept of physics scientifically. The abundance of natural phenomena that can be explained by the concept of physics can be used as instructional media for students, such as the concept of physics on the nature of Earth tour, Air Panas Semurup that can be utilized as an Edupark so that the Earth tour is not only for tourism only but can be used for learning in the nature around them. So that the students can do the tour and study coincide. To overcome that problems, its need to be done the preliminary analysis to know the needs of the learning devices of temperature and heat Edupark in Air Panas Semurup. The type of this research is research and development by using ADDIE Development Model, which is begun with the preliminary analysis, the analysis which is done, includes; (1) needs analysis (2) the teachers and students analysis (3) Material analysis. The type of the data in this research is primary data, namely the data is taken from the results of questionnaire and interview from the teachers and students in SMAN 02 Air Hangat. Meanwhile, the concept of temperature and heat Physics is conducted from direct observation to the location. The result of the research in this analysis phase will clarify about the importance or not of development of temperature and heat Edupark in Air Panas Semurup.

1. Introduction
Indonesia has been recognized by the world community as a country with thousands of islands and a wide variety of flora and fauna that live in the forest tropics, and also discount many natural tourism potential formed by the natural processes of nature so that it makes the community of local and international interested to enjoy the natural beauty of Indonesia. Today visited natural tourist attraction for recreation has become a routine weekend for everyone, even the natural attractions have been used as a place of social interaction, business meetings and for young people to be a place they were photographed and the picture is uploaded to their social media. Actually, attraction not only where we are for recreation, spending time with family only, but can be used as a source of learning. Learning on the natural environment has been presented by Hackling et al. [1] of the natural environment can provide the skills and knowledge to enhance understanding of the nature of things a person matching is also delivered by Desinger [2] Learning neighborhood discount three functions, the first learning environment to support knowledge and understanding, both learning environment can give third
someone emotional action on the environment and natural learning can encourage interaction and deep experience on the environment.

Gleitman and Liberman [3] is the main source of the perception of the environment, small children require extensive experience space provided by nature, the knowledge they gained there is the basis for literacy and learning science. This study was also conducted by Emirta et al [4], describes the use of environmental attractions included in contextual learning who see the real world around the school and outside the school. Based on the explanation can concluded One example of the learning environment in honing and expanding the learning experience is the process of learning physics, Depdiknas (2006) [5] explains, "Learning physics stressed the provision of direct experience to develop competence siswa. Learning is directed to seek out and to do so help students to gain a deeper understanding about the environment, a new thing that has not done much of harnessing nature as a medium of learning in the learning process, especially physics and also travel preserving as contained in Permendiknas 22 (2006) [6] that the utilization potential of the region can be done by optimizing the environment, including attractions as a learning resource.

Attractions nearest to the environment society presence in the middle of a society which is the potential surrounding area is a natural attraction water Semurup in the district of Kerinci, so it can be made the object of research for the development of learning tools for the community and for students of SMAN 2 warm water Semurup that integrated travel nature to be used as Learning mited tourist attractions sites just yet students can learn while traveling with the teacher can guide the students, which is conveyed by line Diane et al [7] process of scientific literacy will develop if a person understand their world primarily so that natural surroundings it will be capable of scientific thought identify a problem investigate and interesting based on conclusions of science.

So that the process of learning physics and concepts physics it can explain the phenomena that occur around the lives of students and the community for the learning process more meaningful for students no longer study is only done at the local course or in the laboratory but here students are invited to nature to understand about nature and natural phenomena it could be explained by the concepts of physics, so many meanings that can be obtained as more familiar creature creator.

2. Methods
This study is a research and development using ADDIE approach the model in July 2018 held at SMAN 2 Air Panas Semurup, wherein step ADDIE model that begins with the analysis phase (preliminary analysis), in the form of (1) the analysis of needs, (2) analysis of teachers and learners, (3) analysis of temperature physics concepts material and heat. The study population was high school Physics teacher class X MIPA and class X MIPA 1 amounted to 30 people. Data we choose the primary data collected through questionnaires and interviews. Against teachers and students, the first researcher to analyze the characteristics of the students using student questionnaire to analyze the needs of students, and conducting interviews with teachers of physics to analyze the device Learning associated with nature is used, and to conduct a review directly to the Geopark Air Panas, to analyze concept learning physics.

The method used is descriptive survey by Bodgan and Taylor [8] definition that qualitative research procedures produce data descriptive form of words written or spoken of people and behaviour can be observed, survey descriptive with using Likert scale, the variable to be measured are translated into sub variable and formed positive questions that start from the very disagree, disagree, agree and strongly agree. Sub variable is translated as follows: 1 = Less, 2 = Quiet, 3 = Good, and 4 = Very Good. The questionnaire results obtained from calculating the scores given by the respondents. Scores obtained from the following equation:

\[ S_k = \frac{\sum x_i}{X_{\text{max}}} \times 100 \]  

(1)

where: \( S_k \) is the score obtained, \( x_i \) are scores of each respondent and is the maximum score from the questionnaire for each indicator \( X_{\text{max}} \). Scores obtained from each query data analysis. Analysis of the data using the provisions in Table 1.
Table 1. Categories Value

| interval score | Criteria       |
|----------------|----------------|
| (75-100)%      | Very good      |
| (50 to 74.99)% | Good           |
| (25 to 49.99)% | Enough         |
| (0 to 24.99)%  | Less           |

Source: modified from Sudijono [9]

3. Results and Discussion

Results of the research is conducted obtained from analyzes using the instrument that was developed is

3.1. Preliminary analysis

Preliminary analysis will assess the first 3 categories that are graduate competency standards that include knowledge and skill attitudes, the second is an assessment of the standard of the learning process in this case interviewing the teacher and giving a questionnaire to the teacher including the planning of learning and the implementation of the third learning namely assessment includes attitude assessment, knowledge and skills. from the three assessments, the results obtained 72.55%, the results of the initial analysis can be seen in Figure 1.

![Figure 1. Initial Analysis](image)

Figure 1 shows that at the stage of preliminary analysis can be categorized either where the obtained value is 72.55. Standard learning process that teachers are in the category of good, while on the analysis of Competency Standards graduate and earned good ratings analysis. Results of each indicator of Competency Standards analysis, standard analysis and assessment of the learning process can be seen in the following pictures.

3.2. Graduate competence standard
Figure 2. Analysis Competency Standards

Figure 2 Analysis shows that the analysis was obtained 70.16 Competency Standards Graduates with good category. On the competence of attitude that shows in both categories. That is the attitude 73.50 Competence obtained from observations made. Furthermore, knowledge of learning competencies of physics gained 68.25 categorized values lower than 15 the questions students tend to say less fun learning physics teacher just stare at it, and learning of physics do not associate with nature around physics student teachers only explain physics formulas alone so as make curiosity of students learning physics neighbor is very low, as well as the learners are not able to solve problems independently. Competence skills with 10 grains of questions with the acquisition value of 68.75 low category.

3.3. Standard Learning process

Figure 3 standard analysis shows the results obtained 70.12 a learning to process both categories. This analysis view of the correspondence between the planning stage to the implementation stage. The planning stage of obtaining the result of very low category 67.75, which indicates that the teacher has speckled maximize systematic instructional design and has not been supported by facilities and infrastructure which is provided in the school. But in exercising their stage results obtained 72.40 good enough category. Showed that between teachers and students not maximize learning activities in accordance with the planning and textbooks that are used only on the books presented guided school physics course and the learning process has not integrated into the lives of students.

3.4. Standard analysis of process assessment
Figure 4. Analysis Assessment

Figure 4 shows the results of analysis of 75 ratings categories. The analysis covers the assessment of competence assessment of attitudes, knowledge and skills. Analysis of attitude competencies acquired both categories with 75 results, this attitude assessment obtained from the observation. Implementation of the 75 categories knowledge assessment is good, teachers have devised a rating based on KD, utilize these results to evaluate the ability to report the results in a range of scores. Analysis obtained results skills 75, explains the three competencies need to be improved.0-100.

3.5. Analysis of Students
Analysis of students gained 70.16 which either category. Based instrument developed competencies seen is the competence of the attitude, knowledge and skills. Figure 5 shows the results of analysis of learners.

Figure 5. Analysis of Students

On the competence of attitude that shows in both categories. That is the attitude 73.50 Competence obtained from observations made. Furthermore, knowledge of learning competencies of physics gained 68.25 categorized values lower than 15 the questions students tend to say less fun learning physics teacher just stare at it, and learning of physics do not associate with nature around physics student teachers only explain physics formulas alone so as make curiosity of students learning physics neighbor is very low, as well as the learners are not able to solve problems independently. Competence skills with 10 grains of questions with the acquisition value of 68.75 low category, meanwhile students most have not been able to express opinions.

Can be concluded process of learning physics students want it to be her make students interested in study it must provide knowledge linking of learning physics on the lives of young people whether it be a natural phenomena ever seen students and the student environment was in itself be an example in Learning physics is very closely the lives of students by bringing students to identify the nature of its own so that the learning of physics will feel cool and pleasant.
3.6. Analysis of water Geopark Semurup relationship with Edupark Physics Education

After analysis of teachers and learners researchers conducted a review directly to a hot travel object relocate in semurup the warm water in the new village Semurup. located not far from the city center full river and in the midst of the township of surrounding communities, hot water esumurup This is a pool that has an area of 15 square meters which share a temperature of approximately 80 degrees Celsius and are utilized for the visitors to boil foods such as eggs and banana and also a warm water bath. After conducting surveys directly to the warm water geopark Semurup obtained was some material physics that could explain learning education directly to nature that is material Temperature and Heat physics class X SMA. Similar delivered Diane et al [7] the geopark will provide travel information by entering the educational material development as the best way to travel geopark deliver in it learning information.

4. Conclusion

From the results of a preliminary analysis of geopark hot water, semurup as edupark can be concluded that the need to develop a device learning in accordance with the characteristics of students and the potential of the area that is integrated with nature as a learning medium so that the learning process of physics is more fun associated with the environment around students such as tourist objects that are frequented by students so that students can travel while studying.

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